# Proceedings of the
QUIS17

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QUIS Paper Proceedings

We are pleased to edit the paper proceedings of the research presented at the QUIS17 conference. The research including 88 unique studies reflect five broad themes that provide new and important insights about the current and future challenges faced by service-intensive organizations. The first theme focuses on *service design* where scholars are examining the nature of and structural characteristics associated with shared services, service ecosystems, and a wide array of service contexts from public service and non-profit organizations to pop ups and B2B relationships. In addition, there is considerable emphasis on service innovation and the implications for design, primarily in response to the competitive conditions that have evolved over the past two years.

The second theme covers several traditional and emerging topics within the *consumer behavior, consumer experience, and co-creation area*. Continued attention is being given to constructs such as delight, involvement, and voice, as well as segmentation. There is also increasing attention to the co-creation process, including models that may be unique to online settings. Additionally, scholars are exploring more granular psychological and physiological explanations of consumer attitudes, values, intentions, and behaviors.

The third and fourth themes address *service technologies* and *business disruption*. The implications of digitization, robotics, and AI are being examined in numerous settings and contexts. In addition, research on environmental forces causing business disruption continues, particularly the ongoing consequences of and mitigation strategies for the current pandemic.

The fifth theme considers several important and emerging *sustainability* topics. Again, in response to the effects of the COVID-19 pandemic, many scholars are examining that factors that may influence employee mental health and well-being, especially among those in front-line, customer-contact roles. There are also several new developments in research on environmental impact and social responsibility that offer important insights for service settings.

The studies presented at the conference represent diverse methodological approaches, including literature reviews, bibliometric analyses, and conceptual papers. Empirical studies employing both quantitative and qualitative approaches were conducted in several different sectors, including tourism, hospitality, healthcare, retailing, and business-to-business. Some of the foundational theories used include neuroscience, service management, service-dominant logic, pragmatist sociology, consumer culture theory, and transformative service research.

Overall, the papers presented at the conference are indicative of the ongoing, emergent research conducted in the global service research field. We would like thank all of the QUIS17 authors for their contributions, and we encourage the service scholar community to build on the excellent work that is represented in these proceedings and continue taking rigorous steps to advancing the extant body of knowledge.

Kristina Heinonen, *Hanken School of Economics*
J. Bruce Tracey, *Cornell University*

More than 30 years have passed since the first edition of QUIS symposium was held in Sweden in 1988. QUIS takes place every second year and attracts around 200-250 leading researchers and executives from all over the world.

The QUIS symposium brings together the best interdisciplinary academic research and management practices in a forum to advance the study of service management, service dominant logic, service leadership, customer experience, technology and innovations in service.

The pursuit of service excellence is a never-ending quest by organizations seeking to achieve outstanding performance in their field. Benchmarking one's own approaches against other organizations best practices and gaining insights from their experiences are powerful means for enhancing results.

The objectives of QUIS' unique high-level sharing and networking events are to:
- Promote the continuing improvement of service quality in all economic sectors around the world
- Gather thought leaders from the international business and academic communities for an open exchange of insights and experiences
- Share and advance the state of the art in theory and practice through presentation and discussion of scholarly research and successful business strategies
- Provide a forum for intensive international dialogue between researchers and executives and to offer guidance for future academic study and business practices

In January 2022, QUIS headed towards Valencia Spain in its 17th edition, for what it was going to be the first major face-to-face service conference after the declaration of the COVID-19 pandemic.

The delicate situation in terms of infections due to Omicron variant in the last days of December 2021 and the firsts two weeks of January 2022 in Spain, resulted in a very difficult scenario and forced QUIS17 to turn to a hybrid mode.

I want to express my gratitude to the members of Organizing Committee, the Doctoral Consortium organizers and collaborators and the Conference Co-chairs, for their compromise in the success of this QUIS conference. Hopefully, the next editions will be in a complete face-to-face format. I also want to express my gratitude to all the researchers and participants, especially those who travelled to Valencia, for their positive input that have allowed us to gather this excellent event.

Prof. Marival Segarra-Oña (UPV)
Conference Co-Chair

QUIS17 has been hosted by Polytechnic University of Valencia in collaboration with School of Business and Management, VinUniversity, Vietnam; CTF, Service Research Center, Karlstad University, Sweden; Cornell University, USA; Yonsei University, South Korea and W.P Carey School of Business Arizona State University, USA.

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"LET'S KEEP TALKING": WHAT THE PANDEMIC HAS TAUGHT US ABOUT MENTAL HEALTH SERVICE DELIVERY

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ABSTRACT

This paper is based on an evaluation of a telemental health service, 'Let's Keep Talking', based in Liverpool, England. Telephone interviews were conducted with service users and volunteers, exploring both the utility of the service model in the pandemic context and its long-term viability. Findings highlight multiple benefits of this model, which has the potential to generate transformative change within the lives of both clients and volunteers. However, the particular benefits of face-to-face contact were also emphasised, ultimately supporting an argument for blended models of care. Key recommendations pertain to blended care and revisiting the service communications strategy.

INTRODUCTION

Long before the onset of the global COVID-19 pandemic, psychological researchers and practitioners were lamenting national and global 'epidemics' of mental illness, for which health services were already dangerously ill-equipped (e.g. Tucci and Moukaddam, 2017). Despite large-scale attempts to increase access to psychological therapies in the UK since 2008, through the Improving Access to Psychological Therapies (IAPT) programme (e.g. Clark, 2012), mental health services have retained low rates of successful penetration, with long waiting lists and reduced services in many areas due to the impact of austerity measures (Cummins, 2018; Stuckler *et al.*, 2017). Furthermore, public mental health services in the IAPT era have been criticised for a 'one size fits all' approach, taking a narrow view of mental wellbeing and not allowing those with mental health issues to exercise real agency or choice (Dalal, 2018; McPherson, Evans, and Richardson, 2009; Morgan-Ayres, 2014; Newnes, 2016).

In addition to a general need for further and broader research into effective mental health service delivery, the specific question of the effectiveness of telehealth in delivering healthcare more generally has been of increasing interest. Questions relating to this form of healthcare delivery have been highly pertinent throughout the pandemic and particularly during lockdown periods, in which the importance of 'social distancing' to reduce the spread of the disease necessitates decreasing person-to-person contact as much as possible (e.g. Venkatesh and Edirappuli, 2020). Telehealth can also be beneficial in helping to overcome barriers associated with geographical location and time limitations (e.g. Perle and Nierenberg, 2013), and may prove effective as a longer-term solution to some of the aforementioned issues within the current UK mental health system.

In addition to reducing the accessibility of face-to-face services, the COVID-19 pandemic is also believed to have negative implications for mental wellbeing across the country. During the first lockdown, one survey found that 24 per cent of UK adults and 44 per cent of young people (aged 18-24) reported experiencing loneliness during the lockdown period (Niedzwiedz *et al.*, 2020), while the most recent predictive model developed by the Centre for Mental Health (in collaboration with the NHS) has estimated that up to 10 million people (almost 20 per cent of the population) in England could require new or additional mental health support as a direct consequence of the crisis. The majority of these are expected to need support for anxiety, depression, or both, with a significant number also struggling with bereavement and/or trauma (O'Shea, 2020).

While this is not a complete picture, with evidence that effects of the pandemic on mental health have varied drastically in accordance with socioeconomic factors (McBride *et al.*, 2020), the combination of additional

economic stressors, isolation, and reduced access to mental health services faced by many suggest that this is nonetheless an important area of enquiry. The Liverpool City Region, in which this study is based, has been particularly affected by both the chronic underfunding of mental health services and the government advice on shielding (Johnson and Aru, 2021; Tyrrell, 2021).

This paper is based on the evaluation of one telemental health service, 'Let's Keep Talking', a free telephone support service established during the early days of the pandemic and delivered by the Liverpool-based Psychological Therapies Unit. The service is entirely free and open to anyone in need. There are no long waiting lists and no assessment process to determine eligibility. Clients are also not limited on the number of calls they can receive, and call length is dependent on their individual needs and preferences, though these are generally limited to a maximum of around 30 minutes. Calls are centred around chatting with clients about what is helping them to keep going and how they'd like to be coping, also allowing space for people to talk openly about their issues without being told what to do.

This evaluation seeks to provide direct insights into if and how this specific service is effective, and more broadly, contributes to an emergent research base regarding the delivery of mental health services during the global coronavirus pandemic (e.g. Johnson *et al.*, 2021; Li *et al.*, 2020; Thome *et al.*, 2020). The purpose was to explore both the utility of the service in the current context and its potential long-term viability, seeking to establish if this was best understood as a temporary adaptation or a permanent transformation of service delivery (Berry *et al.*, 2020). We explore this subject through a Transformative Service Research (TSR) lens, seeking to understand the extent to which this form of telehealth has 'the ability to uplift and transform communities' (Ostrom *et al.*, 2010, p.10) and looking for evidence of transformative vs. habitual value creation (Blocker and Barrios, 2015). While habitual value serves to maintain order and stability, transformative value is associated with 'positive disruption' and meaningful long-term change (Blocker and Barrios, 2015, p.5). Transformative value creation can be especially important for people experiencing vulnerability, including many of those with mental health issues, who are typically less likely to realise maximum value from service encounters (e.g. Hill and Sharma, 2020; Mick *et al.*, 2012).

METHODS

Research design

After receiving full ethical approval from the University of Liverpool, researchers collaborated with the Let's Keep Talking team to gain access to participants. Different procedures were followed for client and volunteer participant groups, which are explicated below.

Clients: The service manager sent out texts to current and former clients, letting them know about the evaluation and asking if they would be interested in being interviewed. Those interested were asked to get in touch with one of the researchers, either via email or via a freephone number linked to their personal phone. Those who chose to participate were then sent a Participant Information Sheet and Consent Form, either via email or (for those who did not use email) in the post. They were also asked to provide their availability for an interview, and to specify if they would prefer for this to take place over the phone or using a form of video software.

Volunteers: A brief overview of the study was sent to the organisation's director to share with all volunteers via email, including the email address of the researcher conducting the volunteer interviews. Volunteers were asked to contact this researcher if interested. A volunteer Participant Information Sheet and Consent Form was emailed to those who chose to participate, who were asked to sign and return the Consent Forms via email and to indicate how and when they would like to be interviewed.

All participants were offered the right to withdraw from the study at any time and were assured by researchers that their responses would remain anonymous. After being interviewed, participants were emailed a debriefing sheet, briefly summarising the nature and purpose of the study and providing a list of helplines they could contact should they experience ongoing distress related to the contents of the interview. The few who did not have access to email were verbally debriefed.

Empirical data was collected through semi-structured interviews with clients (n=10) and volunteers (n=5), all of which were conducted either over the phone or using video software (e.g. Zoom). Interviews were guided by sets of questions but followed participants' leads in terms of the focus of the conversations. Client interviews lasted between 15 minutes and one hour 23 minutes. Volunteer interviews lasted between 35 and 55 minutes.

Sample

The majority of interviewees were female: eight out of ten in the case of clients and four out of five in the case of volunteers. Other demographic data was not collected.

Data analysis

Each interview was audio recorded with permission, transcribed verbatim and then subjected to rigorous in-depth thematic analysis in order to identify common themes. Three researchers each conducted independent analysis, combining use of NVivo software with manual thematic analysis. Individual findings were compared, and conclusions were determined.

FINDINGS

There was a high level of consistency between clients' and volunteers' accounts of the benefits of the service. Benefits were largely divisible into four overriding categories: accessibility and immediacy, building of trust, collaboration and flexibility, and the mitigation of isolation. The ease and speed with which clients were able to access the service was identified as a key point of difference with past service experiences, while accessibility of support was also key for volunteers entering into an often-unfamiliar mode of service delivery. Furthermore, the consistency of service provider proved important for building mutual trust and understanding over time, enabling service users to confide in their callers and to feel more supported in their day-to-day lives. Collaboration and flexibility related to the quota of sessions, the content of calls, and (for volunteers) the nature of supervision. Both clients and volunteers often viewed the calls as something to rely on, ameliorating feelings of isolation and giving some structure to their otherwise derailed lives.

Both clients and volunteers also described particular benefits associated with phone contact. These included flexibility in hours and location, for example avoiding the expenses and inconveniences associated with travel and providing or receiving support outside of usual office hours. Moreover, some clients highlighted how the (mental and/or physical) inability to leave the house was a long-term issue outside of the context of the pandemic, making some form of telehealth the only viable option. A few clients also found it easier to open up over the phone than in person, while some less experienced volunteers found this was beneficial in reducing distractions and helping them to focus on honing their skills. However, another common theme among clients was the importance of nonverbal communication and a common sentiment that phone contact was inherently unsuited to addressing more serious issues, associated with widespread intentions to seek face-to-face therapy after the lifting of restrictions. Some volunteers also described unique difficulties that arose from working from home, with the lines between work and personal life being increasingly blurred.

When asked whether they would continue to use Let's Keep Talking post-pandemic, clients largely fell into one of three categories:

a) Would continue using the service as a primary source of mental health support.
b) Would continue using the service but in conjunction with face-to-face therapy.
c) Would stop using the service and seek face-to-face therapy.

The vast majority of clients stated either that they planned on continuing to use the service or, if they were no longer receiving calls, that they would get back in touch if they found themselves needing it again. All volunteers expressed enthusiasm for continuing to play a role in the service after the pandemic, referring to both an ongoing need for the service and the benefits they personally derived from being involved. Combined with the accessibility of support, these benefits may be crucial for ensuring the long-term viability of the service from a provider perspective, reducing the likelihood of volunteer burnout, which is often a major issue among mental health professionals (e.g. Johnson, Corker, and O'Connor, 2020).

While all interviewees foresaw some kind of postpandemic purpose for the service, there was substantial variation in the extent to which this was experienced as personally transformative. Several clients did describe a turning point of sorts, and a shift in their thinking with real-world effects persisting outside of the calls. However, there was a common perception that the service was unsuited to the most serious mental health issues, which some felt could only be addressed face to face. Overall, findings suggest that the service has transformative potential but does not detract entirely from the value of 'human touch' (e.g. Eastwood, Snook, and Luther, 2012), supporting the case for (postpandemic) 'blended care' combining telehealth and face-to-face support (e.g. Wentzel *et al.*, 2016).

RECOMMENDATIONS

Revisiting the service communications strategy

There was some evidence that clients were confused as to the full scope of the service. The complete elimination of confusion and misunderstandings seems unlikely, particularly for elderly clients and those engaged in multiple, somewhat similar services. Nonetheless, efforts to provide greater clarity at the beginning of clients' service experiences may be beneficial here. Ensuring all clients are given a clear (possibly written and/or visual flowchart) overview of the nature and remits of the service may be beneficial in shaping more accurate and/or positive expectations of the service.

Exploring opportunities for blended care

Overall, findings point towards the viability of a longer-term model of 'blended care' combining telehealth and face-to-face support (e.g. Wentzel *et al.*, 2016). As Let's Keep Talking is a project of the Psychological Therapies Unit, who do provide face-to-face therapy, it may be that combining the two is an effective way to provide integrated ongoing support. Given sufficient time, funding, and collaboration, it may also be possible for Let's Keep Talking to build upon and increase their relationships with other organisations, in taking referrals from a wider range of sources and/or adopting a more active role in signposting clients to other organisations. Ultimately, some of the key strengths of Let's Keep Talking (accessibility, immediacy, and a collaborative/client-centred approach) may be able to contribute towards improving clients' experiences not only of individual mental health services but also of broader mental health systems.

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PROMOTING INNOVATION IN HOMELESSNESS AND MENTAL HEALTH SERVICE DESIGN

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ABSTRACT

It is the ultimate aim of this study to establish valuable insights into client experiences of integrated homelessness and mental health support. This is achieved through the adaptation and application of the Trajectory Touchpoint Technique (TTT), a service evaluation technique employing a rich pictures methodology. An adapted version of the TTT is first developed and then applied to evaluate three integrated residential services. Building on recent work on value cocreation in contexts of vulnerability, this research explores facilitators and prohibitors of the cocreation of transformative value in the experience, highlighting opportunities for innovation across the customer journey.

INTRODUCTION

Over recent years, the field of service research has undergone a paradigm shift, due in large part to increasing interest in (and recognition of) the central role of customers in value creation. The shift towards a more customer-centred outlook is strongly associated with the growing popularity of service-dominant logic (SDL; Vargo and Lusch, 2004), which frames value as uniquely and phenomenologically determined by a beneficiary, through processes of cocreation expanding beyond a customer/provider dyad to incorporate service networks and institutional arrangements (e.g. Grönroos and Voima, 2012; Lusch *et al.*, 2010; Lush, Vargo, and O'Brien, 2007; Vargo, Akaka, and Vaughan, 2017; Vargo and Lusch, 2004, 2008, 2014). However, some critics have asserted that much of SDL does not do enough to incorporate customers' individual networks and internal processes into interpretations of value creation, influencing the conceptualisation of value in the experience (VALEX) (Grönroos, Strandvik, and Heinonen, 2015; Heinonen and Strandvik, 2020; Heinonen *et al.*, 2013).

Despite disagreements on what exactly value entails, the achievement/improvement of consumer wellbeing in some form is now widely accepted as a key outcome of value creation (Ballantyne and Varey, 2008; Grönroos, 2008; Seppänen *et al.*, 2017; Vargo and Lusch, 2004, 2016). Consumer wellbeing is at the heart of transformative service research (TSR; Anderson *et al.*, 2013), which seeks to explicitly centre the enhancement of wellbeing through innovation and improvement in service (Anderson and Ostrom, 2015; Anderson *et al.*, 2013; Berry and Bendapudi, 2007). Developed within TSR, the concept of transformative value denotes a specific form of value creation, involving 'positive disruption' and resulting in meaningful long-term change (Blocker and Barrios, 2015, p.5). TSR and transformative value have been identified as especially important in contexts of consumer vulnerability, which are associated with reductions in wellbeing and a reduced likelihood of realising maximum value from service encounters (e.g. Anderson *et al.*, 2013; Mick *et al.*, 2012; Baker, Gentry, and Rittenburg, 2005; Rosenbaum *et al.* 2017; Russell-Bennett *et al.*, 2020).

The importance of customer wellbeing as a service outcome has also proved increasingly influential within the discipline of service design. Service design is a creative, human-centred, and multidisciplinary approach for service innovation (e.g. Yu and Sangiorgi, 2018), which involves 'understanding customers and service providers, their context, and social practices, and translating this understanding into the development of evidence and service systems interaction' (Teixeira, Patrício, and Tuunanen, 2018, p.373). The use of service design to benefit vulnerable consumers has been identified as a key service research priority (Fisk *et al.*, 2018; Ostrom *et al.*, 2015), while synergies between service design and TSR have been highlighted and expanded upon through the concept of transformative design (e.g Bate and Robert, 2007a; Burns *et al.*, 2006; Junginger, 2008; Junginger and Sangiorgi, 2009; Thackara, 2007).

Two specific groups who have frequently been defined as vulnerable are those with mental health issues (e.g. Brennan *et al.*, 2017; Hill and Sharma, 2020; WHO, 2018) and those experiencing or at risk of

homelessness (e.g. Banerjee and Bhattacharya, 2020; Curry *et al.*, 2017; Dobson, 2019). Mental health issues are a highly prevalent concern on both a national and a global scale, having been identified as the leading cause of the UK burden of disease (Ferrari *et al.*, 2013) and amongst the leading causes of the overall global burden (Vigo, Thornicroft, and Atun, 2016; Whiteford *et al.*, 2013). Furthermore, this burden is shouldered disproportionately by the most disadvantaged in society (Hewett, Hiley, and Gray, 2011; Lee *et al.*, 2019), sometimes referred to as base of the pyramid (BoP) consumers. BoP consumers are defined as those who are frequently unable to reach 'consumption adequacy' (Baron *et al.*, 2018), associated with a state of vulnerability and likely disempowerment by factors such as discrimination and poverty (e.g. Mick *et al.*, 2012). Included within this category are many of those experiencing homelessness and insecure housing, who are more likely than most both to experience mental health issues and to encounter insurmountable barriers to engagement with the appropriate services (Department of Health, 2010; Homeless Link, 2010).

Despite increased recognition of the importance of active customer participation in healthcare (e.g. Lammers and Happell, 2003; Nambisan and Nambisan, 2009) and a heavy reliance upon patient satisfaction measures, there remains a dearth of research and tools advancing an in-depth understanding of customer journeys (Gill, White and Cameron, 2011). A more expansive and customer-centred approach to service evaluation has, however, been incorporated in multiple design and evaluation tools, such as service blueprinting (e.g. Bitner, Ostrom and Morgan, 2008) and customer journey mapping (CJM) (Rosenbaum *et al.*, 2017). Conversely, even these tools have been criticised (e.g. Glushko, 2013; Zomerdijk and Voss, 2010) for inadequate customer involvement and for operating on the flawed assumption that all customers' service experiences are structured by the same points of contact, or touchpoints (e.g. Barile *et al.*, 2016; Lemon and Verhoef, 2016; McColl-Kennedy *et al.*, 2012).

In contrast to the history of (at least mainstream) homelessness and mental health service research, this research seeks to adopt an innovative approach to service design and evaluation through the use of the Trajectory Touchpoint Technique (TTT; Sudbury-Riley *et al.*, 2020). The TTT is a service evaluation technique which employs a rich pictures methodology to explore customer journeys (further details given in Methodology), with the purpose of eliciting detailed narrative accounts and identifying opportunities for value cocreation.

The setting of this study is an organisation henceforth referred to as 'Company X'. Specifically, this research focuses on three of Company X's residential services, in which housing is provided in conjunction with mental health and practical support. Two of the three services covered by this research (Services 1 and 2) can be categorised as tertiary, providing housing and support to people who are currently homeless and/or have histories of homelessness. The other (Service 3) is a secondary intervention, targeting a group that is considered to be at high risk of homelessness due to severe mental health issues (Rogers *et al.*, 2020).

Findings are intended to address three research questions (RQs) –

RQ1: What are the most important stages and touchpoints within a residential programme for those with housing and mental health issues?
RQ2: What are the key elements and processes underlying the cocreation of transformative value in the experience in this context?
RQ3: How useful is the Trajectory Touchpoint Technique, a service design technique, in uncovering opportunities for innovation in residential homelessness and mental health services?

METHODOLOGY

Originally developed for the purpose of hospice care evaluation, the Trajectory Touchpoint Technique (TTT) employs a rich pictures methodology to elicit detailed customer experience narratives, structured around a set of identified service stages/elements and associated touchpoints. The TTT is administered through presenting customers with a series of cards, each representing a different stage of a service experience and featuring a set of related images. This proved highly effective in identifying opportunities for innovation in the original context of palliative care and in later applications within related (i.e. hospital) and unrelated (i.e. veterinary) services (Sudbury-Riley *et al.*, 2020). These successes raise the question of if and how the TTT can be effectively applied elsewhere, both within and outside of healthcare.

An overview of the data collection methods used in this study is provided in Figure 1.

Figure 1: Data collection methods.
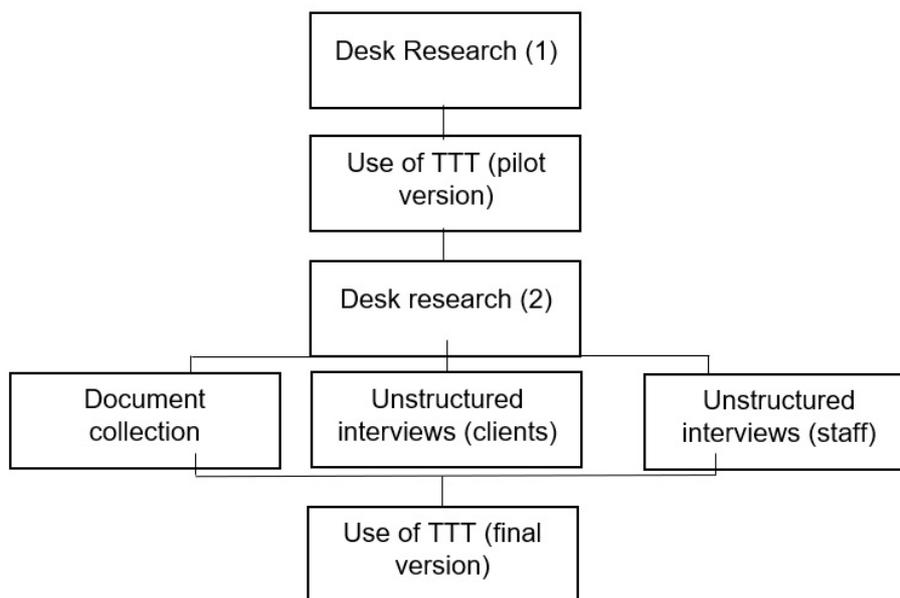
In order to assess the feasibility of using this methodology with this population, a pilot version of the adapted TTT was first developed on the basis of a literature review encompassing various strands of homelessness, mental health, and service literature and policy documents. This was then successfully applied within another Company X service, a tenancy support service providing integrated mental healthcare, and was found to be highly effective in uncovering processes of and opportunities for value cocreation (Spence, 2019). Having established that the methodology was appropriate for a population similar to that targeted by the main study, a more in-depth literature review was conducted.

Stage 1 of data collection for the main study consisted of unstructured interviews with clients (n=5), frontline staff (n=3), and management (n=2), which were all conducted either over the phone or using video software (e.g. Microsoft Teams). This allowed for insights both into the formal operation and structure of the services, as perceived by staff, and the subjective perceptions and emotions that were the most influential and memorable for service users themselves. Data from these interviews informed the development of the adapted TTT, resulting in the production of eight cards (see Table 1). The development of these cards was also shaped by the literature review, findings from the pilot study, and access granted by Company X to their service specification documents.

In Stage 2 of main study data collection, narrative accounts were accrued from Company X residential service users (n=20) using the finalised adapted TTT. Conversations were again conducted over the phone and using video software. These consisted of going through the cards one at a time, asking participants to comment on as many or as few of the pictured touchpoints as they considered relevant and also providing opportunities for identifying and elaborating upon any additional touchpoints.

Data from both sets of interviews was analysed using a combination of NVivo tools and manual thematic analysis. At the time of writing, the process of analysis for Stage 2 data remains ongoing.

FINDINGS

The identification of key stages and touchpoints within the research context (RQ1) was facilitated by unstructured interviews carried out with service users and staff, in conjunction with the literature review, the original TTT (Sudbury-Riley *et al.*, 2020), and findings of the pilot study (Spence, 2019). These are represented in the eight cards of the final adapted TTT (see Table 1).

Table 1: Overview of touchpoint cards.

Card	Touchpoints
Pre-Arrival	Past engagement with housing services; engagement with medical professionals; worries and concerns; unanswered questions; referral process; signposting; waiting period.
Arrival	Available information; moving process; unanswered questions; welcome process; first impressions; feelings (or lack of) of trust; paperwork; worries and concerns.
Assessment and Goal Setting	Aspirations and hopes; care/support planning; choice and dialogue; feeling (or not feeling) listened to; progress over time; risk assessments; tenancy support meetings.
Practical and Emotional Support	Assigned support workers; bills and paperwork; encouragement; accessibility of staff; planning for the future; relationship with other service users; telephone/text support.
Facilities and Shared Spaces	Bedrooms; bathrooms; kitchens; gardens and outdoor spaces; sound and impact of other users; food and drink; cleanliness; computers, TVs, Wi-Fi.
Building Skills and Resources .	Art and creativity; budgeting; confidence, resilience, and strength; cooking and meal planning; financial difficulties; gardening; health and safety.
Connecting to Broader Support Network	Connection to physical healthcare; coordination between different parties and services; ease of navigation between services; medication management; signposting; telephone support; family involvement.
Moving On	Paperwork and planning; personal development; moving process and procedures; unanswered questions; ease of contact if needed; help, assistance, support, guidance, advice; wellbeing and quality of life.

As data analysis remains ongoing, findings pertaining to the elements and processes underlying cocreation of T-VALEX (RQ2) and opportunities for innovation (RQ3) are still under development. However, preliminary analyses have uncovered substantial evidence of T-VALEX cocreation, which appears to be facilitated by a combination of environmental (e.g. access to outdoor space), relational (e.g. familial-style relationships), and practical factors (e.g. assistance with paperwork). Initial impressions of areas for innovation include enhanced opportunities for peer support and training of agency workers. As these findings continue to develop, so too will understanding of which of the identified stages and touchpoints are the most significant for service users, potentially leading to identification of additional touchpoints and/or removal or alteration of original touchpoints.

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WELL-BEING COMPLEXITIES AND PARADOXES: INSIGHTS FOR TSR

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ABSTRACT

This research explores ways that well-being can emerge when individuals become interested in self-tracking and perform labour with self-tracking objects. Such objects include wearable devices and/or apps associated with tracking bodily movements and/or food consumption. By leveraging Deleuze-Guattarian thinking, and by drawing upon qualitative data generated from semi-structured interviews and diaries, diverse ways that well-being can manifest from self-tracking is illuminated. An original contribution is made by illustrating how in an area whereby individuals are assumed to be increasingly responsible for health and well-being, various and complex possibilities emerge from dynamic, collaborative relationships between human(s) and non-human(s).

PURPOSE AND MOTIVATION FOR THE STUDY

Coinciding with discussions regarding well-being and concerns for advancing the well-being of individuals and society (Anderson *et al.*, 2011), lies an opportunity to develop a greater understanding of ways in which well-being can emerge for individuals willingly pursuing an alternate direction in their everyday life through digital modes such as self-tracking. To further elaborate, corresponding with a growing cultural interest in a life informed by numbers (Ajana, 2018), and the development of self-tracking technologies such as smart wearables and applications which enable individuals to obtain, monitor, and understand personal data (Wittkowsi *et al.*, 2020), is a surge in recent years of individuals engaging with data such as biological, physical, environmental or behavioural data (Ruckenstein, 2014; Lupton, 2016a). Indeed, digital technologies such as wearable devices and apps associated with tracking bodily movements and/or food can have a significant presence in everyday life, and self-tracking is recognisably a popular phenomenon (Zakariah *et al.*, 2021). Self-tracking has notably attracted the attention of academic research, with publications drawing attention to an array of issues, including those such as privacy (e.g. Fotopoulou and O'Riordan, 2017), motives for self-tracking (e.g., Etkin, 2016; Canhoto and Arp, 2017; Ashman, Wolny and Solomon, 2018), and the potential to adhere to neoliberal ideals as a result of surveillance (e.g., Sanders, 2017; Charitsis, Yngfalk and Skålén, 2018), to name but a few.

There remains original scope, however, to direct explicit and detailed attention towards how the well-being of different individuals can be shaped by self-tracking in multiple, meaningful (and ongoing) ways and to examine the implications of this. Marketing materials including those leveraged by companies selling health and fitness wearables, or partners, typically promote self-tracking technologies as helpful, as enabling one to move closer to fulfilling goals in a personalised and interactive manner and to live better. Furthermore, self-tracking is acknowledged within the literature to be linked with improving an individual's well-being (Wittkowski *et al.*, 2020). In contrast, limited explicit attention to well-being changes generated by self-tracking exists as does the potential to interrogate ways in which insights regarding well-being and self-tracking can contribute to Transformative Service Research.

Hence, with the aim to understand how individuals come to connect with self-tracking technologies and to gain a detailed insight into whether and how lives can be transformed in meaningful and uplifting ways from self-tracking, this paper directs attention towards the diverse well-being implications produced from affective interactions (which vary in complexity) between individuals, devices, apps and data. Notably, individuals may

choose to self-track in a more private manner (Lupton 2016b). Alternatively, and coinciding with network augmentation (Wittkowski *et al.*, 2020), self-tracking may involve a communal aspect whereby data is shared with others (Lupton, 2016b). Ways in which well-being is implicated from involvement with different kinds of self-tracking assemblages is accounted for in this research.

THEORETICAL FOUNDATIONS

Well-being and service consumption are linked (Kuppelwieser and Finsterwalder, 2016) and research that better understands the role of services and service in creating uplifting changes and enhancing and improving lives is called for (Anderson *et al.*, 2013; Kuppelwieser and Finsterwalder, 2016). Indeed, improving well-being through transformative service is recognisably a priority (Ostrom *et al.*, 2010; 2015). Consequently, many related research projects have been conducted in recent years including drawing upon frameworks such as that of Anderson *et al.*, (2013) and giving attention to contact occurring between service entities and consumer entities and subsequent well-being outcomes. Also, research focusing on well-being in service contexts including, albeit not limited to, health care, whereby there are clear goals regarding well-being (Gardiazabal and Bianchi, 2021). For example, health and well-behaviours linked with the use of gamification have been explored (e.g. see Mulcahy *et al.*, 2018), as have active efforts between key human actors to integrate resources and co-create well-being to address health issues (e.g. see Chen *et al.*, 2020), for instance.

Though ways in which particular well-being outcomes are achieved are focused upon, limited attention has been directed towards paradoxical well-being relationships (Russell-Bennett *et al.* 2020). This is up until recently whereby different dimensions of well-being outcomes and well-being trade-offs are accounted for (see Russell-Bennett et al, 2020). Whilst arguing that relevant dimensions of well-being are contingent upon context, these authors find that within an electricity service context, compromises made by consumers, which are driven by aspects such as short-term and long-term gain or focus on who will benefit, are linked with physical, financial, and environmental well-being tensions. An argument regarding the oversimplification of the idea of using a service to improve well-being, as well as an endorsement for a multidimensional approach to wellbeing and a more holistic account of the implications of service is subsequently reinforced (Russell-Bennet *et al.*, 2020).

An observation from reviewing the literature is that whilst interactions between different entities are viewed to be central to achieving well-being (Kuppelwieser and Finsterwalder, 2016), there also appears to be scope to further explore more explicitly different ways in which dynamic and collaborative relations between human and non-human can have a range of implications for well-being. This is particularly so at a time when the importance of connections, and evolving and expanding roles of non-human technological objects, for instance, has grown within service research (Ostrom *et al.*, 2021).

Although not typical of TSR literature to date, taking inspiration from ideas relevant to the work of Deleuze and Guattari (1987, 2000) to explore well-being can be arguably advantageous for multiple reasons. In particular, in accounting for the participatory role of individuals for impacting well-being, of which emphasis has been given within service research (Bieler *et al.*, 2021), but also in focusing more on the central meaningful role of others. In turn, helping to activate a holistic and nuanced understanding of how well-being experiences can be produced when there is the capacity for certain human and non-human elements assembling to affect and be affected. Deleuze and Guattari (1987, 2000) suggest that the capacities of human and non-human entities (that is, what they can do) depend upon affective relations with others within a heterogeneous, dynamic, functional network, otherwise known as an assemblage. Without necessarily denying individuals' perceived agency, their thinking has been drawn upon in other contexts. It has enabled opportunities to explore and illustrate ways that well-being emerges in more limiting or enlivening ways and to evaluate ways in which well-being changes may be particularly welcoming or productive in light of prior encounters (e.g. see McLeod, 2017).

METHODOLOGY

Relevant data is produced from a qualitative study undertaken in the UK. The study sought to address several research questions, including the following: "What human and non-human components influence individuals to start interacting with health/fitness wearable devices and integrated apps, or standalone apps?" "How do individual's interact with self-tracking technologies and (how) do interactions change across circumstances?" "How do individual's interactions with self-tracking technology contribute to ways that well-being can emerge?" and "How do new well-being possibilities (opened up/concealed/overshadowed) from self-tracking compare with what individuals experience when not self-tracking with health/fitness wearable devices and integrated apps, or standalone apps?". To address these research questions, qualitative data were generated from semi-structured interviews with 32 adults with experiences of self-tracking in everyday life. In addition to semi-structured interviews, data were generated from qualitative diary entries recorded by 15 adults. Follow-up interviews with eight diarists were also undertaken. Data analysis involved reviewing and making sense of themes generated.

FINDINGS

Findings indicate that a self-tracking assemblage is unique to the individual. Self-tracking may involve limited interactions with only a few data metrics. Alternatively, interactions with data may be more elaborate and several data metrics may be meaningful. Tracking may be done more privately, or involve socialising through activities such as sharing data, comparing data, and/or engaging in challenges. Understanding what steers people towards or away from technology is a pivotal concern (Ostrom *et al.*, 2021), however. Corresponding with the first research question aforementioned, findings illustrate that many individuals working with self-tracking technologies are not simply seeking confirmatory feedback, as questioned by Ostrom *et al.*, (2015), and are not simply choosing agents (Bettany and Kerrane, 2011), constructing goals to then strive for. Whilst desires such as to lose weight, avoid illness, enhance training performances, and do what evokes happiness are relevant, particular concerns associated with an initial turn towards self-tracking notably tend to emerge from a unique set of encounters with other human and/or non-human components, which lead individuals to direct attention to new opportunities and possibilities that could result from acting differently. As but one example, spontaneous viewings of photographs can be affective, heightening attention to particular bodily changes resulting from existing relations with food and provoking unfavourable appraisal and low hedonic feelings such as dissatisfaction. Whilst such feelings provoked are somewhat limiting, they are also productive, kick-starting a change in mindset with regards to lifestyle and the unlocking of new, meaningful capacities. One participant, for instance, refers to the significance of making changes to be happier with oneself but also to establish better social relationships. To provide another example, shared understandings arising between those engaged within a particular healthcare assemblage (e.g., patient, care professional), can also encourage individuals to want to make lifestyle changes.

Whilst particular relations assembling that provoke new concerns and interests can be significant, an openness towards what self-tracking objects can do (and enable) also can be relevant for encouraging individuals to turn towards self-tracking. What can also be pivotal, however, is gift relations or money relations. This suggests the potential for self-tracking to be exclusionary or harder to access for some, but which could be addressed by making resources available to help enable access (Fisk *et al.*, 2018).

Regarding interactions with self-tracking technologies, qualitative data generated sheds light on circumstances impacting the types of data engaged with and when, as well as labour exercised by individuals. Regarding the latter, and drawing attention to the capabilities of individuals (Ostrom *et al.*, 2021), individuals exhibit a cautious approach or particular receptiveness to data and/or capacity to experiment with data when becoming attuned with self-tracking objects. This, of which, is linked with an adjustment to, and familiarity with, self-tracking and its implications, and can be impacted by the material capacities of self-tracking technology and can be shaped by prior experiences, suggesting historical interactions can shape current ones (Hoffman and Novak, 2018). Labour is also performed, albeit to differing extents, when recording data,

when consulting data, or when socialising. Notably, advances in well-being from self-tracking can foster particular (ongoing) interactions with self-tracking objects, but there are also instances across some participants whereby well-being may be compromised by self-tracking or whereby well-being may be enhanced by de-territorialising to some extent from a self-tracking assemblage and by experiencing fulfilment in alternate ways.

Though the well-being of self-trackers can be enhanced from attuning to self-tracking and from ongoing interactions with self-tracking objects (often in ways which are notably disciplining but relishing), tensions can arise. To provide some examples, data regarding food consumed can be considered as a source of truth and potentially evoke less favourable emotions and be "rough" to read for some, but also be necessary for challenging denial and making changes deemed to be increasingly nutritious an in alignment with an envisioned food plan. Data visualised regarding physical activity, meanwhile, can become motivating, encourage movement (contingent upon others such as being located in an accessible space to be mobile), can produce favourable feelings, can transform the meaningfulness of a particular activity, and can also open up opportunities which were not as clearly present in other aspects of everyday life (e.g. recognition for efforts with a task; sense of confidence and belonging with others; motivation to partake in further self-care practices). Data can, however, in given circumstances, also provoke less favourable feelings such as disappointment or stress. Data can also become compelling, enticing individuals to engage in particular behaviours that can then also potentially become counterproductive or raise questions about the power of data.

In general, findings discussed comprehensively illustrate that self-tracking is not straightforward and the process of moving closer towards particular aspirations by becoming organised by data is rather fluctuating and contingent upon everyday situational events. Ways in which changes generated are more limited, welcome, less welcome, or potentially enlivening, for instance, are also accounted for in light of prior experiences which cannot be disentangled from self-tracking. This itself draws closer attention to the capacity for self-tracking to produce favourable, less favourable, or rather mixed feelings and actions. Paradoxes which can emerge in given situations assembling, including paradoxes recognised by Mick and Fournier (1997) are also discussed.

PRACTICAL IMPLICATIONS

Findings illustrate ways that well-being can be shaped by entities with the capacity to affect and be affected. The implications of such findings are of relevance to practitioners interested in developing and promoting attractive, accessible, and enduring well-being initiatives in everyday life. With regards to self-tracking, research findings can be useful for better understanding information that could be given to general members of the public to promote awareness about self-tracking and changes that can potentially be generated from turning to tracking to address particular struggles and/or newly established interests.

ORIGINALITY / VALUE

A distinct contribution is made to the TSR domain by weaving a range of concepts and literature and empirical insights which shed light on how well-being can be influenced in complex and potentially paradoxically ways when individuals become more, or less, organised by self-tracking technologies. Although there is increasing attention towards consumer responsibility for well-being (Ostrom *et al.*, 2021), this research draws further attention to the increasing role of a range of human and non-human components for significantly shaping the well-being of individuals as they navigate everyday life and the encounters such brings.

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TRANSFORMATIVE VALUE: THE ROLE OF VOLUNTEERS IN CREATING WELL-BEING IN HEALTHCARE SERVICE

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ABSTRACT

The article aims to analyze the value creation process by zooming in on the volunteers' activities in a healthcare ecosystem. A qualitative approach is adopted, and an empirical investigation is carried out in collaboration with Kids Kicking Cancer Italia, an association operating in the pediatric oncology wards. Empirical data was collected through 17 in-depth interviews and the analysis of volunteers' diaries.
The study identifies the actors involved in the value creation process of volunteering activities within the healthcare ecosystem. Moreover, four categories of volunteers' value co-creation practices are identified, together with the well-being outcomes generated for each category of actors.

INTRODUCTION

So far, poverty, discrimination, inequality, and vulnerability contribute to feeding the modern society crisis. Innovative solutions are needed to respond to these turbulent times and foster a more inclusive society. In accordance with the transformative service research (TSR), an inclusive society is characterized by a high level of individual and collective well-being (Anderson *et al.*, 2014; Rosenbaum *et al.* 2012; Ostrom *et al.*, 2010). Hence, it becomes a research priority to identify value creation processes that pursue the re-humanization of services (Field *et al.*, 2021). In this regard, healthcare is one of the most important services linked to individuals' well-being (Ungaro *et al.*, 2021). It is also a relevant sector to study relationships, dynamics and potentialities of TSR (Ostrom *et al.* 2015).

In the healthcare ecosystem, volunteering and co-therapy activities support traditional medicine and are carried out through the collaboration of multiple actors (i.e. hospitals, patients, voluntary associations) who integrate their resources to reduce the negative feelings associated with the disease and enhance patient and families' well-being (Guglielmetti and Menicucci, 2020). The volunteer represents an important actor who can play a pivotal role in building a more responsive and resilient healthcare service ecosystem and contributing to providing services for vulnerable consumers (Field *et al.*, 2021). A volunteer is a person that voluntarily decides to carry out activities in favour of the general good and social well-being without an economic reward (European Youth Forum, 2012). According to the service research priorities identified by Field *et al.* (2021), the volunteer actor can contribute to elevating the healthcare ecosystem and transforming it into a sustainable service ecosystem. Indeed, volunteers are key actors in the value creation process of the healthcare ecosystem, but so far, their contribution has received limited attention in service research (Mulder *et al.*, 2015). Hence, it becomes a priority to analyze how and why volunteering and co-therapy activities can contribute to designing a sustainable healthcare service ecosystem, building social cohesion and societal resilience (Field *et al.*, 2021). In line with the call of Rosenbaum *et al.* (2011), the present study contributes to investigating the supportive role that volunteers operating for the non-government organization can provide in the specific field of healthcare. Although volunteers play essential roles in care services, their contributions have not been much focused on in service research.

This article aims to empirically analyze the value creation process by zooming in on the volunteers' activities in a healthcare ecosystem. More specifically, the empirical context is the provision of co-therapy services to hospitalized patients and the role of volunteers in creating sustainable healthcare services. The focus is on (a) identifying the categories of actors interacting with the volunteers in the value creation process and (b) describing how the volunteers co-create value by exchanging resources with the other actors, and (c) analyzing the related well-being outcomes. In this direction, the paper investigates the volunteers' role in co-

creating transformative value and generating well-being outcomes for the whole ecosystem, as well as the broader perceptions of the charitable services provided as co-therapy within the hospitals.

The article provides two theoretical contributions. First, the study represents one of the first empirical research aimed to create new theoretical knowledge on sustainable service healthcare ecosystems focusing on the role of volunteers. Second, we contribute to TSR by identifying the main categories of well-being outcomes deriving from the co-creation process of volunteering activities carried out in the healthcare ecosystem.

Against the above backdrop, a qualitative approach is adopted, and an empirical investigation is carried out in collaboration with Kids Kicking Cancer (KKC) Italia, a volunteer's association operating in the paediatric oncology ward of many Italian hospitals. Empirical data was collected through in-depth interviews with volunteers and the analysis of one-year volunteers' diaries.

The article is organised as follow: first, an explanation of the methodology is provided to elucidate data collection and analysis; then, preliminary findings and discussion regarding the role of volunteers and the impact of their co-creation activities are presented; finally, authors outlined conclusions with limitation and future research.

THEORETICAL FRAMING

The study of service ecosystems' impact on human and planet well-being is an emerging priority for service research. The design of sustainable service ecosystems represents a pillar that needs to be deepened through empirical investigation, by analyzing three priorities: *large-scale and complex service ecosystem for transformative impact*; *platform ecosystems and marketplaces*; and *service for disadvantaged consumers and communities* Field *et al.*, (2021). To do research in line with these priorities, it is necessary to embrace a wider vision aimed to adopt a multi-stakeholder perspective to understand the contribution that each actor can play in developing a more sustainable value creation process in complex service ecosystem. According to this perspective, volunteers and volunteering associations are directly involved in transformative service (Mulder *et al.* 2015), especially the ones operating in the healthcare sector, contributing to create transformative and sustainable value for society. Healthcare service ecosystems evolve continuously and are characterized by high levels of complexity and specific actors (Frow et al 2019, Chandler and Vargo, 2011). A wide range of actors are involved in the process of co-creating value by combining and recombining resources, and developing coordinated collaboration mechanism at operational, political, social, economic, legal or ethical levels (Ciasullo et al, 2016: Polese and Capunzo, 2013). An important group that often are neglected is volunteers. They play an important role in healthcare in collaborating with and adding resources to the service provision, of particular importance for the well-being of engaged actors.

The European Volunteering Chart (European Youth Forum, 2012), answering to the need of a common and shared vision on the topic, defined the volunteers as "a person who carries out activities benefiting society, by free will. These activities are undertaken for a non-profit cause, benefiting the personal development of the volunteer, who commits their time and energy for the general good without financial reward". In Italy, the volunteers' role is regulated by the D.Lgs.117/2017 and he is defined as "A person which, by its own free choice, carries out activities in favour of the community and the common good, also for through an agency of the Third Party sector, making available his/her own time and ability to respond to the needs of people and communities benefiting from its action, in a personal way, spontaneous and free, without profit-making, not even indirect, and exclusively for the purposes of solidarity". Moreover, the activity of the person cannot be paid in any way even from the beneficiary, the institution of the Third-Party sector can reimburse only the expenditure documented based on the precondition established from the institution.

Hence, the volunteer works by his own free choice in favour of the community well-being. In this regard, Hasky-Leventhal *et al.* (2018) introduce the notion of "volunteerability", defining it as the individual's ability to overcome related obstacles and volunteer, and relating it with the concepts of willingness, capability and availability. Mulder *et al.* (2015) expanded the TSR literature by identifying a triadic relationship among volunteer, service provider and community to describe the transformative charitable experiences. However, in their article, the authors focalized the analysis mainly on the well-being generated for the volunteer, demonstrating how this actor is at the same time consumer and provider of the service in a charitable experience.

METHODOLOGY

The study was carried out in collaboration with the volunteering association Kinds Kicking Cancer (KKC) Italia. It was originally founded in United States in 1999 and in 2011 was established also in Italy. KKC Italia is a non-profit organization that helps children with cancer and severe chronic conditions and their families to cope and better manage the disease by teaching martial arts. These activities are developed with a supportive therapeutic aim to help patients in dealing with their illness. The association was selected because it operates with its co-therapy services in many Italian hospitals (i.e. Bambino Gesù, Policlinico Gemelli, Policlinico Umberto I, etc.) and multiple regions (i.e. Lazio, Campania, Umbria, Piedmont, Lombardy, etc.).

A qualitative study was carried out to describe and analyze the role of volunteers in the healthcare service ecosystems and how their value co-creation activities contribute to the well-being of the involved actors. A qualitative methodology is considered appropriate to study new and complex phenomena and to analyze individual's feelings about specific issues (McCusker and Gunaydin, 2015; Boulay *et al.*, 2014). The investigation was carried out integrating two methodological tools in-depth interview and diary analysis.

A total of 17 in-depth interviews were carried out at two different levels. Specifically, first the researchers carried out two in-depths interviews with the founder and the president of the association and five in depth interviews with the volunteers which manage the collaboration with hospitals. The objective of this phase was: i) to understand deeply the mission, the vision and the values of the association; ii) to get a clear picture of the activities carried out and comprehend the partnership process with hospitals; iii) to have a complete vision of the healthcare ecosystem with the involved actors and understand the volunteers' role; iv) to collect their perspective regarding the impacts of volunteering on the stakeholders' well-being. Then the authors performed 10 in-depths interviews with volunteers and analysis of one-year volunteer's diary to examine: i) the volunteer's works and responsibilities; ii) the volunteers' perception of the transformation generated on individuals and communities' well-being throughout the provision of co-therapy programs within hospitals; iii) the inner transformation and the effects on the volunteers' well-being. The interviews were carried out in November 2021.

Simultaneously, the authors coded and interpreted the diaries describing the volunteers' experiences during 2019 and in the second part of 2021. Due to the Covid-19 pandemic, the activities were postponed until the second part of 2021, hence it was not possible to collect further evidence during 2020. The diary is a research method that allows collecting in situ information from a large sample and data about daily activities, self-reflections, and opinions (Guglielmetti Mugion and Menicucci, 2020). The volunteer, at the end of each co-therapy experience, has to report out in a diary the following contents: general information (e.g. number of patients, names, age, and ward), activities performed (I.e. physical exercises, breathing technique and meditation), and emotions and feelings. These reports are collected by the association and shared with all the volunteers on a monthly base. Each monthly diary contains approximately 70 reports.

The transcription of the in-depth interviews and diaries were analyzed separately using a thematic analysis. In both the cases, the authors followed the six phases process identified by Braun and Clarke (2006). In the first, phase the researchers transcribed the interviews and collected the diaries. Each file was stored with name and date. During the second phase, the authors used the software MAXQDA Analytics Pro 2020 to manage and analyze the data. Multiple investigators were involved to guarantee the research rigor (Côté and Turgeon, 2005; Lincoln and Guba, 1985). The recurring topics where counted and coded. Then, the researches started the phase "Searching for Themes", by grouping relevant codes into themes (Braun and Clarke, 2006; Charmaz, 2001) considering the relevant literature on value co-creation activities implemented in the healthcare context (i.e. McColl-Kennedy *et al.*, 2012, Sweeney *et al.*, 2015; Lam and Bianchi, 2019). In the fourth phase, codes and themes were reviewed to verify their logical pattern and consistency with the research question. Afterward, authors assigned a name to each them, describing its content. Finally, in the "Producing the Report" phase a report was developed to depict findings and the final interpretation. To support the themes comprehension quotes from participants were reported (King, 2004). An example of the coding output process for diaries analysis is provided in Table 1, which include: the detected codes with their frequencies, the related identified final co-creation theme, the theme link to the literature, and finally, the description of the co-creation theme examined within the empirical context of volunteering in the healthcare sector.

Table 1: Example of Diaries coding process output

Codes	Frequencies	Final Theme	Theme Related literature	Description in context
Establish a contact	35	Connecting (co-created relationships)	*Mulder et al., 2015; Lam and Bianchi, (2019); McColl-Kennedy et al., (2012); Sweeney et al., (2015)*	Volunteers create relationships with all actors involved. Specifically, they need to engage with the young patients and their families to have the opportunity to carry out the activities and get positive results.
Encourage	25			

In the following section, the preliminary results of the ongoing analysis are presented.

RESULTS

This section presents the preliminary results of the in-depth interviews and the thematic analysis of the diaries. The analysis and results provided a basis for understanding how the association carry out co-therapy activities and the pivotal actors involved in the healthcare service ecosystem. In addition, the main volunteers' value co-creation activities are presented. Finally, the transformative outcomes in terms of well-being for all the involved actors are reported.

Generally, the volunteers attempt to build a connection with the young patients, and then they start the activity by practicing physical moves (when possible), breathing exercises and meditation practices helpful during painful therapies. In doing that, families are also involved in facilitating the patient's engagement and co-create shared moments of distraction and emotional well-being. From the volunteer's point of view, the activities allow the child to grow apart for a moment from the disease, and help him vent anger, have fun, relax, and manage pain. Moreover, activities can also positively impact family members who can participate in the activity together with children or take a moment for themselves and get away from the disease for a few minutes. Sometimes the volunteer must try to convince and stimulate the child to carry out activities because some patients may be reluctant. The parents could have an essential role in acting as an agent for setting the connection between the volunteer and the patient. On the other side, in some situations, the family may prevent the connection for fear or a sense of protection triggered by the vulnerability of children. In addition, The Covid-19 outbreak stopped activities that slowly resumed only in the second half of 2021 and in a partial manner. According to the volunteers, the pandemic waves negatively impacted patients who have been denied both the possibility of carrying out activities that amused and distracted them, and to which they were accustomed.

The actors involved in the co-therapy process can be grouped into four categories: the volunteers, the patients, their family and the hospital (including physicians, nurses, and administrative staff).
The investigation allowed the authors to understand the value co-creation activities performed by the volunteers and the potential effects on actors' well-being. In the diaries volunteers described their experience immediately after the activities and it allows researchers to collect more information about self-reflections and impressions going deeper in their instantaneous feelings. Simultaneously, the interviews put forward the possibility to go further in diaries results and add more data about volunteer's role and responsibilities, understand the drivers at the basis of volunteer's motivations and their perceptions of the generated well-being, even for them-self. After a first separate analysis, the authors examined together diaries and interviews results and to achieve the study objective and they identified the value co-creation activity's themes which are specific for volunteers in the healthcare ecosystem: *connecting, co-production, compliance with HSP requirements, manage patients and provide co-therapies*. The results are described in Table 2 and examples of quotes are used to support the understanding of the themes. Some of them were already recognized in literature as co-creation activities carried out by other stakeholders such as patients, families, customers (i.e. Mulder *et al.*, 2015; Lam and Bianchi, 2019; McColl-Kennedy *et al.*, 2012; Sweeney *et al.*, 2015) and the authors effort was to connect and interpret the literature examined in relation to the phenomenon under investigation and the specific actor.

Table 2: Volunteers' value co-creation activities

Volunteer's value co-creation activities	Description	Quotes
Connecting (co-created relationships)	Volunteers create relationships with all actors involved. Specifically, they need to engage with the young patients and their families to have the opportunity to carry out the activities and get positive results.	*"Initially the mother seems a bit uncertain, but we explain that the exercises can also be performed from the bed and so we start the activities with the ritual greeting".*
Co-production	Volunteers co-produce the activities in accordance with patients, families and HSP regulation which are all involved in the activity's implementation and design.	*"Fabio explains the importance of breathing exercises and the grandfather intervenes to tell us that he always tells him how useful and important it is to breathe".*
Compliance with HSP requirements	Volunteers must comply with the regulations communicated by the health facility regarding how to manage patients and how to use the spaces	*"The hospital provides us with directions and there are regulations that we must follow to get in touch with children, even more stringent during the covid-19"*
Manage patients and provide co-therapies	Volunteers help HSP to manage patients and they provide co-therapies that can help children deal with their illness.	*"For nurses it is difficult to manage patients all day and we help to do so, in addition children after activities are often more relaxed and happier and this is an additional help for health professionals".*

Moreover, based on respondent's point of view, authors highlighted the well-being dimensions which were impacted by the volunteers' value co-creation activities for the involved actors: patients (*emotional regulation, have fun*), families (*relax, positive thinking*) and volunteers (s*atisfaction and realization, empathy, burnout*) which are presented and depicted in Table 3. As previously, researchers started from categories already recognized in literature (i.e. Gross, 1999; Duhachek, 2005; Fagerlind *et al.*, 2010; Cordova *et al.*, 2003; Sweeney *et al.*, 2015; Mulder *et al.*, 2015; Mareike and Karsten, 2020; Watson *et al.*, 1998) linking them with the specific stakeholders of the current research, in this process the data reveal new well-being outcomes categories: relax (for families), burnout and empathy (for volunteers).

Table 3: Well-being outcome by actor

Actor	Well-being outcomes (volunteer's perspective)	Description	Quotes
Patients	Emotional regulation	Martial art therapy and volunteers' practices helps patients to cope with their emotions.	*"Alessandro began to laugh and seemed not to want to stop playing this game, his shots in the meantime had become so powerful that the shooter hit in sequence Roberto and me. Then he wanted to use the striker as a sword and threw himself into an epic battle".*
	Have fun	Participation in the exercises proposed by the volunteer allows children to have fun for a moment and forget the disease.	
Families	Relax	The intervention of the volunteer gives the possibility to the relatives to take some time for themselves and to have the possibility not to care for some moments the children.	*"In the final relaxation, aimed at removing the bad thoughts, even the mother falls asleep finding for a moment some peace".*
	Positive thinking	Seeing the child happy and amused allows the family member to develop a positive thinking that allows him to fight and better manage the disease.	

Volunteer	Satisfaction and realization	The volunteer feels satisfied and fulfilled when at the end of the activities with families and children he perceives that his intervention has allowed them to feel better, better manage the disease and have a little distraction.	*"I like to see the father's gloomy face lie down slowly and also the smile of the son".*
	Empathy	The experience allows volunteers to enhance their level of empathy.	*"Feelings are very strong and sometimes it is better to take breaks to overcome the negative feelings that you experience during volunteer activities".*
	Burnout (negative)	There is also a downside that volunteers can experience the burnout, determined by the inability to manage the strong emotions following volunteering.	

DISCUSSION

The presented preliminary results shed light on the essential role (tasks, activities, and outcomes) the volunteers play in the healthcare ecosystem.

The empirical results allow depicting the main actors involved in the value creation process of volunteering activities within the healthcare ecosystem: volunteers, volunteering associations, healthcare providers (including nurses, physicians, and no medical staff), patients and their families. It allows getting a picture of the healthcare service ecosystem (Figure 1) understanding how the volunteers are integrated into it. Specifically, the Mulder *et al.* (2015) framework is confirmed and adapted to the healthcare context, and an additional actor is included (families).

The empirical analysis, in addition, reveals that volunteers' activities contribute to co-create transformative value not only for the patients, instead generating well-being outcomes for all the actors involved. Mainly, combining existing literature and the results of the qualitative data analysis, four main categories of value co-creation depicted are: connecting (co-created relationships) (Mulder *et al.*, 2015; Lam and Bianchi, 2019; McColl-Kennedy *et al.*, 2012; Sweeney *et al.*, 2015), co-production (Lam and Bianchi, 2019; McColl-Kennedy *et al.*, 2012; Sweeney *et al.*, (2015), compliance with HSP requirements (Sweeney *et al.*, 2015), and manage patients and provide co-therapies (Mulder *et al.*, 2015; Guglielmetti Mugion and Menicucci, 2020).

Figure 1: Simplified representation of the Healthcare ecosystem and volunteering value creation process.
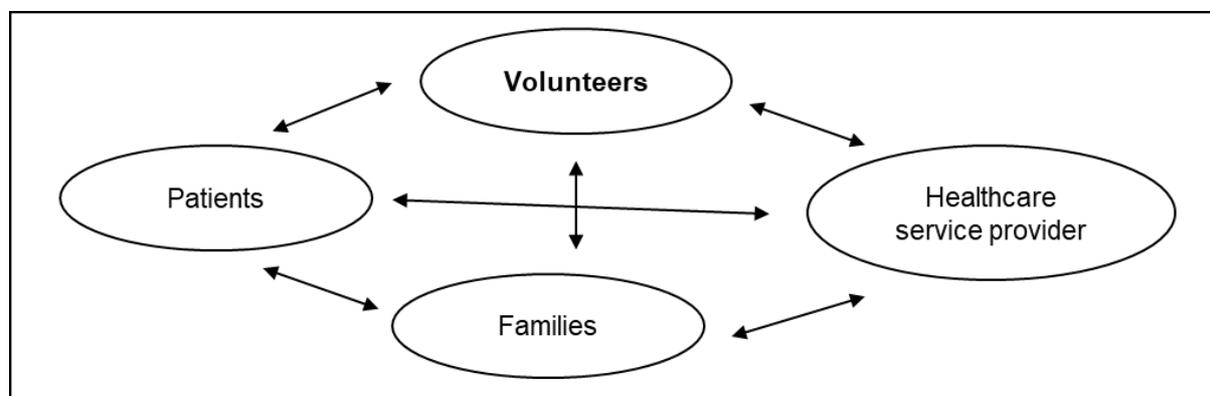
As pointed out by different authors, TSR is grounded on interactions characterized by collaboration, respect, and sustainability improvement (Mulder *et al.*, 2015; Rosenbaum *et al.*, 2011). In line with this perspective, this research allows pointing out that the co-therapy activities performed by volunteers within hospitals

generate transformative value for the healthcare ecosystem, namely to create well-being outcomes at both individual and community levels. This is enabled by the active collaboration of all the involved actors that cooperate to create value for the whole ecosystem.

In addition, the present research, not only confirmed that volunteers while operating create well-being for themselves ("volunteers may be served while serving", Mulder *et al.* 2015, p.877), but also identified the well-being outcomes generated by the volunteering activities for each category of actors operating in the ecosystem. For patients, *emotional regulation* and *having fun* are created (Gross 1999; Duhachek 2005; Fagerlind *et al.*, 2010; Cordova *et al.*, 2003; Sweeney *et al.*, 2015), while for their family *relax* and *positive thinking* are generated (Duhachek 2005; Fagerlind *et al.*, 2010; Cordova *et al.*, 2003; Sweeney *et al.*, 2015). Volunteers' well-being outcomes refer to *satisfaction*, *realization*, and *empathy*, but can also produce some adverse effects in terms of burnout (Mulder *et al.*, 2015; Mareike and Karsten, 2020; Watson *et al.*, 1998). For the hospitals and their staff, well-being outcomes are linked with a more well-structured organization of the entertainment of patients and their family which translates into a *better relationship* with the patient and, accordingly, a greater *staff satisfaction*.

Co-therapy services provided by volunteers and charitable organizations within the hospital helps to increase the well-being of the patients and allow extending the creation of transformative value for other actors involved and for the community in general. This is in line with the Gallan *et al.* (2019) study that pointed out the importance of connecting patients' ecosystems with those of others to contribute broadly to the community well-being. In addition, the volunteer throughout is activities allows *putting humans first* (Field *et al.*, 2021) into the healthcare ecosystem, developing trust, agility and resilience.

CONCLUSION

The aim of this paper is to identify the main categories of actors interacting with the volunteers in the value creation process and describe how the volunteers co-create transformative value by exchanging resources with the other actors. Finally, the article presents the analyse of the well-being outcomes for each category of actor involved.

This paper is one of the few to investigate the transformative phenomenon and the mechanism and outcome of value co-creation during volunteer activities in the healthcare context. Negative and positive impacts on the individual and collective well-being of involved stakeholders were highlighted. Indeed, the study contributes to the current knowledge, providing valuable insights into transformative value co-creation practices and related well-being in the healthcare sector. It highlights the pivotal role of volunteers and co-therapy services in triggering resources exchanging practices that generate well-being not only for patients but also for all the categories of actors. Accordingly, the present research attempts to provide empirical evidence to enrich the services research priorities identified by relevant authors (i.e. Field *et al.* 2021; Rosenbaum, 2015; Ostrom *et al.* 2015; Baron, Warnaby and Hunter-Jones, 2014; Ostrom *et al.* 2010) by advancing theories related to both TSR and sustainable service ecosystem.

The empirical analysis provides practical implications, generating beneficial implications for multiple actors. The role of volunteers and volunteering organizations in the healthcare ecosystem is recognized, and the transformative value co-creation practices are bought to the light. In addition, hospitals, healthcare service providers, and charitable organizations have access to evidence-based information to improve co-therapy and design new services to increase the patients' well-being.

Since the empirical case and qualitative data collected refer only to a volunteering association (KKC Italia) and its volunteers, the results could be affected by some bias related to the specific co-therapy activity performed (martial art therapy). Future studies may be carried out to confirm or extend the presented outcomes by including different co-therapy activities (e.g. horticultural, ceramic, etc.). In addition, the present research is contextualized in Italy, and it may be interesting to develop cross-country comparative research aimed to investigate how the social context and the institutional arrangement can affect both the co-creation practices and the well-being outcomes.

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MOTIVATIONAL INTERMISSIONS: OPTIMIZING FITNESS TECHNOLOGY FOR THE CO-CREATION OF MOTIVATION

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ABSTRACT

This study focuses on how fitness technology services can be designed in order to support the co-creation of motivation to sustain a healthy behavior. The study used an exploratory qualitative design in which we interviewed eight seasoned runners about their running routines and their use of fitness trackers. The result shows that the fitness routines require careful planning and deliberation, and that the maintenance of a healthy lifestyle relies more on what happens between the activities than during said activity. Thus, fitness trackers should focus on feedback that allows users to co-create motivation during intermissions between health promoting behaviors.

INTRODUCTION

There is a global interest to understand how governments and organizations can support the individuals to adopt a healthier lifestyle (UN General Assembly, 2015). Apart from the more obvious physical benefits of a healthy lifestyle (Marteau, 2018) several studies also show positive effects on psychological health aspects, such as improved mood, lower anxiety, better stress resilience, and higher self-esteem (Scully *et al.*, 1998; Young *et al.*, 2018). In contrast to what the name implies, lifestyle choices are influenced by both personal and external circumstances (Marteu, 2018). This paper explores how fitness technology can help users co-create better health by means of supporting better lifestyle choices.

The challenges of behavior change

Understanding behavior change is an integral part of psychology, and there are numerous theories for behavior change. One of the best-known is Bandura's social cognitive theory, which describes how social modeling influences a person's behavior; and includes the dual-system of Self-efficacy and Self-regulatory processes (Bandura, 1986). Self-efficacy regards a person's belief of success and mastery, and the effort he or she will expend for this success. Self-regulatory processes refer to self-monitoring of behaviors, which may result in either behavior change or reinforcement, depending on whether or not the behavior is deemed successful.

A behavior change model that includes the importance of the surrounding environment is the so-called COM-B model (Michie, van Stralen and West, 2011), which states that Behavior comprises three aspects: Capability, Motivation, and Opportunity. Capability is the individual's psychological and physical capacity to perform the desired behavior. Opportunity is the external conditions that promote the desired behavior. Motivation includes all processes that direct behavior, for example feelings and attitudes (Michie *et al.*, 2011). Another well-known behavior change model is Fogg's (2009), that includes three of the aforementioned aspects for behavior change: (a) Motivation (the person's willingness to change his/her behavior); (b) Ability/simplicity (the effort it will take the person to performed the desired behavior); and (c) Triggers/timing (the cues that may stimulate the performance of desired behavior). All in all, in order to successfully both attain and sustain behavior changes, several aspects need to be present both within and outside the individual.

In addition, we also need to understand why behavior change is often obstructed. Two general conclusions have been drawn from decades of research (Bouton, 2014): firstly, even if someone successfully manages a behavioral change - the old behavior is still latent. This means that the extinct behavior is merely inhibited, and can cause lapse or relapse under certain circumstances. Secondly, most behaviors are specific to a situation, that is, newly acquired healthy behaviors will be harder to maintain in some situations than others. For instance, a new healthy diet is easier to forgo under stressful or otherwise disruptive situations than

during "normal" circumstances. In addition, the new behavior needs to be learnt in several different situations for a sustainable behavior change (Bouton, 2014).

A similar way of understanding the challenges of behavior change is through Kahneman's dual-system of heuristics (Kahneman, 2011). "System 1" is our fast and automatic way of thinking, feeling, and reacting; it is emotional and unconscious and basically a default decision pattern. "System 2" is slow, controlled, and logical; a conscious and informative way of thinking and reasoning. Both systems are equally appropriate in different situations (Dijksterhuis *et al.*, 2006), where System 1 saves cognitive energy in everyday life but also hinders behavior changes, as a new behavior demands System 2, as it is a controlled decision that takes effort and conscious thinking.

Individuals trying to change their behavior are increasingly relying on fitness technology to quantify and record their fitness regimes. Wearable fitness technology provides reminders and feedback about the quantity and intensity of an activity, by means of sensors that track and record behaviors (Sullivan and Lachman, 2017). The main task is to provide different kinds of feedback that will help users behave in accordance with a desired behavior, whether it regards adoption of a healthier lifestyle or disease prevention (Chia *et al.*, 2019).

Fitness technology and the co-creation of health

Wearable fitness technology is the leading trend in the fitness industry (Thompson, 2020). According to several service researchers (e.g., Bäccman *et al.*, 2020; Kristensson, 2019; Kunz *et al.*, 2019; Paluch and Tuzovic, 2019) service technologies are transforming our society rapidly and this has implications for both businesses and consumers. Fitness technology is thus a service whose purpose is to help, motivate or create more opportunity for behavior change (Sullivan and Lachman, 2017).

Despite the widespread use of fitness trackers, research has cast doubts on their effectiveness for behavior change (Nuss *et al.*, 2021). Schembre et al. (2018), showed that the efficacy of feedback on behavior change was only significant in four out of nine studies in their review. This is unfortunate as research on consumer well-being suggests that consumers may find opportunities to co-create important values for themselves by using technologies of various kinds (Gummerus et al, 2019). However, research on future service technologies also reveal that they are increasingly being designed using a company perspective, thus neglecting the value that the user has interest in (Kunz *et al.*, 2019). Taken together, the quality of the fitness technology and its ability to both attain and maintain behavior changes seem to vary considerably (Nuss *et al.* 2021; Mohr *et al.*, 2013). Most importantly, as pointed out by Fritz and et al. (2014), most studies are incapable of showing lasting behavior changes, that is validating a real value of fitness technology for actual behavior changes. Thus, there is a gap in the academic literature between the purpose of fitness trackers and its value for maintaining behavior changes.

Aim

The aim of this study was twofold: firstly, to explore how seasoned runners used fitness trackers to help them maintain a healthy behavior. In other words, how do fitness trackers motivate athletes to maintain an established fitness routine. Secondly, how can fitness technology services be designed in order to support the co-creation of motivation to sustain a healthy behavior.

METHOD

The design of this study was exploratory and used qualitative interviews as data. The term fitness trackers was used to include wearable fitness technology, such as watches and smartphones that was used for logging data from an exercise either as an end-feature or by means of an application.

Participants

The participants in this study were eight non-professional runners (five men, three women) aged between 30 and 65, who had run at least two years as part of their training routines. Participants ran twice or more times a week, ranging from 5 to 25 kilometers, and had used fitness trackers for at least three months on a regular basis. Three of the participants did other forms of exercise during the week or across the year, and considered

running a means for a more primary goal and one participant was actively training for a marathon. Thus, they were all maintaining healthy behaviors, rather than making behavioral changes.

Apart from the inclusion criterion of being regular runners, all participants were required to use or have used at least one of the following fitness trackers for at least three months: Runkeeper, Weight Loss Running, Endomondo, Runtastic, Nike+ Run Club, Strava, Run Tracker, Garmin Connect, Map My Run, and/or Runmeter.

Procedure

As the main purpose was to learn how the participants used fitness trackers in their exercise regimen, the interview questions regarded three broad themes: the exercise routine; use and user experiences of fitness trackers; and use of specific functions in the fitness tracker. Participants were also asked if they ran without the fitness tracker and if so, to describe what such a run would be like. The interviews did not specifically render a given number of questions but aimed to capture the participants' user perspective.

All participants had given their consent to participation in accordance with the principles of the World Medical Association (WMA, 2018), that is, informed consent to how data would be collected, processed and stored; that participation was voluntary and could be withdrawn at any time. The interviews lasted between 45 and 60 minutes and were conducted in person. All interviews were audio-recorded and transcribed verbatim. All audio files are stored on a protected server, and the transcripts have been anonymized.

Data analysis

The data analysis was made in NVivo 11 for Mac. The open coding in NVivo was conducted by one of the researchers and the results were discussed with the other researcher throughout all steps of the analysis.

The analysis was conducted according to thematic analysis where the semantic/explicit meaning of the interview is analyzed (Braun and Clarke, 2006). The analysis was iterative, but can be described as having six steps. The first step was to get to know the data from an overall, holistic perspective. The second step was extracting meaning from the interviews and coding these according to content. A code could range from one to several sentences, representing communalities within the code. The coding was kept close to the data, that is, the coding did not stray far from the explicit meaning of the code. The third step was interpretative, with the objective of finding protothemes from the initial coding. Here, the codes were combined or split according to a common theme and checked again for inconsistencies. In the fourth step, the themes were reviewed and reanalyzed according to the emergent protothema. All themes were examined so as to be distinct and separable, and that they contained coherent data. The fifth step was to further refine and define each theme and give them distinctive and representative labels. At this point, a unifying understanding of the data emerged from the themes, and a model was created to visualize the data. The sixth and final step was the writing up and reporting of the data and analysis.

RESULT

The analysis generated two general categories: *Exercise* and *Between exercises*. The category Exercise describes a process from the start of the actual running activity until the end. This includes themes related to pre- to post-exercise routines. Between exercises, refers to the time interval between workouts, and emerged from the themes that described the time in which the participants used the data from the fitness trackers for motivation. This interval may vary in duration from days to weeks, and seemingly even months in some cases, as in the case of those who do not run during winter. As this study focuses on maintaining behavioral change and how fitness trackers can be used for this, we only briefly outline categories related to the actual exercise routine.

Exercise

This general category consisted of three broader themes: *Pre-exercise, During exercise,* and *Post-exercise*. The first theme concerned the time just before the participant starts running and contained the following sub-themes: *Pre-routine, Calibration,* and *Hassles*. Pre-routine was the preparations before the run (for example,

"Well, I prepare while I change and put on my workout wear, and the best is to [run] first thing in the morning /…/"). Part of this is the Calibration of their fitness tracker, and this is also where the Hassles may occur. The latter is depicted in the following example: "At that point I found [the fitness tracker] difficult to wear on my arm, when I had a small bag on my arm and it was a hassle to put it in there".

The second theme, During exercise, enclosed three sub-themes: *Feelings and thoughts, Real-time monitoring,* and *Failure to register.* The first, was the participants' descriptions of how they felt when they ran, for example how their mind became occupied by thoughts. The sub-themes, Real-time monitoring and Failure to register, were related to the fitness trackers. Mainly the ability of the fitness trackers to accurately monitor and register activity data, in terms of time, pace, location, and so on. Failure to register, either due to faulty GPS signals or because the participant accidentally reset the fitness tracker, the participants describe this as "devastating". Accurate registration of the exercise activity is a key aspect of why the participants use fitness trackers during exercise, as illustrated in the quote: "/.../ the times I have forgotten to start the watch when I am running /…/ it is like I haven't done it at all /.../ Like being at work for free"

The final theme, Post-exercise, encompassed three sub-themes: *Feelings after, Routines after,* and *Faulty feedback*. Feelings after regarded how the participants felt after having completed the run; sometimes in depending on their performance, and sometimes regardless of their actual performance. Routines after were descriptions of what the participants did directly after their run, for example, if they stretched or just sat down at the kitchen table and looked at the registered data on their fitness tracker.

Faulty feedback comprises statements on how the participants felt and reacted if they discovered that the fitness tracker had failed to register the run correctly. This can be divided into sub-themes in terms of temporal consequences when the feedback fails: *Long-term effects* and *Short-term effects*. Short-term effects were the participants' immediate reactions and feelings at discovery; Long-term effects, concerned the impact of failure to register activities on the possibility of evaluating an activity as part of reaching a certain goal.

Between exercises

The second category, *Between exercises,* concerns the time between one run and the next. Two themes emerged: the *Planning* of workouts and descriptions of the wearable as a crucial *Motivator*. Planning comprised sub-themes regarding how the participants planned their workouts, and *Exercise variation*. Careful planning and variation were ways of maintaining motivation and goal attainment. Planning also included strategies for staving off slacking, that is how the participants identified and neutralized *Threats to exercise.* For example, by going out running first thing in the morning, before anything else came up or because this was less intrusive on the rest of the family. Creating a permanent weekly routine was a common way to overcome Threats to exercises: "… No since I'm very intent, it is Tuesdays and Thursdays straight out after work". Another way to stave off slacking was by using *Reminders*, such as putting out their running gear on the kitchen table to avoid forgetting their plans once they come home from work.

The second theme, Motivator, contains descriptions of how the participants were motivated by the wearable and its different functions, as illustrated in:

> *[The routine] would probably look pretty similar I think, it is mostly for myself, I want a confirmation on 'yes now it went this fast' or 'yes but I felt that'; I can be pleased with myself if it went faster than the time before. A little carrot and stick to improve myself.*

Motivator, was connected to six sub-themes regarding the use of the wearable: *Self-worth of fitness trackers, Simplicity, External feedback, Ambivalence, Utility,* and *Lacking functions.* The first sub-theme, Self-worth of fitness trackers, represents an expressed inclination and interest of technical gadgets regardless of performance: "More functions in [the app] that I can lose myself in". The second sub-theme, Simplicity, regarded the participant's choice and use of fitness trackers, both of which were often due to a design of straightforwardness, promptness, and usability. The third sub-theme, External feedback, comprises statements regarding both social media and where a group of "friends" (real or digital) can train or compete in a private group. Social sharing could be about both becoming motivated or encouraging others, but could also be about wanting to show off.

The fourth, Ambivalence, regards the participants' conflicting thoughts and feelings toward their use of fitness trackers. Here the participants could express a compulsive need for the fitness trackers to give them feedback about their performance even if they claim not needing it. Ambivalence can also be about admitting that the pleasure of running would be greater without the fitness trackers, as depicted by the following quotes: "Maybe I would train better without an app as I would then have to listen to my physiological clock instead of a ticking clock". The fifth sub-theme, Utility, refers to descriptions of what functions in the fitness trackers the participants use and appreciate. This includes keeping track of time, distance, and pace, helping with interval training, or pulse-monitoring.

Deficiencies of Utility were coded in the sixth and final sub-theme. Here participants expressed displeasure with certain functions or missing the availability of other functions. Examples include problems with the GPS, not being able to turn of the timer register, and other pieces of information that were considered unwanted and not unrequested, such as: "But you're being put into context like the average person in my age, that's why I reacted, and [the information] is there first thing, it would be different if I had looked for it".

Lacking functions was also connected to the previously mentioned sub-theme, Long-term effects of Faulty feedback (Post-exercise in the general category of Exercise). The long-term effects of faulty logging may affect motivation, by having a deteriorating effect of the Utility of the fitness trackers in terms of Lacking functions, as illustrated by:

> It shows that I ran on a lake /.../, when in reality I ran around a lake. That part could be improved. Be more exact in receiving GPS signals to more accurately show where you have run, so you can really stand for that round. Of course, it can be poor signals locally. It does not happen often, but it happens and when it does, and it is simply not correct, I become displeased.

In sum, the results show that regardless of how long the participants had run for, they still needed a strategy for keeping up the running routine, and that the main reason for using a fitness tracker was to record data from the run. Although the data for progress during the run was used for knowing time and distance, the participants' experiences during the run were more described in terms of feelings and moods, than performance. In contrast, the recorded data was a validation of the activity that could be used for feedback later in time, sometimes as a way of motivating themselves to run on days where running felt like a chore.

DISCUSSION

The aim of the current study was twofold. One aim was to explore how fitness trackers are used to maintain healthy behaviors; here, sustain a physical activity. The second aim was to see whether and how the usage can be utilized in the design of fitness trackers to support the co-creation of motivation to sustain a healthy behavior. The results showed that the participants' exercise behaviors were maintained in two ways. One way regarded the data's motivational aspects *during* the actual exercise, as depicted in the general category Exercise. Here the importance of the fitness tracker to help the runner to keep track of the time, distance, or route, depending on their personal goal(s) with their training was emphasized. The information the fitness tracker provided during the actual workout seemed to have an immediate motivational reward and created a feeling of wanting to do it again for the sake of the positive experience in itself that increases in self-efficacy (Bandura, 1986). Thus, the "feel good" and the "can do" during exercises motivates repeat behavior.

The second way the participants' healthy behavior was maintained was by means of the data itself, and the fact that they had performed was emphasized, not the success of the performance. Thus, the fitness tracker's ability to record and save the data from the run was vital, and failure to download and save the data was considered disastrous. Fritz and et al. (2014) found similar results, where the participants reported that the recording of the activity was more important for both enjoyment and motivation than the activity itself. The feedback being key for behavior changes (Stragier *et al.* 2016). The saved data from the fitness tracker was an important motivator for the participants' next run. Registered data seems to increase self-efficacy and mastery by providing proof of success and thereby motivating the participants to continue their healthy behavior between exercises (Bandura, 1986). In other words, recorded data is used to encourage continuance of behavior.

It is interesting to note that while the participants were seasoned runners, they were still vulnerable to everyday threats to exercise and this could be seen in their strategies before and between runs. This is in

line with previous research on behavior change showing that the old behavior is only latent and not extinct, which is why it is so easy to fall back to old habits (Bouton, 2014). Thus, behavior change is an ongoing, conscious activity, creating ample opportunity for service providers to support with both intrinsic and extrinsic motivation such as triggers and reminders.

Taken together, this study shows that the motivational force of fitness trackers is twofold: firstly, what happens during the activity (e.g., moods and feelings about the performance), and secondly, what happens between activities (e.g., the feedback and planning). However, since any level of activity is better than no activity at all, getting people to exercise should be a more important task than maximizing exercise effects. Consequently, motivating users to re-engage in healthy behavior during the intermission between activities should be a priority in fitness trackers. Participants' intermissions in this study could last from a day (a rest between workouts) to months (during winter, for example), and it was during this period, however long or short, that the participants planned, evaluated, and got themselves motivated for their next workout. This relates to the second aim of this study, which is to identify *how* the runners' use of fitness trackers, and can be utilized to improve the design to maintain healthy behavior.

Previous studies have shown that fitness trackers, at best, reinforce new behaviors (Nuss *et al.*, 2021). Similarly, our study clearly shows that the participants use recorded data for motivational purposes between runs. By focusing more on this aspect of the behavioral cycle, fitness trackers can be used to create *motivational intermissions* (see Figure 1). Motivational intermission is the time between activities that have the ability to increase the probability that the user will re-engage in the activity.

Figure 1: The model of motivational intermissions between activities.
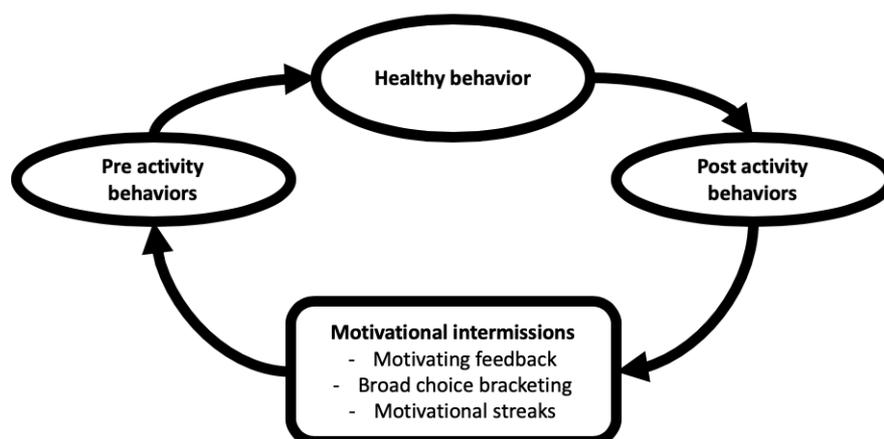
Based on the model of motivational intermissions, the need to correctly register data can be understood in terms of the theory of choice bracketing. Here, a decision is made either in relation to a history of decisions, broad choice bracketing, or in isolation, narrow choice bracketing (Kahneman and Lovallo, 1993). Depending on which perspective the decision is based on, the assessment of its outcome will also vary. Broad choice bracketing is rarer than narrow bracketing, but will probably be a more realistic estimate (Kahneman and Lovallo, 1993), and will also change the perception of losses and gains, with an overall more positive view of its outcomes (Webb and Shu, 2017). In other words, by being able to keep a broad choice bracket perspective on our exercise routines and performances, we are able to make better decisions repeatedly. However, basing decisions on broad choice bracketing is difficult. Studies have shown that we tend to base our decisions on isolated cases, ignoring important realities (Kahneman and Lovallo, 1993), and that this kind of decision can be promoted by graphics that help give a more comprehensive view (Webb and Shu, 2017). Skipping a run may not seem especially problematic from a health perspective, but by framing the choice to exercise or not into a broad bracket, the accumulated effect of the series of choices becomes clear. Similarly, while the gain from the pending run (an isolated event) may at times not feel worth the exertion, having a run history on the fitness tracker enables users to overlook the current state of mind and adopt a long-term perspective. Having "the bigger picture", both in terms of memories and past experiences, and hard data from the fitness tracker, helps users sustain healthy behavior. This can be illustrated by one of the participants

who became motivated and empowered by looking at previous runs and seeing that he/she had run regardless of whether he/she felt a bit off or tired. Thus, the motivational intermission can help the participants make decisions to neutralize threats to healthy lifestyle choices.

Motivational intermissions can also utilize recorded data by focusing on the accumulation of successful accomplishments, often referred to as "streaks". Run streaks have become a popular phenomenon on social media during the pandemic, and referred, for example, to a one mile or 20-minute jog every day for 100 days (or more). From a motivational perspective, a streak builds on the same principle of consecutive performances, but here it is the performance itself that counts and not the outcome of the performance. Once a user has started a streak, it tends to develop into a fixation to not break it, and the longer a streak continues, the more obsessive it is likely to become. These types of streaks are probably closely related to decision making in broad choice bracketing. We have not found any studies regarding streaks as motivators, but Fritz et al. (2014) found "a game-like phenomenon which [they] termed 'number fishing', in which participants reportedly engaged in activities explicitly for the system rewards" (p. 7). System rewards refers to explicit rewards for achievements or target goals, such as badges or numerical goals. The motivational aspect of the system rewards worked even if the participants knew that the reward was a false representation of their activity. Therefore, it was concluded that fitness technology should not only reward the number of steps, for example, but also how many days in a row the number of steps was achieved (Fritz *et al.*, 2014). Thus, this use of accumulated and external rewards is in line with our reasoning of motivational intermissions. As the streak seems to hold an enhancing quality that indirectly boosts a specific (and hopefully healthy) behavior, we refer to this as a *motivating streak*. A motivating streak is a series of actions or events that occur at specified intervals, where the upholding of the series becomes a means in itself. In other words, at some point you strive to uphold the streak more than the behavior in question.

From a service perspective, the present study shows that users indeed use technology to co-create value that is of interest for themselves (Gummerus *et al.*, 2019; Kunz *et al.*, 2019). Specifically, the study pinpoints the role of fitness technology for maintaining behavior changes, where the fitness technology also serves as a reminder of past activities. While several previous studies have acknowledged the importance of the feedback feature (Stragier *et al.*, 2016), they have not explicitly pinpointed how this promotes future activities. It is noteworthy that the results of the current study show that users themselves actively seek to use the stored data for reinforcing and motivational purposes, as opposed to being subjected to prompts generated by the intervening system, as has previously been proposed (Dallery, Kurti and Erb, 2015; Dallery *et al.*, 2019). The model of motivational intermissions bridges the current gap between the purpose of supporting behavior changes that fitness technology claims yet repeatedly fails at (Free *et al.*, 2013). Thus, a fitness tracker needs to be able to remind its user of past behaviors in order to create motivation for future behaviors, for example by badges representing short-term and long-term goals (Fritz *et al.*, 2014), clearly visualizing previous accomplishments to encourage repeat behavior.

Limitations and future research

The small sample size raises questions regarding the stability of the model. All participants in the current study were seasoned runners who considered themselves athletes, and this might have had an impact on their use and experiences of fitness trackers. In order to investigate possible boundary conditions of the model, it would be interesting to replicate the study, not only on a larger sample, but also on other types of samples. Finally, given the model's potential to promote a healthy lifestyle, future studies should investigate the relative effectiveness of various motivating intermissions, utilizing elements such as gamification (Högberg, Hamari and Wästlund, 2019), time orientation (Otterbring, 2019) or motivational streaks.

CONCLUSIONS

Conclusively, the value of fitness technology when it comes to supporting healthy behaviors lies more on what happens during the intermission, that is between healthy behaviors, rather than during the actual behavior itself. Recorded data helps motivate the repetition of healthy behaviors in a way that mimics broad choice bracketing and behavioral streaks. Thus, fitness trackers should focus more on: the reinforcing and motivational aspects during the intermission than encouraging performance during the target behavior; and include features that create motivational intermissions to increase the likelihood of repetition of healthy behaviors, for example, by means of gamification or motivating streaks. These motivational intermissions are

the time when the feedback will help the users stay motivated, as this is the time when the everyday hassles and routines may derail a healthy behavior, even for seasoned runners.

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EXPLORING COLLABORATIVE ECONOMY IMPACTS ON WELL-BEING

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ABSTRACT

The last decade has seen the emergence of the collaborative economy (CE) worldwide. Collaborative economy refers to a hybrid market model of a peer-to-peer sharing of access to underutilized goods and services at a lower cost and enabling its owners to make an extra income. However, CE social and economic effects on populations, communities, and individuals remain understudied, especially well-being impacts. Research has found that these services can have both positive and negative consequences, either intentional or unintended, on the well-being of the different actors in the service ecosystem. Well-being is multi-faceted, complex and interactive, and traditionally encompasses two types: hedonic and eudaimonic. The first describes emotions, while the second relates to the realization of potential. To address the challenge of uplifting well-being in collaborative economy models, this research aims to better understand well-being in these services by obtaining a deeper comprehension of the different types of well-being, its outcomes, and motivations to participate in the various actors in the service ecosystem.

INTRODUCTION

The collaborative economy has emerged as a disruptive approach to the traditional way of doing business. CE is also known as collaborative consumption, sharing economy, or peer economy (Muñoz and Cohen, 2017a). Over the years, it has gained attention from companies and individuals, attracting many users, thus boosting its growth and economic impacts. There is no doubt that the collaborative economy has been responsible for an enormous amount of wealth (Frenken and Schor, 2017). CE models facilitate the transaction of assets and services via community-based platform online services and highlight a more sustainable world by giving access to underutilized resources at lower costs to people who cannot or do not want to buy new products. The new services that have appeared offering "cost convenience without the responsibility of ownership," such as Uber and Airbnb, caused huge turbulence in well-established fields, such as the taxi and hotel industry (Kumar, Lahiri, and Dogan 2018). Furthermore, it provides a chance to make an extra income for those who already own underutilized resources (Jabłoński, 2018). One advantage compared with the traditional economy is the usage of fewer resources, which can have environmental and economic impacts. These economic changes also create trends in the markets, creating changes to consumption models (Benoit et al., 2016). For example, consumers now usually prefer to borrow or rent goods from each other.

CE has been responsible for disrupting markets with some positive impacts; however, concerns regarding the well-being of actors have been raised across the world. For example, the negative impact on peer service providers (e.g., an Uber driver), social security, service professionalization, and employment. These can have important implications for their quality of life (Benoit et al., 2016). Other studies have pointed out problems concerned with customer participation in a collaborative economy, like racial discrimination, gender bias, and profit-boosting caused by platforms offering refunds to buyers giving negative reviews (Edelman et al., 2017). On the other hand, significant positive impacts also appear. CE models can reduce poverty; thus, it is imperative to understand how to achieve this goal (Hira and Reilly, 2017) and increase well-being.

The need for developing ways to ensure population well-being has been addressed in literature as transformative service research (TSR) (Ostrom, Parasuraman, Bowen, et al., 2015). Understanding how TSR lessons can be used in collaborative economy models can be valuable to promote economic and social well-being by enabling new forms of business. This study aims to contribute to a deep understanding of the nature of well-being and its impacts on uplifting individual and collective well-being in collaborative economy service ecosystems. The challenge is a better understanding of how to leverage technology to innovate digital services and improve well-being. These new services need to adopt a human-centered approach bringing

together what is desirable from a human point of view and with what is technologically feasible and economically viable. Thus, both managerial and societal impact needs to be integrated.

METHOD

This study aimed to understand in-depth the nature and types of well-being in collaborative economy service ecosystems, and as such, a qualitative approach was adopted. Data were collected using in-depth interviews with customers and workers of two transportation services in Indonesia and two hospitality services in Portugal. In total, eighty interviews were undertaken to explore the underlying elements of the different types of well-being (eudaimonic and hedonic), its outcomes (positive, negative, intended, and unintended), motivations to participate, and expectations of both peer service providers and customers. The interviews were conducted from February to May 2021 and lasted around thirty minutes.

In the interviews, customers and workers were asked to detail the motivations for participating in the collaborative economy ecosystem, the challenges and problems they face, the positive and negative impacts on their personal life and well-being, satisfaction with the service, and to provide suggestions that would positively impact their well-being. Tables 1 and 2 shows participants' characteristics in both countries where data was collected, Indonesia and Portugal, respectively.

Table 1: Sample demographic characteristics

Participants	Sex	Age		Nationality	Marital Status	Education		Working experience (years)	
Workers	Male 75%	20-30	75%	Indonesian	Married 65%	High school	75%	1	30%
		30-50	15%			College	25%	2-3	60%
		50-70	10%					4+	10%
Workers	Female 25%	30-50	75%	Indonesian	Married 90%	High school	90%	1	10%
		50-70	25%			College	10%	2	90%
Customers	Male 75%	20-30	50%	Indonesian	Married 55%	High school 80%			
		30-50	40%			College 20%			
		50-60	10%						
Customers	Female 25%	30-50	55%	Indonesian	Married 65%	High school	75%		
		50-70	45%			College	25%		

Table 2: Sample demographic characteristics

Participants	Sex	Age		Nationality	Marital Status	Education	Working experience (years)	
Workers	Male 75%	30-50	50%	Portuguese 80%	Married 80%	High school 20%	1	30%
		50-70	50%	Other 20%		College 80%	2-3	60%
							4+	10%
Workers	Female 25%	30-50	50%	Portuguese 90%	Married 90%	High school 90%	1	10%
		50-70	50%	Other 10%		College 10%	2-3	90%
Customers	Male 75%	20-30	50%	Portuguese 80%	Married 75%	High school 75%		
		30-50	40%					

		50-60	10%	Other 20%		College 25%
Customers	Female 25%	30-50	55%	Portuguese 80%	Married 65%	High school 5%
		50-70	45%			College 95%
				Other 20%		

All interviews were literally transcribed and analysed using NVivo 12 software. Data analysis followed an iterative process of data coding and categorization to systematize data on the types of well-being (eudemonic and hedonic), positive and negative well-being outcomes for the different actors (customers and workers), and motivations for participation and potential service improvements to enhance well-being.

FINDINGS

Preliminary results showed that well-being is complex and composed of multi-interrelated aspects, both hedonic and eudaimonic. Respondents identified several aspects that impacted their well-being with positive and negative consequences, either intentional or unintended.

Factors with positive and negative impacts on peer service providers well-being

Peer service providers' most important positive aspects are related to economic factors such as the opportunity to have a job and extra income, which strongly impacts their family well-being. As one male driver said, "I want to help my family's economy." Also important is work flexibility, which enables self-time management. Another driver stated that "there is no pressure when working in a restaurant, there is pressure. So here I can work anytime I want". One very important factor is family well-being; as stressed by a worker, "my main motivation is family." Feeling respected and appreciated by the company is also important for workers.

On the other side, aspects with a negative impact on well-being also emerged. Some workers felt very dissatisfied with the company policies that did not have in consideration workers' well-being. For example, one worker said, "If the Company policy is detrimental to the driver, we as drivers will definitely resign. Because drivers work for a living, not to be harmed". Workers were deeply concerned with fraud in the booking or unfair rating system resulting in lost income. One driver said that "many customers provide addresses that don't match the application, such as fictitious accounts. So I got a little annoyed and made me angry". Also, some feel stressed from long hours of work, and thus less time with family.

Interestingly, the number of negative situations the peer service providers described was much higher than positive references. Some aspects can have both positive and negative impacts on family and economic well-being.

Factors with positive and negative impacts on customers well-being

Customers' most relevant aspect is related to having easy access to a more convenient service at a lower cost and saving time. Customers trust CE services, and one said that "it is easier to get somewhere, more reliable because it has a promising platform and reviews from all over the world." Also, they appreciate the opportunity to interact with new people. One customer stated that it is a "very friendly service where you can talk with others, also drivers can make passengers feel comfortable if they are not reckless while driving". Drivers also appreciate talking with customers; for example, one said that some customers ask about work issues showing concern about their working conditions, for example, during the pandemic.

However, some customers expressed concerns with security issues and the poor service from peer service providers due to a lack of training in dealing with the public and excessive waiting times. Some customers feel that "many times drivers are not prepared to deal with the public and end up being rude".

Interestingly, many customers mention disappointment with unrealistic reviews from other users, which cause dissatisfaction with the service. For example, a customer said, "I arrived at the accommodation, and I was disappointed considering the reviews so good".

Customers and workers made several suggestions for potential service improvements aiming to enhance well-being and overcome the existing negative impacts, as shown in Table 3. Respondents felt that is important to solve exiting issues that negatively impact well-being and ensure trust in collaborative economy services.

Table 3: Major problems and improvement suggestions

Problem description	Negative impact for		Suggestion for improvement
	Worker	Customer	
Stress for drivers and customers from difficulties' in finding each other	x	x	Improving in matching the locating of the car and the customer
Poor communication between workers/customers/platform	x	x	Facilitate communication and better-quality control
Poor customer experience generating tensions and stress among customers and workers	x	x	Redesign of platform processes, e.g., better and more fair review systems.
Poor service from drivers	x	x	More training for drivers
Long waiting times lead to give up service		x	Faster service
One order at a time		x	Services should allow multiple orders at the same time
Only one payment system		x	Payment system should allow different methods
Women feel uncomfortable with a male driver, especially in Asian countries		x	Possibility to choose driver gender, especially in Indonesia
Food doesn't arrive		x	Guarantees for food delivery since
Poor cleaning		x	Company should control the quality of the host's accommodations

CONCLUSION

Services dominate the lives of consumers today. However, to a large extent, transformative consumer research does not address the role of services in affecting consumer well-being (Mick *et al.*, 2012). This study uncovers the underlying elements that compose the well-being of actors in CE service ecosystems. Results show that well-being is complex, interactive, and multi-faceted. Both workers and customers have experienced positive and negative well-being outcomes, however, some of those can be intentional or unintended. This study aims to support collaborative economy services in addressing negative aspects and enhancing individual and societal well-being for all actors. As such, a Transformative Service Research approach can be very valuable to understand and uplift well-being in CE service ecosystems.

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TAKING CARE OF THOSE WHO CARE. KEEPING INTERNAL MOTIVATION DURING THE PANDEMIC IN GASTRONOMÍA JOSÉ MARIA, SEGOVIA, SPAIN

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ABSTRACT

Since March 2020, Spanish national and local governments enacted special measures against COVID-19 pandemic, causing that around 30% of the food service businesses closed definitively, while the surviving ones face an uncertain, volatile and complex environment. The case study of Gastronomía José María, a 120 employees' gastronomic group, sheds light on human resources practices and internal marketing tools that helped to keep motivation and employees' implication during the pandemic, that are identified as success factors when recovering from a disrupting event, or crisis, that unfortunately we might face again.

INTRODUCTION

In the first quarter of 2020, a strong pandemic caused by the Covid-19 virus, devastated Europe. This unexpected, although not unforeseen among the potential threats that may affect the hospitality sector (EHL, 2016), was followed by actions aimed to control the virus expansion. Spanish Government decided harsh measures as the confinement, paralyzing in March 14th 2020 the entire gastronomic food service industry, and much of the service sector. Since then, regional closures and special measures have been enacted for more than 15 months, resulting in an estimation of around 20 to 40% definitive closures in the food service sector (Agustí, 2020; EY-Bain, 2020).

However, because of the economic, social and environmental weight of the food service sector in Spain (McKinsey, 2021) a shared effort of practitioners and academics started. In one hand, practitioners aimed to relax the tough measures. On the other, researchers, academic and industry associations wanted to, firstly, understand what the impact could be and secondly, unveil the practices that can result in a better and faster recovery. This is the purpose of this study, that analyses the daily practices of a real business, Gastronomía José María, during the long period of restrictions. The aim of the study is to understand, through the study of the activities that the family owners and their managing team enacted during the pandemic, what are the actions, skills and values that emerge as key success factors during the recovery.

In order to do so, the paper is organized as follows: first, a quick glimpse of the food service sector, a relevant part of the economic and social fabric of Spain, is given. Then, the case study methodology is reviewed, and the process followed to build the case, explained. Discussion of findings, conclusions and implications are the last part of the paper.

THE FOOD SERVICE SECTOR IN SPAIN. ECONOMIC AND SOCIAL IMPLICATIONS

Before the pandemic, the demography of the sector comprised 315.940 food service and accommodation establishments (NACE codes 55 and 56; SIC codes 701, 703, 704 and 581). with a turnover of € 129.341, generating 1.7M jobs (8.8% of the total employed) and contributing 6.2% to the country's GDP (2019 data, HdeE, 2020). The food service segment (demography summarized in Table 1) is the 76% of the turnover, done by 280.078 outlets that employed 1.3M people. In this huge sector, some traits explain why this crisis affection is more harmful than in other services, as trade or education.

Table 1: Food service sector, Spain, 2019

Number of businesses	NACE 561 Restaurants	NACE 562 Catering	NACE 563 Bars
Demography in 2019	80,736	18,112	181,230
Difference 2019 vs 2009 (%)	+13%	+64%	-11%

Source, the authors with National institute for statistics (INE, Instituto nacional de estadística) data.

As said before several studies show, such as, for example, the report "Impact of COVID-19 on the hotel industry in Spain" by A. Carvalho and P. Valdés and published by Bain & Company and EY (EY-Bain, 2020) some of the reasons why disruption has been especially severe in the food service sector. It is a fragmented sector, where business income is lower than 200k € for 40% of the outlets, while only 3% of them are over 750k € per year (including global brands as McDonalds). Table 2 describes the economic fabric, considering number of employees. It is populated by self-employment (24% in 2018, HdeE) and micro enterprises (less than 5 employees account for 95% of the total of bars, 172,000 businesses). Even though its importance as employer, wages (the average pay for a waiter is around 17k € and part time workers earns less than 10k €; average pay in Spain is 20,412 € in 2021, Adecco) and labour conditions (38% of contracts are on a temporary basis, 24% on a part-time basis) provoke a churn rate higher than the overall of the economy (48%, 16 points over, Hays, 2020) In spite of the opportunity that represents for female and youth integration (51.2% of female workers, 23.4% less than 30 years' age), the food service sector is not seen as an attractive employer. Hays 2020 labour survey highlights that 54% of workers feel demotivated and 65% plan to abandon the sector.

Table 2: Size of companies. Number of employees, Spain, 2018

% of businesses	NACE 561 Restaurants	NACE 562 Catering	NACE 563 Bars
No employees	15%	33%	36%
1 to 2	36%	32%	42%
3 to 5	30%	32%	17%
6 to 19	15%		5%
20 to 99	3%	2%	
100 and more	1%		

Source, 2020 EY-Bain, 2020 with Turespaña 2018 figures

Finally, financial sustainability is weak. The gross margin is below the national average (5.9% vs 13.1%) due to the impact of wages (37.1%) and procurement (37.6%). The business equity is also lower than the average of the economy (34% vs 50%), but the worst impact of COVID came from the liquidity available for expenses, as the experts have calculated that 55% of the outlets suffered a shortage during the confinement (total closure of full-service restaurants and bars, only delivery and take away was available, from 14th March to 16th May). This was partially softened by the measure of employment temporary reduction, that gave the Government the responsibility of the final payment of the salaries (employees were furloughed but kept their rights and were paid 70% the salary). However, during June 2020 only 63% of the outlets reopened, and the lack of activity of 29% in September 2020 sustains the estimation of 25-30% closings after the worst of the pandemic. Considering the 70% of the survivors, there are major concerns about their future because of the high sensitivity of the food service sector to economic cycles and crisis, as was proven during the 2007-2013 economic crash (EY-Bain, 2020; HdeE, 2021).

In addition to the social effect derived from employment and its conditions, it is not a rhetoric figure to say that restaurants and bars are part of the daily life of Spanish families: before the pandemic, the total food consumption of Spaniards in restaurants and bars was 34% being a year after 20% (MAPA, 2019 and 2021). Spanish households allocate 15% of their income to consumption in restaurants and bars, leading the ranking in the EU (Eurostat, 2019). Gastronomy is a cultural and creative industry, and Spain's reputed chefs and restaurants are part of our image as a country: the cultural and gastronomic tourism of foreigners in Spain during 2017 estimated at 13 million tourists, increased by 60.2% more than in 2016.

FIRM'S ATTITUDES AND ACTIONS TOWARDS THE PANDEMIC. GASTRONOMÍA JOSÉ MARIA.

The attitudes and actions of firms in the gastronomy industry have been reviewed by academic and researchers considering the "erosion of fit" (among the worker and their natural group, due to virtual work or temporary furloughing, interrelation of family and work spheres, Carnevale and Hatak, 2021), the reactions of industry leaders (when Michelin starred-chefs become social-bricoleurs, Batat, 2020) and how certain actions can increase the feeling of resilience, a key success factor in a crisis situation (Wilkesmann and

Wilkesmann, 2021). Actions as delivery and take away alternatives to full-service increase resilience, while financial and operational cost concerns reduce it (Neise, Verfürth and Franz, 2021). Furthermore, "building on the assumption that the grand challenge we currently face is not a singular, anomalous event, but rather constitutes a 'new reality'" (Carnevale and Hatak, 2021, p. 186), the present case study focuses on the attitudes and actions that a family-owned business, Gastronomía José María, placed during the long COVID journey to maintain internal positive climate and employees' motivation.

The proposed qualitative methodology, a case study, fulfils the need to gain a full understanding not only of the number of activities and events but also of the motivations and reasons, with the aim of confirming the effect on post-COVID recovery in employees' motivation and owners' resilience (Neise *et al.* 2021). The case study is an appropriate methodology for expanding the limits of the theory, and this is also true for this study on the consequences of a world-wide crisis in a global industry, whose effects are not still foreseen (Eisenhardt and Graebner, 2007). The case study of the group Gastronomía José María, founded in 1982 as a Castilian traditional "Asador", in Segovia, an UNESCO world heritage city located close to Madrid, is the result of a close collaboration of the authors with the founder and his daughter, the current CEO of the company, Mrs. Rocío Ruiz. Initially prepared as a document for discussion of country-of-origin value proposition in for the culinary arts and hospitality management marketing students, the irruption of the pandemic forced a shift to a more urgent, quick exam of the internal processes of the company and especially, to the human resources and internal marketing activities. During that process, the authors and the management of Gastronomia José Maria had frequent interactions, that finally give birth to a final document for the use of students and researchers. In the meantime, Mr José María Ruiz was given the Spanish Government Gastronomy Prize in 2020, and Mrs Rocío Ruiz was distinguished as one of the leading CEOs by the regional specialized press.

Gastronomía José María is the result of the entrepreneurial spirit of the founder, an experienced gastronomic employee in the city of Segovia. In 1982, he saw the right moment to launch his own project and took the risk opening his restaurant in a central location that had gone bankrupt. There was a moment of opportunity, Spanish economy was booming, and tourism continued to grow in Segovia, although the Mesón de Cándido and Casa Duque, with a settled and well-known name, monopolized most of the restoration. When asked about the reasons of his success, after forty years of continuous growth, his answer is clear, although intriguing: I was and I still am a dreamer. His dream was to create a family and a business, where the values of service and customer satisfaction will sustain a long-lasting, family business. Among their foundational values, that are still alive, we find managing the entire model from humility, common sense, the commitment of all stakeholders and permanent communication, internal and external. And, above all, people, the persons that are part of the project, appealing to responsibility, integrity and excellence in customer service.

The three elements of the talent management are, for José María, enthusiasm, work and training. He placed special emphasis on training his employees in customer service and taking care of them, so that they felt comfortable and motivated. He also addressed an added difficulty that derives from the specific dedication of the staff in this sector: shift schedules and seasonality. At this point he also dared to take an innovative step: he implemented a working week with two days off, something revolutionary at the time, but his success was such that in practice it was subsequently institutionalized throughout the sector in Castilla y León. In 2020, the José María Gastronomy Group already has 120 employees between kitchen, living room, bar, cleaning, maintenance or administration, as well as numerous people who provide outsourced services.

The group has an elaborated and dynamic internal communication plan, which adapts to the seasonality of the sector and the circumstances of the environment. In 2020 this plan takes a turn and is further reinforced to maintain the confidence of its employees in a state of bewilderment and absolute fear about the evolution of its sector. Thus, however the restaurant and many of the complementing business were closed, they kept on going with the stablished meeting schedule, as the daily briefing to restaurant staff, the weekly meeting of mid management and the periodical meetings of top management. These virtual meetings were implemented with the aim of keeping the close relation that the staff have built after time (Carnevale and Hatak, 2021) but also were the right place to move into new actions and offerings, that also increased management resilience (Neise *et al.* 2021; Wilkessmann and Wilkesmann, 2021).

DISCUSSION OF RESULTS

After this long period, the business has recovered customers' trust and nowadays, it's almost impossible to book a table, although they serve more of 2.000 meals on a continuous service during weekends. However, as Mrs. Rocío Ruiz says, don't worry, we will satisfy you, with a good experience and the better service, but we also need your cooperation. As evidence, hers is one of the very few places where you can be served the Segovian iconic dish, roasted suckling piglet, at any time of the day (thanks to the Gastrobar continuous kitchen service).

From the analysis of activities, four groups of actions, skills and values emerge as key success factors.

- Flexibility and sustainable conscience: Gastronomía José María business model is based on the principles of circular and sustainable economy. However, vertical integration, that helps in efficiency sustainable procurement and service process, performs as a threat during the pandemic. Decisions were taken around their piglet farm to accommodate production to the final needs of the food service operation. As many other high-end restaurants, Gastronomía José María also took the problem of existing stocks of raw materials towards and opportunity, serving in the first days of the confinement prepared meals and giving ingredients to the kitchens of hospitals and senior residences. This dual movement, keeping economic sustainability while taking care of the community is alligned of what Batat (2020), identified among the attitudes of French haute cuisine chefs.

- Authenticity and culture of service: Mission and Vision are always defined from the will of service, having as a goal the obtaining of maximum customer satisfaction. During the confinement and regional closures, this service was adapted to the situation, increasing the delivery (Business unit: Cochinillo Viajero – the travelling suckling piglet) and building a new menu for to take home. During recovery, new offerings have been incorporated in the Gastrobar offering, considering the lower purchasing power of part of their targeted customers (young students and workers).

- Internal motivation and internal marketing practices: The workforce, up to 120 employees, kept their jobs due to the Government help but they saw a reduction of salaries, and a very uncertain future. Continuous conversations, using technological tools, were prepared by HHRR team to maintain the motivation and, even more important, to keep the talent as many workers in the sector were considering leaving it. Currently they kept almost 80% of the skilled workforce.

- Customer service and social interaction. Social networks were also reviewed to keep in touch with customers and friends. Instagram was the main tool, and the protagonists were the staff, and the products, giving suggestions to comfort the spirits with some meals and drinks. Nowadays they have posted more than 2.800 publications and received thousands of interactions. Even in this traditional restaurant, digital media can be a marketing tool when filled with fresh but authentic posts.

CONCLUSIONS

A situation of global crisis caused by a global epidemiological situation that restricts and has even completely banned the mobility of people for a long time, with an effect modulated by waves of massive infection of the COVID-19 virus, which has been going on for almost two years and its effect continues to have consequences at the local, regional, national and global levels has a devastating impact on a sector such as the hotel industry. Today there is still great uncertainty about its evolution and impact in the medium term in each region or country, especially because of the diverse reactions they have had to this situation and the different consequences that this has had on citizens. In countries as Spain, this sector is very representative and not only for its direct impact but also collateral and indirect. For this reason, its recovery will, or won't, be an important revulsive for the economy and the social sustainability.

This case brings to the hotspot the different attitudes of the gastronomic food service Spanish industry during the long pandemic nightmare. While others were claiming or waiting, some as grupo José María were trying to keep the business alive. This case shows, in one hand, the importance of maintain the field cultured and prepared for the harvest. On the other, the importance of commitment with the family and the team, and with the society we serve. Their Values constitute the way to carry out this path as a permanent itinerary that, as they themselves define, is based on managing the entire model from humility, common sense, the commitment of all stakeholders, permanent, internal and external communication, and, above all, people, appealing to responsibility, integrity and excellence in customer service. To be honest, it is not so frequent to

analyse and discuss with gastronomy practitioners and students the relevance of values in a service industry. Therefore, we place this contribution around what Ritz-Cartlon define years ago as "taking care of those who care" (Kotler *et al.*, 2017), as the basement of the value service ladder, and a key learning for us, and for our students.

How the sector recovers, after the confinement and the gradual opening of restrictions, and responds to the demand in transition, are key factors for the success of the overall Spanish economy. The analysis of the structure of the sector and the mortality rate derived from the crisis, united to the previous fragmentation and asymmetry, ask about a structural change that will affect the type of business and its competition. The social impact, in terms of employment, but also because of the cultural integration of restaurants and bars in Spanish daily life, suggests that the type of sustainability of food service business should be broader, especially due to a changing resource situation, a different perception of the service received and a new consumer awareness.

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PERSON CENTRICITY: WHERE HEALTHCARE MEETS MARKETING

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ABSTRACT

An ongoing shift from disease-centric to person-centric healthcare brings the concept of person centricity to the forefront. Given the conceptual ambiguity in the healthcare literature, this research aims to reconceptualize person centricity from a service marketing perspective. It combines insights from in-depth interviews and a scoping review. The findings reveal that person centricity involves meeting patients' unique preferences and needs. These preferences and needs vary between and within persons. The implementation of person centricity is challenged by different logics regarding its advantages, costs, and normative judgments. This research provides guidance to researchers and practitioners in healthcare and beyond.

INTRODUCTION

"The most basic first principle [of marketing] is that all customers differ" (Palmatier and Crecelius, 2019, p. 8, emphasis in original).

Prior healthcare research suggests that most patients crave person centricity and want to be treated as human beings with individual demands, needs and preferences (Kaptain, Ulsoe and Dreyer, 2019). This observation calls for managing customer heterogeneity - one of the first principles of marketing (Palmatier and Crecelius, 2019) - which creates an enormous challenge for healthcare professionals who have a long tradition of adopting a provider perspective by focusing on curing the disease (Vogus *et al.*, 2020; Tomaselli *et al.*, 2020) rather than starting from the person's unique wishes, demands, and needs (Agarwal *et al.*, 2020). Academic research recognizes the value of person centricity for various healthcare actors, as it was found to enhance the patient's health outcomes and satisfaction, as well as healthcare efficiency and effectiveness (Jakobsson *et al.*, 2020; Pendharkar and Petrov, 2015).

Given the acknowledged importance of person centricity for patients, healthcare providers, and policymakers, numerous researchers have engaged in answering one critical question: what does person centricity mean? In response to this question, various researchers (e.g., Dewing and McCormack, 2017; Håkansson Eklund *et al.*, 2019) have created definitions of what it means to be person-centric and identified multiple and diverse dimensions of person centricity. As a result, extant literature is rather fragmented and a commonly accepted understanding of what person centricity entails is absent, thereby making person centricity a well-known yet ill-defined concept (Byrne, Baldwin and Harvey, 2020). Despite this conceptual ambiguity, there is widespread agreement about (1) the focus of person centricity on the uniqueness of the individual person and (2) the multidimensional nature of the concept (Byrne, Baldwin and Harvey, 2020; Tomaselli *et al.*, 2020). However, with regard to the latter, prior work does not account for between-group heterogeneity when conceptualizing person centricity. This one-size-fits all approach is rather surprising for a concept that is fundamentally based on the uniqueness of the individual person.

In light of the above, this research aims to reconceptualize person centricity from a service marketing perspective. To accomplish this, this paper reconceptualizes person centricity by building on the first principles of marketing discussed by Palmatier and Crecelius (2019): (1) all customers differ; (2) all customers change; (3) all competitors react and (4) all resources are limited. Given that "healthcare represents a service ecosystem of multiple actors that are more complex than a simplistic consideration of the doctor/patient model implies" (Frow, McColl-Kennedy and Payne, 2016, p. 25), our fieldwork is based on input from different actors of the healthcare ecosystem (i.e., patients, direct healthcare providers, indirect healthcare providers).

This multi-actor approach to reconceptualizing person centricity from a service marketing perspective advances theory and practice in multiple ways. First, this paper identifies six dimensions of person centricity which are - in contrast to prior work - not prescriptive and absolute but depend on the individual wishes, preferences, and needs of the patient (i.e., accounts for between and within patient group heterogeneity). This reconceptualization of person centricity thus incorporates customer heterogeneity as a fundamental premise of marketing and recognizes the dynamic nature of patient preferences and needs, which is in line with the 'all customers change' principle proposed by Palmatier and Crecelius (2019). Second, this research contributes to the implementation of person centricity, which is identified as a key challenge by healthcare researchers (Byrne, Baldwin and Harvey, 2020) as well as marketing researchers (Agarwal et al., 2020). Specifically, our findings indicate that the implementation of person centricity can be enabled or constrained by different logics related to (1) strategic advantages of person centricity; (2) use of limited resources when implementing person centricity; and (3) normative judgments about the advantages and use of limited resources.

CONCEPTUAL BACKGROUND

Challenges Regarding Person Centricity

Despite the acknowledged importance of person centricity with increased evidence of its effectiveness in healthcare (e.g., Edvardsson, Watt and Pearce, 2017; Olsson et al., 2013), the transformation from disease centricity to person centricity is challenging for at least three reasons. First, healthcare involves a complex ecosystem including many interrelated actors (e.g., patients, providers, payers, suppliers, policymakers), often driven by divergent interests (Frow, McColl-Kennedy and Payne, 2016; Vogus et al., 2020). The interactions between these actors are enabled and/or constrained by institutions - that is, "humanly devised rules, norms, and beliefs that enable and constrain action and make social life predictable and meaningful" (Vargo and Lusch, 2016, p. 11).

Second, healthcare has a long tradition of focusing on the provider side which is in line with the disease-centric view on healthcare provision and management (Vogus et al., 2020). However, healthcare providers and policymakers are being challenged by the increasing consumerization of healthcare services (Agarwal et al., 2020; Vogus et al., 2020), which turns patients into, not only better informed, but also more demanding actors in the healthcare ecosystem (Anderson, Rayburn and Sierra, 2019). Third, in sync with the growing amount of research on person centricity, a wide variety of conceptualizations and frameworks have been developed. As a result, a commonly accepted understanding of what person centricity entails is lacking (e.g., Byrne, Baldwin and Harvey, 2020; Rubashkin, Warnock and Diamond-Smith, 2018). This hampers the theoretical development as well as practical implementation of person centricity.

The Value of Marketing for Healthcare

The service marketing community has a huge potential to contribute to the shift towards person-centric healthcare given the central tenet of customer centricity (Shah et al., 2006). Therefore, the present paper builds on the first principles of marketing described by Palmatier and Crecelius (2019) to reconceptualize person centricity. First of all, the most fundamental premise of marketing is that all customers differ in terms of their individual preferences, wishes, and needs (Palmatier and Crecelius, 2019). Furthermore, customers' needs, perceptions and behaviors are not static, but dynamic (Palmatier and Crecelius, 2019). They change over time because of individual changes (e.g., life events such as retirement), external factors (e.g., technological development), increased experience with the product or service, or even the mere passage of time. Providers should thus not only account for differences across customers (i.e., customer heterogeneity), but also across time (i.e., customer dynamics; Palmatier and Crecelius, 2019). In addition, Palmatier and Crecelius (2019) refer to 'all competitors react' which boils down to managing a sustainable competitive advantage. In light of providing person-centric care it is relevant to stress that the competition in healthcare has changed dramatically (Agarwal et al., 2020). Given the link between person centricity and patient satisfaction (Jakobsson et al., 2019; Olsson et al., 2013), a person-centric approach can strengthen the healthcare provider's brand, offering, and patient relationships (Palmatier and Crecelius, 2019) and can thus be considered from a strategic perspective (Agarwal et al., 2020). Finally, Palmatier and Crecelius (2019) indicate that all resources are limited and providers thus have to make resource trade-offs. Healthcare providers are confronted with financial resource constraints - among other reasons - because of rising

healthcare costs (Sharma and Conduit, 2016). In this regard, it is essential to stress that empirical research provides evidence that person-centric care does not affect costs (Rathert, Brandt and Williams, 2012) and in some instances even leads to a decrease in costs (Olsson *et al.*, 2013; Pelzang, 2010; Pendharkar and Petrov, 2015).

METHODOLOGY

To generate a better understanding of person centricity in terms of its conceptualization and implementation, the present research focused on the Flemish hospital sector. This relies on grounded theory fieldwork: in-depth interviews with different actors involved in healthcare provision in the Flemish hospital sector (phase 1), in-depth interviews with patients who were admitted to Flemish hospitals between 2019 and 2021 (phase 2), and the insights that emerged from a scoping review on person centricity in healthcare (parallel with phase 1 and 2). Coincident with gathering data through interviews with different actors in the hospital sector and inductively analyzing these data, we also went - in line with recommendations to achieve rigor in (inductive) qualitative research (Gioia, Corley and Hamilton, 2013; Grodal, Anteby and, Holm 2021; Locke, Feldman and Golden-Biddle, 2020) - back and forth between the emergent themes and the insights gathered by means of the scoping review. After detailing the way in which the interview data were gathered and the scoping review was performed, we elaborate - as proposed by Grodal, Anteby and Holm (2021) - upon the movement from data to theory.

The first data gathering phase - which ran from June 2020 until January 2021 (that is, amidst the COVID-19 pandemic) - entailed interviews with different actors involved in the delivery of healthcare services in the Flemish hospital sector. Following maximal variation sampling (Creswell and Poth, 2018), the first author interviewed - in line with our multi-actor perspective - actors with different relationships with hospitals and their patients in a semi-structured way. Hence, the interviewees comprise (1) actors who directly interact with patients in the hospital, such as nurses and medical doctors (n=7), (2) actors who work in a hospital but do not directly interact with patients, such as staff members, managers, and directors (n=11), and (3) actors who do not work in a hospital, such as primary caregivers, umbrella organizations and policy makers (n=12). Altogether, the first phase resulted in 30 interviews that ranged from 25 to 140 minutes (mean = 62 minutes).

In a second phase (April 2021 - August 2021), the first author interviewed, aiming for maximal variation sampling (Creswell and Poth, 2018), patients who varied in terms of gender and age. Additionally, we also ensured variety in terms of the health conditions by incorporating patients with acute conditions (e.g., surgery, birth, or infection - n=7), patients with chronic conditions (e.g., cancer, diabetic, or heart disease - n=5) who were admitted to a hospital for at least one day, and relatives of patients who were not able to take part in an in-depth interview (e.g., children, or older adults - n=6). To include the perspectives of patients who were very vulnerable due to their age or health condition, we decided to allow relatives to act as their spokespersons. All in all, 18 patients were open for a semi-structured interview. These interviews ranged from 25 to 180 minutes (mean=74 minutes).

Parallel with the data gathering in phase 1 and 2, a scoping review was performed (April 2020 - October 2021). Specifically, we searched for relevant literature on person centricity in hospitals in the following electronic databases: Web of Science, PubMed, CINAHL, Embase, MEDLINE (Ovid) and Scopus. The terms person cent* was used in combination with dimensions, defin*, model, framework and concept*. This search resulted in 27 papers for the scoping review.

To move from data to theory, the research team combined - in line with recommendations to achieve rigor in qualitative analysis (Grodal, Anteby and Holm, 2021) - a number of analytical moves. First, two researchers of the team familiarized with the data and engaged in developing in-vivo codes to capture what person centricity means in the eyes of the respondents, which were grouped into broader categories. After comparing and discussing their coding, it became apparent that not all respondents gave the same interpretation to person centricity and their interpretations also varied across situations. After going back and forth between this observation and the insights that emerged from the scoping review, we were surprised that heterogeneity and dynamism - which represent key principles in marketing (Palmatier and Crecelius, 2019) - did not get much attention in the literature on person centricity in hospitals. We grouped the person centricity dimensions that reflect variety among respondents (heterogeneity) and within respondents (dynamism) into six abstract dimensions: (1) information provision (no/detailed), (2) decision-making (passive/active), (3) approach

(functional/socio-emotional), (4) focus (core/auxiliary), (5) relationship (distant/close), and (6) system (no/extensive). Moreover, these dimensions relate to three domains in which person centricity manifests itself: participation, experience, and connection.

As respondents also provided us with information as to why they embrace or do not embrace person centricity and its implications, we approached the data - as suggested by Grodal, Anteby and Holm (2021) - with other questions. These questions are: (1) how does person centricity in the domains of participation, experience, and connection relate to achieving strategic advantages in the healthcare ecosystem, and (2) which trade-offs occur when implementing person centricity. By going back and forth between the data and the literature on institutions and institutional logics in service ecosystems (e.g., Shah *et al.*, 2006; Vargo and Lusch, 2016; Verleye *et al.*, 2017), we identified two logics linked to the strategic advantages (competitive versus transformative logic), two logics linked to resource trade-offs (investment versus expense logic), and two logics linked to institutional trade-offs (paternalistic versus reflexive logic).

FINDINGS

Our findings reveal that patients associate person centricity with meeting their unique preferences, wishes, and needs. In this regard, several healthcare providers emphasize the importance of seeing the person behind the patient, which also encompasses seeing his feelings, expectations, and fears. Notably, our analysis of the data from the in-depth interviews confirm that person centricity involves meeting the person's unique preferences, wishes and needs and furthermore discerns multiple dimensions of preferences, wishes and needs. In addition, our findings indicate that these preferences, wishes, and needs vary between persons (i.e. patient heterogeneity) as well as within persons (i.e. patient dynamics), and that the implementation of person centricity is challenged by the coexistence of different logics with regard to its benefits (cf. competitive advantage principle), and costs (cf. limited resources principle). Meanwhile, we unravel normative judgments in relation to the benefits and costs of specific preferences, wishes, and needs, which can enable or disable the implementation of person centricity. These findings are shown in figure 1.

Figure 1: P(articipation)E(xperience)C(onnection)-model
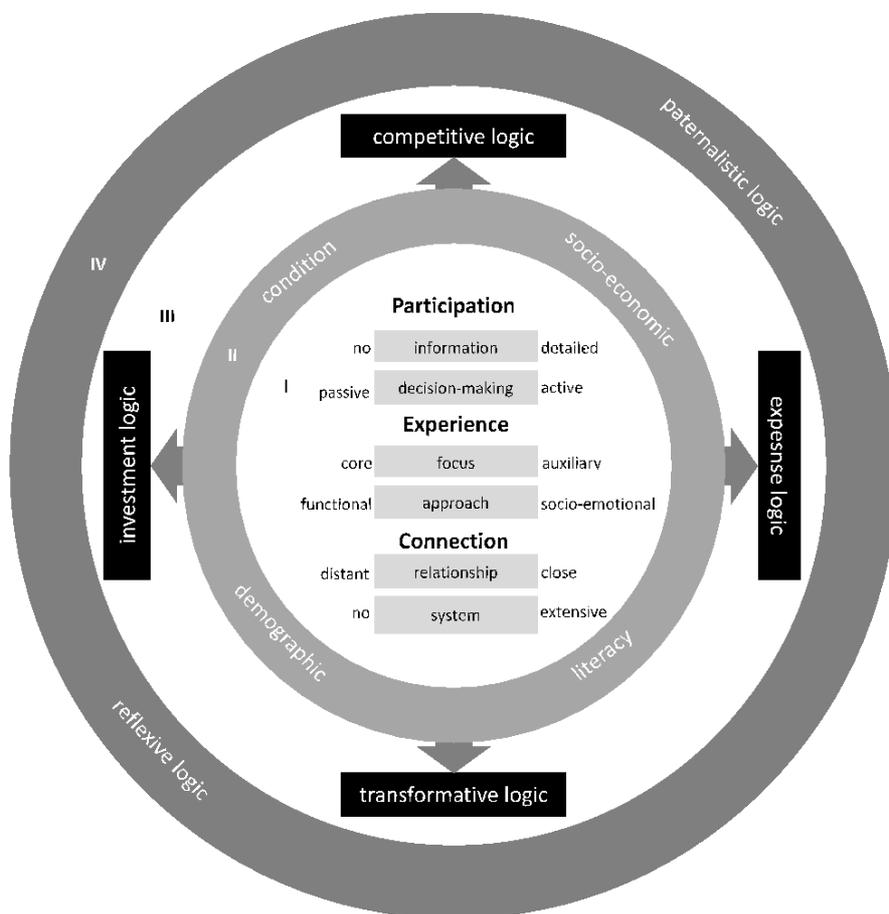
Person Centricity as a Multidimensional Concept

Our analysis of the data from different actors in the hospital sector shows that the uniqueness of patients as persons manifests itself in the domains of participation (which involves individual preferences in terms of involvement in the care process), experience (which relates to individual preferences in terms of being served), and connection (which refers to individual preferences with regard to bonding with other actors). In each of these domains, we observed - as also visualized in circle I in Figure 1 - two dimensions along which uniqueness manifests itself. For participation, we identified individual preferences, wishes, needs and fears in terms of learning facts from healthcare providers (i.e., information) and taking part in healthcare decision-making (i.e., decision-making). Uniqueness in terms of experience, in turn, reflects itself in the type of service that patients prefer (i.e., focus) and the way in which patients want to be served by healthcare providers (i.e., approach). For connection, we distinguish between individual preferences and needs in terms of bonding with healthcare providers (i.e., relationship) and bonding with other actors like family and friends (i.e., system).

Patient Heterogeneity

For each of the aforementioned person centricity dimensions, we observe heterogeneity in terms of what really matters for patients, as visualized by the end points of the person centricity dimensions in circle I in Figure 1. Heterogeneity is evidenced for both participation dimensions (i.e., information and decision-making). In terms of information, individual preferences, wishes, and needs range from wanting no information at all (e.g., "I don't need that, it may be for someone else, absolutely, but not for me" - Fey) to getting detailed information (e.g., "the pediatrician too, that was also the explanation, where I was like ok, I need that." - Helena). In a similar vein, participation reflects heterogeneity in terms of the way in which patients want to take part in the decision-making, which ranges from passive participation (e.g., "making shared decisions, that is not so easy" - Victoria) to active participation in the decision-making (e.g., "she was also very grateful for that, that they listened to her" - Gemma). In the eyes of some healthcare providers, heterogeneity with regard to information and participation is related to the health condition (e.g., "people with endometriosis and fertility problems are also known to ask for a lot of information" - Udo) and the socio-economic background of patients (e.g., "people from a different culture, perhaps also from other social classes, (...) have different views on being involved in their care (...) people with a higher educational background (...) also have a greater desire to be actively involved in their care" - Britt).

With regard to the focus of services, the data demonstrate that some patients prefer to get only the core services - such as specific medical treatments - while others also embrace auxiliary services like catering. Heterogeneity also exists with regard to the approach, in that some patients value a functional approach during service delivery (e.g., "knee surgery must be done properly and safely and the knee must be able to function properly again afterwards" - Frances) while other patients expect healthcare providers to take their socio-emotional context into consideration (e.g., " I regretted that I couldn't talk about it [how I had experienced the long labor]" - Dorys). An important source of heterogeneity in terms of experience relates to the health condition.

Regarding connection, patient preferences, wishes, and needs range on a continuum from having a distant professional relationship with the healthcare providers (e.g., "I just needed people who would professionally and kindly set that shot, who operated those pumps well, who checked everything that had to be checked (...) I didn't need more") to having a close connection with healthcare providers (e.g., "my physician is not necessarily my friend. At best, this is a good physician and a certain friendship develops" - Victoria). Bonding with other actors in their system, in turn, is embraced by several patients (e.g., "you're not the only one who gets cancer, your whole family gets cancer if you know what I mean (...) so yes, (...) include them in the process" - Fey), healthcare providers (e.g., "involved care means that you involve the person and their family" - Victor), and researchers (e.g., "the importance of contact with family members and loved ones was highlighted through this analysis" - Connelly *et al.*, 2020, p. 217). Meanwhile, however, we also observe heterogeneity, in that patients who are not on the same page as their family members may tend to be less enthusiastic about involving them in health care (e.g. "*it's her body, she was allowed to choose*" - Gemma).

Patient Dynamics

Patient preferences, wishes, and needs in terms of participation, experience, and connection do not only vary among patients (cf. heterogeneity) but also within patients along their journey with the hospital (see also circle II of Figure 1). In other words, preferences, wishes, and needs are dynamic, as outlined in the next paragraphs. The information and decision-making preferences of patients may vary from moment to moment, as acknowledged by a patient whose baby was admitted to NICU. After a pediatrician brought bad news, she was not into asking questions but changed her mind when the pediatrician returned after an hour (e.g., "he came back and asked "do you have any questions now that you have had time to process the information? Well, that was very nice" - Charlotte). Moreover, information and decision-making preferences may also change as a patient's journey in the hospital progresses over time, not in the least when patients are confronted with a chronic disease and become more knowledgeable and hence boost their health literacy (e.g., "chronic patients tend to be more assertive as not all, but many, become experts in their own pathology" - Filip).

In the academic community, many researchers emphasize the importance of responding to changing preferences, wishes, and needs when organizing healthcare services (e.g., "Reassessing the care plan on a regular basis helps to determine the plan's effectiveness, to address the person's evolving health and life goals, and to address changes in the person's medical, functional, psychological, or social status." – Goodwin, 2016, p. 16). By doing so, these researchers anticipate changes of experience preferences, wishes, and needs over time. Patient preferences, wishes, and needs in terms of relationships with healthcare providers were found to vary along the journey, as patients may want to connect with some healthcare providers along the journey but not with others. One of the patients, for instance, mentioned that she really appreciated the connection with the physician just before the surgery, but she did not need that kind of connection with the nurse afterwards: "Especially if that person has to operate you, that he knows who you are and says that everything will be fine (...) he cares and he will do his best" (Dana).

Person Centricity and Strategic Advantages

Several healthcare providers recognize that hospitals are embedded in a competitive environment: "We are in a landscape where yes, it is very competitive. A hospital is an organization that in the end needs to sell its care and, yes, you need to consider that the patient of the past is not the care customer of today" (Ulrik). In this competitive environment, a number of healthcare providers actors - such as Ulrik - see person centricity as a means to achieve competitive advantages, which reflects a competitive logic. Meanwhile, other healthcare providers believe that person centricity should be an end itself because of its inherent potential to improve people's well-being. With this orientation towards improving people's well-being, we contend that these healthcare providers adopt a transformative logic, as represented in circle III in Figure 1. It is important to note that healthcare providers can combine both logics.

Person Centricity and Limited Resources

With regard to the implementation of person centricity, healthcare providers are confronted with limited resources. Victor - a medical doctor in a managerial role - refers to limited financial and human resources within hospitals (e.g., "I want to hire someone in my department who can take over secretary work from nurses [...] I need the nurses at the hospital bed, not behind a computer screen [...]. But this [hiring someone for the administration] costs too much" - Victor). Similar resource constraints are mentioned by other managers ("it depends on your supervisor and whether you have sufficient staff in your department, since you have to make time for this [...] You can have a board of directors who encourages this but if you do not have the people or resources, this is very difficult" - Josephine). As a consequence of limited resources, frontline employees may experience time constraints when it relates to implementing person centricity ("If you only have a limited amount of time, you focus on efficiency. In that case, you are not going to sit next to the hospital bed for 15 minutes", Wilma). In this resource-constrained environment, healthcare ecosystem actors are urged to make resource trade-offs. When making these resource trade-offs, the implementation of person centricity is seen as an investment by some healthcare providers (i.e., considering person centricity as an investment leading to competitive and/or transformative advantages) and/or as an expense (i.e., focusing on the expenses related to person centricity.). The investment logic and expense logic are shown in circle III in Figure 1.

Person Centricity and Normative Judgments

The data reveal that various healthcare providers have beliefs about the advantages and/or costs related to specific preferences, wishes, and needs in the domains of participation (e.g., detailed information and active engagement in the decision-making is better than no information and passive engagement in decision-making), experience (e.g., a combination of core and auxiliary services offered in a holistic way is superior), and connection (e.g., close relationships and an extensive system is superior). If these normative judgments are attached to specific preferences, wishes, and needs regardless of what advantages and/or costs patients link to these person centricity domains, we label this logic as paternalistic. In contrast with a paternalistic logic that may hinder the implementation of person centricity, healthcare providers may also adopt a reflexive logic by critically reflecting upon their normative judgments in relation to the person centricity domains, thereby enabling the implementation of person centricity. These logics are visualized in circle IV in Figure 1.

DISCUSSION

Theoretical Implications

This reconceptualization has various theoretical implications. First, this research endeavour highlights that person centricity manifests itself in three domains (i.e., participation, experience, and connection), each consisting of two dimensions. By identifying these person centricity domains along with its dimensions which represent the views of multiple actors in the healthcare ecosystem and the academic community where different conceptualizations circulate (see circle I in Figure 1), this research contributes to the person centricity literature which calls for a better understanding of the concept (Byrne, Baldwin and Harvey, 2020).

Second, while prior conceptualizations of person centricity in the healthcare literature reflect a one-size-fits-all approach (e.g., Erwin et al., 2020, Fearns et al., 2017), the interview data suggest - in line with the first principles of marketing (Palmatier and Crecelius, 2019) - that patient preferences, wishes, and needs for each of the person centricity dimensions vary substantially both across patients (heterogeneity) and within patients (dynamics), as shown in circle I in Figure 1. By unraveling patients' uniqueness in relation to participation, experience, and connection, this conceptualization provides an actionable approach to turn Agarwal et al.'s (2020) model of value-centered marketing in healthcare - with patients' wishes, preferences, and needs at its heart - into practice.

Third, the present research shows that different logics exist when it relates to the advantages of implementing person centricity (see circle III and IV in Figure 1). The present research shows that person centricity can be considered as a way to improve the well-being of patients while enhancing the hospital's competitive position, thereby building upon the marketing literature that describes customer centricity as a path towards mutual value creation by "creating value for the customer and, in the process, creating value for the firm" Shah et al. (2006, p. 115).

Fourth, in addition to the competitive and transformative logic, the current work also discerns two logics related to limited resources. This research builds upon previous studies (e.g., Shah et al., 2006; Strandvik, Holmlund and Grönroos, 2014) by suggesting that the expense logic and the investment logic can coexist within the healthcare ecosystem and may cause tensions when implementing person centricity.

Fifth, this research not only identified logics linked to the advantages (cf. competitive/transformative logic) and costs (cf. expense/investment logic) that come along with person centricity, but also unraveled normative judgments with regard to specific preferences, wishes, and needs in terms of its advantages and costs. By emphasizing the importance of reflexivity when implementing person centricity, this research builds upon institutional theory where reflexivity is deemed necessary when implementing changes in day-to-day activities (Cardinale, 2018). Although this theory is finding its way to the service marketing literature (e.g., Vargo and Lusch, 2016; Verleye et al., 2017), it is not yet fully embraced by healthcare and marketing scholars.

Sixth, and summarizing the latter three points, the six logics represent institutions, that is "humanly devised rules, norms, and beliefs that enable and constrain action and make social life predictable and meaningful" (Vargo and Lusch, 2016, p. 11). Indeed, each of these logics entails rules, norms, and beliefs that may guide the actions of healthcare providers and, as a result, enable or hinder the implementation of person centricity. In addition to the four first principles of marketing proposed by Palmatier and Crecelius (2019) - i.e., all

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customers differ; all customers change; all competitors react and all resources are limited - we thus propose a fifth principle: 'all actors are guided by institutions'. We thus contend that institutions are not only relevant in healthcare ecosystems, but are relevant in other contexts. Indeed, institutions may draw actors toward some course of actions - such as implementing person centricity - over others (Cardinale, 2018), which provides additional support for adding a fifth first principle of marketing.

Practical Implications

The PEC-model proposes a comprehensive set of dimensions along which patients' preferences, wishes, and needs may vary. Healthcare providers who strive for a person-centric organization and/or person-centric interactions with their patients can use the PEC-model as a starting for discussing, measuring, and plotting their patients' preferences, wishes, and needs in terms of participation, experience, and connection. However, as several respondents in our study drew parallels with other service contexts (such as hotels and retailing), we believe that the PEC-model is also relevant for other service providers who strive for person centricity. Moreover, healthcare and other service providers can use the PEC-model to reflect upon their positioning in terms of person centricity towards the outside world. Knowing the dimensions of person centricity enables service providers to reflect upon alternative routes to person centricity in their offerings.

When implementing person centricity, this research points to the relevance of logics. This implies that service providers striving for person centricity have to understand the logics that enable or hinder the implementation of person centricity. For instance, where a competitive and transformative logic are likely to enable the implementation of person centricity, a cost logic may act as a hindrance. Besides understanding these logics - which reflect institutions - and their potential impact, service providers can (pro)actively break, make, or maintain institutions which has been referred to as 'institutional work' (Pop *et al.*, 2018). Hence, a person-centric organization does not only believe in the necessity of putting the patient's preferences, wishes, and needs first but also has the capability to engage in institutional work when deemed necessary.

Limitations and Future Research

First, this research relied - due to COVID-19 - on a combination of face-to-face and online interviews. Dodds and Hess (2020) contend that these types of interviews differ in terms of, among others, the opportunities for reading non-verbal communication (i.e., easier to read non-verbal communication during face-to-face than online interviews) and convenience (i.e., online interviews being less intrusive and comfortable than face-to-face interviews). Although a comparison of the data gathered through face-to-face and online interviews suggested that the channel did not affect the content of the interview, future research might benefit from further investigating the benefits and drawbacks of different types of interviews for gaining insight into person centricity and even engage in other types of data gathering to explore this phenomenon.

Second, all in-depth interviews were conducted in Flanders, Belgium, which calls for interpreting the findings with caution and not generalizing them. Even though we compared insights that emerged from our interview data with academic evidence identified by means of an international scoping review, future research could explore to what contexts these findings can be extrapolated, as different countries may reflect different demographic, socio-cultural, economic, technological, ecological, and political-regulatory characteristics.

Finally, the research team was interdisciplinary, in that two members had a background in service marketing, one member experience with healthcare services, and one member was active in both the service marketing and healthcare community. Despite the interdisciplinary nature of the team, all team members live in the same Western European country. To check the relevance of the theoretical insights that emerged, this research was presented at (inter)national conferences in the marketing and healthcare domain where our perspectives on the data were challenged. This important feedback on the data analysis was incorporated in the development of this research, yet future research might further build on the PEC-model to contribute to person-centric services within and beyond healthcare.

CONCLUSION

This research puts forward a comprehensive model for understanding person centricity and its implementation in healthcare (i.e., the PEC model), which may have implications beyond the healthcare field.

This model is based on the notion that patient preferences, wishes, and needs regarding participation, experience, and connection vary (1) between persons (i.e. patient heterogeneity) as well as (2) within persons (i.e. patient dynamics) and the implementation of person centricity is challenged by the coexistence of different logics with regard to (3) its benefits (cf. competitive advantage principle), (4) its costs (cf. resource limits principle), and (5) the extent to which actors question their logics or not (cf. normative judgments).

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"THE BEST SOLUTION WOULD PROBABLY BE TO NEVER TRAVEL ANYWHERE" – EXPLORING CONSUMERS' PERCEPTIONS OF LOW-CARBON HOLIDAY TRAVEL

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ABSTRACT

This study explores the overall perceptions as well as the enablers and barriers that consumers attach to low-carbon modes of holiday travel in the age of growing climate concern and "flight shame". The study contributes to existing research on sustainable consumer behavior by proposing a low-carbon holiday travel perception framework that illustrates factors behind the decisions tourists make regarding holiday transport mode choice. The research helps in gaining a wider understanding of what directs tourists towards or away from sustainable modes of travel that provides important implications both for academics and managers operating in tourism business.

INTRODUCTION

Sustainability is gaining growing attention among consumers, firms, politics, and academics. In particular, the change of individuals' consumption behaviors is considered to be an important prerequisite for sustainable development (Wang *et al.*, 2020). Research on sustainability and consumer behavior has taken place for decades and consumer sustainability behavior has been researched widely both in the discipline of psychology (Schultz, 2014) as well as in marketing and consumer behavior (Kronthal-Sacco *et al.*, 2019). Furthermore, there is a growing number of social movements among organizations to increase sustainable behavior with the message that clearly states that engaging in environmentally sustainable practices can be a huge competitive advantage for firms (Ketron and Naletelich, 2019).

Sustainability is becoming an emerging issue in tourism and customers in this sector increasingly demand green products (e.g. environmentally responsible hotels, destinations, resorts and airlines) (Han, 2021; Wang *et al.*, 2020). Recently, the high CO2 emissions caused by holiday travelling, especially flying, have risen to public debate, which encourages consumers to search for alternatives to flying. More ecological, low-carbon holiday transport modes are seen to offer a more sustainable option to conventional tourism travel. Despite the increasing importance of understanding sustainable consumer behavior in this context, existing research on consumer perceptions towards low-carbon holiday travel and especially on the barriers and the enablers that consumers attach with these modes of travel, is very scant. The existing studies have examined, for instance, the role of values in voluntary air travel reductions (Büchs, 2017), tourists' behavioral intention towards slow travel in a quantitative manner (Lin, 2017), and tourist perceptions of climate impacts of international air travel and possible mitigation policies (Becken, 2007). However, qualitative research taking an in-depth, explorative approach to consumer perceptions towards low-carbon modes of holiday travel seems to be lacking. By adopting qualitative methods, a deeper understanding of a phenomenon in a certain cultural context can be formed (Myers, 2013), therefore helping in building a more holistic understanding of the topic at hand.

The purpose of this study is to map out the overall perceptions as well as the enablers and barriers that consumers attach to low-carbon modes of holiday travel in the age of growing climate concern and "flight shame". The main research question is: *What perceptions consumers have related to low-carbon holiday travel?* It can be divided into two sub-questions: *What are the enablers related to low-carbon holiday travel? What are the barriers related to low-carbon holiday travel?* The answers to these questions will be explored first, by reviewing literature on sustainable consumer behavior and based on that forming a loose theoretical framework that is used as a basis for empirical study. Empirical data is collected in qualitative focus group interviews where discussions about green travel shed light on what consumers think about low-carbon holiday travel and whether they see it as a possible option. More specifically, the aim is to gain understanding of matters that consumers think aid or prevent low-carbon holiday travel behaviors. This study thus

contributes to existing research on sustainable consumer behavior by proposing a low-carbon holiday travel perception framework that illustrates factors behind the decisions tourists make regarding holiday transport mode choice. The research also helps in gaining a wider understanding of what directs tourists towards or away from sustainable modes of travel that provides important practical implications for managers operating in tourism business.

LITERATURE REVIEW

As issues of climate change have become more prominent, so have discussions of sustainable development. Sustainable development encompasses three dimensions: the economic, ecological and social dimensions, pertaining to the welfare of the economy, the natural world and humans, respectively. Various concepts and theories have been used when examining consumer behavior that takes into account these three aspects when purchase decisions are made. For example, Han (2021) provides a review on social psychology and environmental psychology theories that have been widely applied and used in explaining pro-environmental behaviors among consumers. He points out that "environmentally-sustainable consumer behavior" is a term that is broadly utilized and employed as an umbrella concept that highlights individual's various actions saving natural resources, reducing environmental harm, meeting the green needs of society, and improving his/her life quality (Han, 2021). In this study, we adopt this viewpoint and draw broadly from studies dealing with sustainable consumer behavior, including research on critical consumerism, intention-behavior gap and sustainable holiday travel to better understand consumers' perceptions of low-carbon holiday travel.

In the recent decades, critical consumerism has gained popularity as it aims to answer the need of driving change in the market-driven modern world (Stolle and Micheletti, 2013). Critical consumer discourse is based on the idea that commodity choice is believed to both fulfil private consumer needs related to achieving health and happiness as well as simultaneously benefitting the society, whether it be in terms of sustainability or social issues (Johnston, 2008). These discussions are based on the notion that consumers have shifted from only having "enlightened self-interest" to also being interested in the common good, having "expanded self-interest" (Gjerris *et al.*, 2016). However, it has also been criticized whether any substantial change will be achieved by including the moral ponderings of critical consumerism into consumers' buying behavior as "ethical consumer strategies seem more like niche marketing opportunities allowing corporations to target privileged, conscientious consumers, than a substantive program for health, sustainability, and social justice at a global scale" (Johnston, 2008, p. 240).

Furthermore, studies examining sustainable consumption mindsets and actual consumer behavior have found, that consumers do not often act as sustainably as they report about their intentions to do so (Moisander, 2007; Hassan *et al.*, 2016). This phenomenon, often termed as behavior-intention gap, can aid in understanding consumers and their concerns better, e.g. what keeps them from fulfilling the intention. Previous research has found many possible explanations for the discrepancy between attitude and behavior, such as the normative influence of surrounding people and the temporary nature of attitude and its tendency to change over time (Kollmuss and Agyeman, 2002). Hassan *et al.* (2016) suggest that a possible explanation for the intention-behavior gap is that intention contributes to consumer decision-making and so does perceived behavioral control – a consumer's perceived ability to control their behavior to reach the desired outcome. However, they conclude that much research needs to be done to comprehend the motivational journey from intentions to actions.

When it comes to enablers and barriers of sustainable consumption, for example Han (2021) identifies key drivers of environmentally-sustainable consumer behavior as green image, pro-environmental behavior in everyday life, environmental knowledge, green product attachment, descriptive social norm, anticipated pride and guilt, environmental corporate social responsibility, perceived effectiveness, connectedness to nature and green value. Barriers, on the other hand, can be related to that consumers struggle to turn existing knowledge about sustainable consumption choices into action due to the perplexity and polyphony in the current sustainable consumption discourses (Markkula and Moisander, 2011). In addition, Johnstone and Tan (2015) found that according to consumers being green is too hard, there is a stigma surrounding green consumer behavior and cynicism towards the effects of green products as opposed to conventional ones. Furthermore, as Moisander (2007) explored the motivational complexity of green consumerism, she argues that due to the complex nature of environmental issues, consumers have a difficult time navigating the multiple sides of the issue and the complex ethical issues related to them.

In this study we focus on tourism sector that has a big role in reducing the environmental impacts of consumer behaviors by promoting customer behavioral changes to be environmentally responsible in diverse consumption situations (Han, 2021). Sustainable tourism is defined by the UN Environment Program and UN World Tourism Organization as "tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities." Within it, various directions can be identified, such as "eco-tourism" and "slow travel movement" that aim at offering more sustainable alternatives for conventional tourism (e.g. Dolnicar and Leisch, 2008). Sustainable holiday travel, the specific context of this research, refers to traveling to a destination in a sustainable manner. It is to be noted, that this research is concerned with mostly the transportation to and from the holiday destination(s), whereas sometimes sustainable holiday travel can be linked to e.g. traveling to naturally remarkable locations or staying in lodging that highlights sustainability. This is an increasingly important context as holiday travel has extensive climate impacts. The emissions of air travel are estimated to grow by around 4-5 % of global carbon dioxide emissions in the coming decades (Grote *et al.*, 2014). Aside from carbon dioxide, other emissions of air travel also contribute to climate change, resulting in air travel constituting for approximately 4 % of total emissions that warm the climate (Suomen ympäristökeskus, 2019). Furthermore, air travel has a significant impact on a person's carbon footprint (Büchs, 2017) and transport accounts for most tourism-generated emissions (Gössling, 2002). Therefore, reducing air travel and finding new ways to travel during holidays could be one influential way of promoting more sustainable tourism and a more sustainable future in general (Büchs, 2017).

Due to the international nature of aviation, it is not included in for instance the Kyoto protocol, that demands nations to adopt certain greenhouse gas targets (Becken, 2007). Because there is a lack of regulation, reducing air travel related emissions is currently individual consumers' responsibility (Barr *et al.* 2010) since scholars estimate, that considering the growth projections of the aviation sector, new technologies and other mitigation strategies are not enough to answer the need for emission reduction (Peeters *et al.*, 2016). However, whether consumers do want to adopt this role can be questioned. Barr *et al.* (2010) and Becken (2007) note that modern tourism, enabled by low-cost flights has become an inseparable part of the modern lifestyle. It is also to be noted, that as climate change progresses, its effects, too, can affect tourism and the behavior of tourists. However, more research is needed to assess the complex nature of changes caused directly and indirectly by climate change in relation to its effects on tourism (Gössling *et al.* 2012).

Thus, various internal and external factors, both enabling and inhibiting ones, influence sustainable consumer behavior or lack thereof. Both marketers and psychologists have aimed to provide their explanations for such behavior, but more interdisciplinary research is needed to assess such complex forms of human and consumer behavior. Specifically, more profound empirical research that focuses on certain meaningful contexts is needed. This study aims to fil this gap on its part and the empirical research is discussed next.

METHODOLOGY

As an explorative inquiry into consumer perceptions, the study takes an interpretive approach, which is concerned with human sense-making in different, emergent situations (Kaplan and Maxwell, 1994). As qualitative data can offer subjective insights into complex phenomena (Auerbach and Silverstein, 2003), it is a suitable approach for analyzing the perceptions of consumers, which can indeed be complex and context-dependent in their nature. The qualitative data was collected by conducting focus group interviews and recording them. Focus group interviews are group discussions often used in the marketing field to give insight with regards to people's attitudes of a particular product or a service (Wilson, 2010). In addition to focus groups being an effective form of interviewing, they can enable ideas and thoughts to emerge from participant interaction (Wilson, 2010). Interviewees for the focus groups were searched by using social media (Facebook and Twitter). To avoid potential bias in the interviews, we encouraged all types of consumers to participate regardless of, for example, their travelling experiences, age or social background, in order to assure as versatile and extensive data as possible. In addition, we announced that no prior interest or information pertaining to the subject was needed. The five focus group interviews, each consisting of three participants, were conducted between February 26th, 2021 and March 12th, 2021. Due to the global COVID-19 pandemic, the interviews were conducted virtually on Zoom and recorded. Altogether 15 individuals participated in the interviews, that lasted from 90 to 40 minutes.

The interview questions were semi-structured, enabling the focus group moderator to ask additional questions to expand and encourage the participants to elaborate further. The interviewees' environmentally inclined consumption tendencies were discussed first by asking general questions pertaining to sustainable consumer behavior. From the general questions, a shift to more specific questions followed, related to holiday travel tendencies and thoughts about different modes of travel. To stimulate thoughts among the interviewees, a comparison of emissions for different modes of transportation was presented during the interview, as well as a short route guide for a train holiday trip from Finland to Paris, France. It is to be noted, when discussing subjects of moral complexity, that interviewees might be biased to report behaviors and intentions that are socially more acceptable (Becken, 2007). Therefore, the questions were designed keeping this aspect in mind, i.e. emphasizing the importance of all types of perceptions for research purposes. The recorded data was transcribed and coded using inductive coding, where the codes emerge from the transcribed material (Wilson, 2010). The material was read through multiple times and based on the interviewees' transcribed comments, codes were assigned to them. After the initial coding, the most important topics with regards to the research questions were gathered and the analysis themes were based on them. During the analysis, the codes were edited and added as new points of interest emerged from the data. The results of the interview transcriptions' analysis are presented next.

EMPIRICAL FINDINGS

First, the key factors of consumer perceptions on low-carbon holiday travel will be dealt with and this is followed by discussion on enablers and barriers to low-carbon holiday travel. It is important to notice, that the key factors of consumer perceptions represent more general level insights towards low-carbon travel, and these are both affecting and being affected by the perceived enablers and barriers. In addition, all the aspects identified (including the general perceptions, enablers and barriers) are strongly interrelated and even overlapping at some level. However, for the sake of simplicity they are discussed under three separate titles.

Key factors of consumer perceptions on low-carbon holiday travel

The key factors of consumer perceptions of low-carbon holiday travel refer to the aspects that guide and influence the general views and opinions that the consumers have towards low-carbon holiday travel. These are identified in this study as 1) level of environmentally-oriented mindset, 2) knowledge of available travel options, 3) perceived fit of the trip at hand to travel mode and 4) contextual factors. First, concerning *the level of environmentally-oriented mindset*, we found that specifically the environmental factors are what drive consumers to engage in slow travel. Depending on the context and situation at hand, certain modes of transport are favored over others, and the interviewees seem to seek out modes that would offer certain benefits without compromising on the environmental impacts of the travel mode. Based on the data, there is growing awareness of environmental issues among consumers. It was noted by the interviewees that issues like traveling without planes were not discussed to a similar extent ten years ago and how flying to Central Europe for a quick weekend getaway used to be regarded in a very positive light at that time, but not anymore. Thus, environmental issues are gaining more attention among interviewees, as the following quotation reveals: *"My last trip abroad was to France and I flew there. After that, in fact, I have thought very much, even more than before, about how I could travel in Europe without flying because I realize that flying is a big burden to the climate"* (Man, 27 years). Overall, the interviewees' level of perceived responsibility and relationship to climate change seem to have a strong influence on their perceptions of low-carbon holiday travel. Many interviewees reported strong commitment to traveling without planes and told that they have been, for example, traveling by train abroad due to the commitment to use low-carbon travel modes. In addition, they pointed out that they are willing to sacrifice something, such as the ability to go far fast, due to this commitment.

Second, *knowledge of travel options* is closely related to the above discussion about consumers' awareness of environmental issues. Interviewees had noted that examples of public figures avoiding flying for climate's sake and interest towards train travel and other low-carbon modes of travel have all been increasing. Due to this phenomenon, their own and their peers' mindsets seems to be changing. Furthermore, while the interviewees clearly were aware of the effects of their actions on the climate and reported paying attention to their habits from the environmental point of view, there seems to be some confusion as to which sources to trust, for instance, related to evaluating the impacts of one's actions. One of interviewees comments the emission comparison chart discussed during the interview as follows: *"Every time I see comparisons like this,*

I can almost be certain that something has been left out or it has been counted in a way that highlights one matter over another. [...] I also have the impression that while the emissions of ferries might be relatively ok, they cause other kinds of issues in the water system that might have more direct consequences than CO2 emissions and such have. So, it is a bit difficult to compare those." (Man, 29 years). Thus, the climate change issues are multi-faceted in nature and being able to question such estimates demands some inclination and interest towards climate-change-related topics. One of the interviewees concludes well the frustration and confusion that is apparent among interviewees': *"It would be so nice to always travel by train that does not emit anything and the electricity of which just appears from somewhere without having to think about it much. But I have also been thinking that the best solution would probably be to never travel anywhere."* (Woman, 25 years) Consumers experience a lot of confusion related to navigating sustainable consumption that is caused due to vast amounts of changing information that can be conflicting. Similarities can be detected when interviewees ponder vehicle choice, sources of energy and the trustworthiness of emission calculations.

Third, *perceived fit of the trip at hand to travel mode* was found as an important aspect of consumer perceptions on low-carbon holiday travel. This was related both to trip planning process and choosing the mode of travel. In the data we noticed that the importance of destination for typical tourist can be seen as opposed to the importance of the journey among avid slow travelers. Interestingly, there seemed to be at least two methods for how trips were planned: one, where first the destination was defined, and the trips were planned around it. This was used usually when meeting friends or relatives who reside in a certain place was the motive for the trip, or when deciding to go to an interesting destination that would fit the budget and the time available. On the other hand, committed low-carbon travelers reported that the low-carbon transport choices as well as available time are key in defining their chosen destination. *"Usually during the last couple of years, I have thought of destinations which I can reach by car, train, coach or in some cases the ferry. Those, as well as the time I have available, have defined where I would travel. In some cases, the mode of transport itself has been the basis for the travel plans."* (Woman, 25 years) None of the interviewees mentioned a specific preference or liking to any certain mode of travel. However, some modes of travel are favored over others in certain contexts for various reasons. For instance, places outside of Europe were not even discussed as possible destinations by the interviewees. Domestically, public transportation was not always deemed the best way to travel everywhere either. Nature destinations such as national parks and hiking destinations were seen as hard to access without a car at one's disposal, and especially Northern Finland is recognized as a place where a car is needed to get around. Thus, based on the data, the destination and mode of traveling are important factors that influence each other. For some the destination comes first, whereas for others the mode of traveling is more influential factor when choosing a holiday travel destination.

Finally, various *contextual factors* were recognized in the analysis, that affect consumer perceptions on low-carbon holiday travel. As an example of this, the perceived necessity of flying instead of using other modes of travel became apparent among the interviewees. Consumers who travel abroad to meet their relatives and friends during holidays and often have a tight schedule due to work or studies, reported that flying is their mode of choice due to these factors and that giving it up would be too large a sacrifice despite its environmental impacts. Also, price is mentioned as an important aspect and the participants often evaluate monetary costs in relation to other travel mode factors such as duration of trip and comfort of the transportation, as well as the ecological impact of transport mode choice: *"Domestically I mainly travel by train because I like it and its ecological nature is the most important aspect for me. Taking a bus or even flying might sometimes be cheaper but taking a bus to somewhere like Helsinki sounds like a nightmarish idea so my indolence plays a role there. And the price... well not as much, I might even take a night train from time to time because it is more comfortable."* (Woman, 23 years) Lifestyles that necessitate flying combined with the climate conscious attitudes have caused some interviewees to find ways to get to their destinations efficiently but without burdening the climate as much as commonly used jet engine planes do. Among other options, the interviewees have investigated the possibilities of choosing flights that are operated with a propeller engine plane, since they omit less carbon dioxide than jet engine planes. However, this practice is deemed difficult since a flight can, after all, be operated with a regular plane instead of a propeller engine unannounced, which would *"ruin the idea of more ecological travel completely"* (Woman, 29 years). Other options to lessen the environmental impact of travel without raising the travel time significantly would be avoiding layovers either by taking direct flights or flying halfway and taking the train for the rest of the way. Overall, personal preferences, thoughts and expectations can be seen as important contextual factors.

Perceptional enablers to low-carbon holiday travel

Perceptional enablers to low-carbon holiday travel refer to positive factors that the interviewees attach with low-carbon travel. Based on the analysis, these include: 1) expected low-travel benefits, 2) earlier experiences of low-carbon holiday travel, 3) peer examples and advice available and 4) engagement to pro-environmental consumer behavior. First, avoiding flying when traveling, is seen by the interviewees as a mode of travel that enables exploration of new places also aside from the final destination. Based on the data, *low-travel benefits* include ability to experience the act of traveling in a more concrete way, watching sceneries pass by and the chances of meeting new people and enjoying the journey. These aspects related to slow travel were repeated in the interviewees' stories, and new experiences and the concreteness of the journey were considered integral for the travel mode.

Secondly, and closely related to benefits discussed above, many interviewees mention their positive *earlier experiences* of public transport, especially of train travel, for example in Central and Southern European countries. The interviewees highlight especially the number of connections and ease of traveling by train within one country and even between countries. Some participants also mention their Interrailing as a dream or an idealized picture of an adventurous train trip and the Interrail ticket was even referred to as a "key to happiness". Living in the moment and enjoying the journey as well as the destination, getting to spend quality time with travel company and seeing one's travel plans come true during the trip were seen as important benefits for the interviewees. *"I like various aspects of this type of travel. I have always enjoyed the travel portion of trips, especially if I am not in a hurry and I get to watch sceneries. One of the most boring things about plane travel to me is that I am in a sort of a tin can and after a bit I am suddenly in another place, so I do not really even get to understand the geographical relations between places."* (Man, 27 years)

Thirdly, *peer examples and advice available* were reported as a positive side and enabler of low-carbon holiday travel in the data. Examples set by public figures and other tourists who travel across Europe without planes were viewed as factors that would aid people in adopting greener transportation. Blogs and social media, as well as peers, were also discussed as sources where the interviewees would seek information, tips, and inspiration for such trips: *"I have been in friend groups where people avoid planes when traveling. I have been hitchhiking for a couple of years and when I have looked for tips related to it, I have noticed that people hitchhike between countries too and not just within one. Also "Traveling by ground" Facebook group has had a significant impact because there I have seen how people take more and longer trips with trains and coaches."* (Woman, 25 years)

Finally, some of the interviewees were clearly *engaged to pro-environmental consumer behavior* that strongly influence their traveling preferences and habits. They want to put the environment before their own traveling needs and plan the traveling based on this. *"Because I have taken this stand towards traveling by land, I have also realized how it limits my possibilities and it is something I have accepted. If I commit to these modes of travel, it means I will not get to go to many places necessarily."* (Woman, 40)

Perceptional barriers to low-carbon holiday travel

Perceived barriers to low-carbon holiday travel refer to factors that make low-carbon travel seem unattainable or unattractive. The identified barriers include 1) normativity of flying, 2) personal attitudes i.e. lack of patience and "slow-travel attitude", 3) lack of structures of tourism that would support low-carbon travel, and 4) lack of resources. First, for some interviewees traveling without planes is not seen as an attainable option. Reasons presented for this are various but the *established, normative nature of plane travel* that other travel modes are compared to suggests that the length of travel time, more complicated nature and the relative price similarity do not support traveling without planes. While the interviewees recognize the much more severe environmental impact of flying, many reach the conclusion that environmental values alone are not enough to motivate most individual tourists to voluntarily opt for travelling without planes in the current situation, like the following excerpt highlights: *"I do not want to be pessimistic, but my first thought is that if you pay 150€ for the travel costs and accommodation which may be around 50€ or 20€ at a hostel we are talking about 170€ to 200€ so with the current prices regrettably flying is at such a similar price point that spending 1 day and 21 hours travelling as opposed to around four hours from Helsinki to Paris is something I would not even consider even if it were more ecological. I would only consider it in a utopian scenario where I would have all the time and the money in the world, and it is not realistic. I would want to say otherwise but it is how it is."*

(Woman, 31 years) In relation to this, some interviewees reported having planned to use more environmentally friendly travel modes at first but then ending up booking plane tickets instead due to various practical reasons, such as those described above. Thus, normative state of flying is seen as a barrier in that it is the easiest and most common option for traveling, especially to long distance destinations.

Second, *personal attitudes such as lack of patience and "slow-travel attitude"* were identified as another important disabler that hinder the appeal of low-carbon travel. For instance, when the possibility of traveling from Finland to Paris for a holiday by ferry and by train is discussed, the travel time (1 day and 21 hours as presented in the discussed materials used in the interviews) it is deemed to be too long to justify spending only a couple days in Paris. Many interviewees said they would combine such a train trip with visits to see international friends or other intermediary stopping points to divide the long continuous travel time into shorter sections. *"I do not see myself taking a two-day trip to a single destination, I would rather divide the trip into parts, exploring and staying in places like Southern Sweden for one night and in Germany for the other. […] If the intention would be to use two entire days for the trip at least my buttocks could not take it."* (Man, 26 years) This suggests that a different kind of need is being fulfilled during an international train holiday than one where plane travel is utilized. Many interviewees discuss the need to have a certain kind of attitude during a train holiday, an attitude that would 'allow for' the trip to take a long time without frustration. This would demand loose schedules that allow for delays and ample time to be spent at the destination.

Third, the interviewees recognize that traveling by train across multiple countries demands some sort of knowledge of independent travel outside of travel agencies. Booking tickets, changing trains, navigating foreign railway stations, and carrying one's luggage as well as solving issues that may come up such as missing a train are all things that were mentioned that might make traveling on land less desirable than flying. Also, accessibility was often mentioned, and it was recognized that at an airport, customers with special needs are often helped whereas when traveling on other modes a traveler is on their own. Furthermore, railway stations were also compared with airports in the sense that while airports are international territories with usually English signs to guide tourists, railway stations might not be as straightforward to navigate as a non-native tourist. Thus, *lack of structures of tourism that would support low-carbon travel* are according to the data related to the complexity of low-carbon travel. Examples of structures that *would* support it were identified, for example, as speedier connections, easier trip planning and booking, and tax policies that would incentivize low-carbon travel instead of airplane travel.

Finally, *lack of resources* was identified as one generally reported factor negatively affecting the consumers perceptions on low-carbon holiday traveling. This is closely related to other aspects of low-carbon travel discussed earlier but forms an important barrier as well. Lack of knowledge, time and money are the most commonly mentioned resources that strongly influence the selection of the holiday travel mode and may prevent the consumer of choosing the low-carbon alternative.

DISCUSSION AND CONCLUSIONS

This study explored consumers' perceptions of low-carbon holiday travel and matters that consumers think aid or prevent low-carbon holiday travel behaviors. Next the results are shortly discussed and after that theoretical and managerial implications as well as limitations and future research ideas are presented.

Based on the study, consumers tend to have overall positive perceptions of low-carbon holiday travel. It is viewed as an exciting alternative mode of transportation that allows for a different experience than flying to a destination by plane does. The level of environmentally-oriented mindset seems to have important influence on the consumers perceptions, i.e. how aware they are of environmental issues and what is the level of their perceived responsibility and relationship to climate change. Also knowledge and experience of available travel options, perceived fit of the trip at hand to travel mode and diverse contextual factors such as necessity of flying, personal preferences and available information of environmental factors were identified as key factors of consumer perceptions on low-carbon holiday travel. Importantly, finding a certain balance between environmental issues and practical, context-related factors became evident from the data. The consumers, while they might fly, are actively thinking about ways to lessen the environmental impact of their travels and try to seek a middle ground between the environmental impact of their actions and the flying behavior that is deemed necessary.

The enablers that encourage consumers to travel using low-carbon transport modes are mostly connected to the experience-related factors of low-carbon travel. Consumers would most likely use low-carbon travel modes on a holiday which is specifically designed to fit the characteristics of such travel – to reach just one international destination is not regarded as a viable type of holiday travel in the context of low-carbon transportation. The consumers seem to view low-carbon travel as more suitable for trips that are specifically planned around roaming around in different places with no one clear destination. Spontaneity and freedom are associated with low-carbon travel as well as a certain mindset that entails flexibility and patience and also preparing well. It is viewed as an exciting alternative that allows for a different experience than flying to a destination by plane does. The consumers recognize that low-carbon travel takes more time, but they also view it as a more holistic travel experience, where changing sceneries, intermediary stops along the way, the company and time spent with travel companions and random encounters during the travels make the travel an experience itself. These kinds of benefits together with earlier positive experiences of low-carbon holiday travel, peer examples and overall engagement to pro-environmental behavior were identified as enablers and positive factors that would inspire individuals and make low-carbon travel seem like a viable option.

With respect to the barriers that the consumers experience low-carbon holiday travel to have, they are related to various negative aspects that make low-carbon travel seem unattractive. Normative nature of plane travel that other modes are compared to was emphasized in our data suggesting that the long duration of travel time, relative price as well as the more complicated nature of a trip that consists of using multiple vehicles, changing trains, overnight stays during travels and booking the tickets from various booking sites make low-carbon travel unappealing for many consumers. Also personal attitudes play an important role; some consumers simply lack patience and "slow-travel" attitude that is needed to these kinds of travel modes. Other barriers associated with low-carbon holiday travel were identified as the lack of structures of tourism that would support low-carbon travel as well as lack of resources such as knowledge needed, time and money. For example, combining low-carbon holiday transport with externally dictated schedules or arranging family holidays abroad using such modes were seen as unattainable and impractical. All in all, low-carbon travel is compared with conventional plane travel and due to its de-centralized nature, it lacks many of the benefits that the consumers associate to come with plane travel, where luggage is taken care of, information is often available in a lingua franca, wide range of refreshments are readily available and airline companies aid tourists in handling issues related to, for instance, delays that affect further connections. Since the consumers see much of these factors lacking in low-carbon travel, it is seen as complicated and something that would require special skills or experience.

Theoretically, by proposing a low-carbon holiday travel perception framework the study contributes to research on sustainable consumer behavior (e.g. Han, 2021; Ketron and Naletelich, 2019) and illustrates factors behind the decisions tourists make regarding holiday transport mode choice. We suggest that understanding consumer travel behavior can help in promoting environmentally friendlier modes of transport and therefore our study provides important insights to both academics and practitioners. As research pertaining to consumers' perceptions of low-carbon travel has been scant before, our study reveals the conflicting feelings consumers have both about flying but also about international low-carbon travel. This research further illustrates the established nature of aviation but also shows that there are factors too that facilitate other modes of travel. As especially the enabling factors that encourage low-carbon travel have not been studied in much detail before, this research helps at creating an understanding of what consumers view as factors that motivate using such transport modes during holidays.

The findings support the study of McDonald et a. (2012) in that the amount of consumer's green behavior can vary depending on the situation at hand. Different contextual factors were identified in this study that can strongly influence the choice of travel mode, such as reason for the trip, destination, distance, time/schedule, and money. Therefore, the benefits of low-carbon travel modes need to be communicated more effectively and by taking into account that even the same person's preferences may vary a lot depending on the situation and context in hand. In relation to the sustainable communication our study is line with Markkula and Moisander (2011) and Gjerris et al. (2016), in that consumers are struggling to turn existing knowledge about sustainable choices into action due to conflicting information and ethical trade-offs that make the choosing the mode of traveling complicated. Information available about the alternative options is often biased and one-sided and would require considerable efforts from the consumers to find out reliable facts to support their choices. Therefore, due to normativity of flying, they most often choose it as the easiest solution, especially to long distance destinations. This suggests that companies need to pay careful attention to transparency

and clarity in their marketing communications. In addition, to reduce the normativity of flying and improving the structures of tourism that would support low-carbon traveling, the choosing and using these alternative travel modes needs to be made more fluent, faster, and easier.

The findings reveal that also in the context of low-carbon holiday travel there exists a gap between intentions and actual behavior. We found that even if the consumers are in general strongly inclined towards sustainable behavior, they can still make less environmentally friendly choices when traveling. Our results support the previous research (e.g. Becken, 2007; Higham and Cohen, 2011) in that despite the consumers recognize the effects of their flying behavior on climate and feel that the issue should be addressed, they still are reluctant to forgo air travel for the climate's sake. Therefore, barriers that inhibit the use of low-carbon travel options need to be first recognized and then taken care of to narrow this gap between intentions and behavior.

For managers the study offers information about how consumers view different modes of transport and their potential in holiday travel now and in the future. Managerial implications to professionals operating in transport and tourism are that climate issues increasingly interest travelers and that they are seeking options to lessen the environmental impacts of their holiday travels. This is important information to all transport sectors and also marketers working in those fields – while discussions of decreasing or even abandoning flying are present, for some it is not possible, and some situations and lifestyles necessitate flying. Therefore, it could be argued that more ecological modes of aviation would be welcome on the markets. It was found in this study that while consumers seek sustainable options, they also wish for transparent and clear communications regarding those subjects and are eager to find out more about the climate impacts of their actions. This information could be used to differentiate corporate sustainability discourse in marketing since consumers seem to view corporate sustainability communications as conflicting and misleading. By fostering transparent and open marketing communications, these doubts could be alleviated, and consumer decision-making could be made easier. In addition, consumers seem to believe in the future of rail travel and are looking forward to developments in the field. Rail travel is seen as a comfortable and practical mode of transport especially domestically and potential is seen also in longer trips by train. Furthermore, this study suggests that there could be interest towards new services that would help tourists traveling by train in Europe, such as booking sites that combine European rail networks efficiently and packaged holiday options for the less experienced train travelers. This could diminish the normativity of flying and create structures of tourism that would support low-carbon travel. Potential could also lie in finding ways to combine aviation and rail travel, i.e. combining the appreciated speed of air travel with the experience-related aspects of rail travel with less environmental burden. However, to ensure this, further market inquiries should be made.

In order to drive change and lessen the environmental impacts of tourism, aside from government-level policymaking, transport and tourism businesses could approach holiday travel from a different viewpoint than conventionally. Instead of marketing a quick weekend getaway to a city destination, domestic travel options could be highlighted, and train holidays could be also marketed as a way to slow down and gain different experiences than plane travel enables. Marketing communications could highlight the aspects of low-carbon travel that are valued by the consumers: the slower, holistic travel experience consisting of adventurous exploration, quality time with loved ones or oneself, encounters on the train and spontaneous occurrences that differentiate low-carbon travel from the air travel experience that is deemed predictable by the consumers.

As all research, also this one has its limitations. The focus groups were organized in the Finnish context and Finland's location to in relation to other parts Europe, it being surrounded mostly by the Baltic Sea affects the possibilities of traveling abroad without flying. This also has an impact on the research results. Furthermore, it was said in the call for participants that the focus group discussions would revolve around practices of low-carbon emission holiday travel that might at some level explain the high level of reported commitment to pro-environmental behavior, even though it was also announced that no prior interest or information pertaining to the subject was needed. However, it may be that sustainably inclined individuals were the most motivated and interested to join a discussion related to such topics. Considering this, future research could be conducted where the pool of interviewees could represent people from different countries and backgrounds. Future research could compare avid low-carbon travelers and avid flyers that could further illustrate the differences in trip planning that a person's environmental inclination poses.

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THE INFLUENCE OF CUSTOMER HETEROGENEITY ON THE RELATIONSHIP BETWEEN SUSTAINABILITY AND BRAND EQUITY IN RETAILING

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ABSTRACT

The study analyzes the effect of sustainability on customer-based store equity, identifying the different impact between these relationships as a consequence of consumer unobserved heterogeneity. To achieve the objective, a theoretical model is tested through an estimation of a mixture regression model on a sample of 510 customers of grocery retailers. The results of the aggregated model indicate that economic, social and environmental sustainability are postulated as driving forces of brand equity towards the retail establishment. In addition, the analysis identify three latent classes that are profiled where the strength of relationships differs.

INTRODUCTION

The study of sustainability in retailing has fueled exponential interest in recent years as a result of the increasing knowledge of consumers on issues related to the environment, extending the field of observation also to its economic and social components (Park and Kim, 2016; Marín-García *et al.*, 2021). The interest of companies in sustainability is evidenced from two perspectives. On the one hand, from the organizations approach, it has been observed that acting on the different dimensions of sustainability can contribute to the development of competitive advantages. In retailing, actions aimed at achieving economic, social and environmental sustainability allow stores to differentiate from competitors. On the other hand, from the consumers' perspective, their interest is a consequence of the change in citizens' attitude towards sustainability. There is an important part of the population who choose an establishment to make purchase decisions, analyzes the origin of the product and the way it is made (Ankamah-Yeboah *et al.*, 2020). This new type of consumer prefers those alternatives that least harm society and nature. That is, the consumer becomes aware of their way of consuming and the way in which organizations produce.

In addition, the current literature that examines sustainability in retailing tries to shed light on the effects of sustainability dimensions unleash on other variables Thus, some recent studies highlight the effect of sustainability on others variables with a long tradition of research in marketing such as store brand equity (Ajour *et al.*, 2020; Elg *et al.*, 2021). These proposals state that, since brand equity has been considered a key variable for business positioning in retailing, it is important to know to what extent the dimensions of sustainability influence this variable.

Several studies suggest that consumers' perceptions on the sustainable practices implemented by companies may vary depending on the demographic and behavioral characteristics of consumers (Ankamah-Yeboah *et al.*, 2020). In other words, consumers' perceptions of the retailer's actions regarding economic, social and environmental sustainability may vary across segments of consumers. Correctly identifying the consumers' profiles is a key element when implementing sustainable practices in organizations. Therefore, due to the importance of integrating sustainability into the strategic activity of organizations, some recent works attempt to assess the relevance of consumer segmentation. However, in retailing, the literature that support how consumer characteristics can influence their perception of the sustainable practices implemented by establishments and, consequently, their impact on store equity is scarce.

In line with the above, this study examines the heterogeneous effects of consumers' perceptions of sustainable practices of retailers on store equity and describes the profile of the segments in terms of specific variables (preferred establishment, customer seniority, frequency of purchase and percentage of spending).

THEORETICAL FRAMEWORK

The analysis of sustainability from a business perspective has been one of the topics that has received more attention from researchers upon the presentation of the Brundtland Report for the United Nations in 1987. This report expressed the need of economic progress, but acquiring a more sustainable perspective. However, in retailing it has been in the last decade where this concept has received significant attention, mainly due to its proven ability to develop competitive advantages (Lavorata, 2014; Marín-García *et al.*, 2021). Research points out that sustainability is a fundamental factor for the development of organizations, given its potential to generate differentiation with respect to competitors and to engender positive consumer perceptions. All this is necessary for the survival of retail companies (García *et al.*, 2019).

In this sense, one of the main drivers of economic growth of retailers identified by researchers is the implementation of sustainable practices by organizations (Lavorata, 2014). Traditionally, the concept of sustainability has been approached from an environmental perspective following the conceptualization provided by Callicott and Mumford (1997), who define sustainability as "*an approach to conservation that would complement wildlands preservation for ecological integrity, not substitute for wildlands preservation*" (p. 32). Currently, some researchers point out that to understand sustainability it is necessary to adopt a more global perspective, where it is important to retain all the dimensions of this variable (Marín-García *et al.*, 2021). Thus, sustainability cannot be conceived without considering its three supporting pillars defined by the Triple Bottom Line theory postulated by Elkington (1994), namely, environmental sustainability, social sustainability and economic sustainability.

Environmental sustainability is related to the decisions that companies make to reduce the negative impact of their daily activity on the natural environment (Park and Kim, 2016). On the other hand, social sustainability is based on the achievement of common welfare, where cooperation and concern for society are its fundamental guidelines (Edwards, 2005). Finally, economic sustainability is associated with responsible consumption and production (McNeill and Moore, 2015). In other words, consuming and producing in a sustainable and responsible way can be a generator of good financial results for companies.

On the other hand, current literature in retailing shows that sustainability and store equity are postulated as variables that can facilitate the development of competitive advantages for organizations (Kim *et al.*, 2020; Loh and Tan, 2020; Marín-García *et al.*, 2021). These studies highlight that companies that implement actions related to sustainability contribute to improving consumers' perceptions towards these establishments, thus increasing store equity.

In this sense, some studies examine the links between these variables (Ajour *et al.*, 2020; Elg *et al.*, 2021) and how these relationships may vary depending on the type of consumer (Ankamah-Yeboah *et al.*, 2020).

Based on the above arguments, we propose the hypotheses that make up the causal model of this research, which is represented in Figure 1.

Figure 1: Proposed causal model
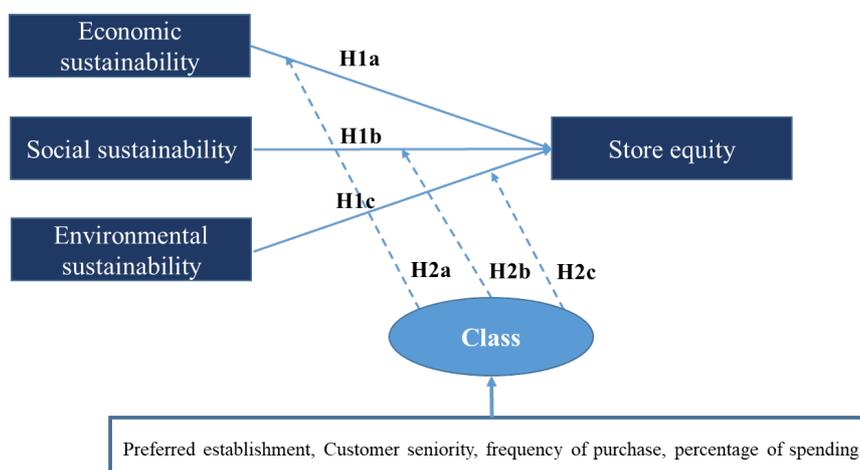
METHODOLOGY

To achieve the objectives of this research, empirical quantitative research was developed. Respondents were expected to assess a set of statements using a structured ad-hoc questionnaire. The items included in the questionnaire refer to the constructs that make up the proposed causal model. Specifically, to measure the dimensions of sustainability, the scale proposed by Lavorata (2014) was used, while store equity was evaluated through the scale proposed by Yoo and Donthu (2001). Both scales have been previously validated and used in studies in contexts similar to the one presented.

The population from which the sample was drawn consisted of customers of grocery retailing. Specifically, three different types of commercial formats were selected (hypermarkets, supermarkets and discount stores), chosen because of their privileged position in the Spanish retail sector. Finally, 510 valid responses were obtained.

A confirmatory factor analysis was performed to examine the psychometric properties of the measurement scales. The results obtained showed that all the scales met the requirements that confirm their reliability, internal consistency, convergent and discriminant validities.

A mixture regression model was estimated to test the hypotheses presented in Figure 1. This technique allows us to jointly analyze the direct effects of the independent variables on the dependent variable and identify the potential segments. In other words, through this modeling it is possible to examine the impact of the dimensions of sustainability on store equity and to test the existence of heterogeneity determining how many consumer groups exist (Wedel and Kamaura, 2000). This type of modeling is based on the assumption that the sample of consumers i (i = 1,…, 510) results from an unknown number of latent segments s (s = 1,…, S) with unknown probabilities of membership $\{\pi_s\}_{s \in S}$..

RESULTS

The mixture regression model was estimated using Mplus 8.0. In addition to the constructs mentioned above, we decided to use as active covariates preferred establishment, customer seniority, frequency of purchase and the percentage of spending. All these variables turned out to be significant.

Following the theoretical and practical criteria proposed by McLachlan and Peel (2000), the number of segments for this study was selected. After analyzing the AIC value and, taking into account the minimum value of the BLRT ratio, it was concluded that it was appropriate to retain the 3-latent segments solution. Furthermore, in this solution, the mean probabilities of belonging to the most probable class exceed 85% (class1: 0.979; class2: 0.982; class3: 0.977) with highly satisfactory results. Thus, it was decided to retain the estimation of the model with 3 latent classes as the best estimation.

For the analysis of the estimation, we proceeded in two phases. Firstly, the results linked to the aggregated model were analyzed without paying attention to the heterogeneity of the segments. Secondly, we proceeded to analyze whether the relationships between the constructs showed differences across segments.

In relation to the estimation of the global model (without considering heterogeneity), the results obtained confirm the first group of hypotheses of this research (i.e. H1a, H1b and H1c). In other words, the dimensions of sustainability have a positive and significant impact on store equity. Therefore, economic sustainability, social sustainability and environmental sustainability are driving factors of store equity.

Regarding the second group of hypotheses (H2a, H2b and H2c), the results obtained allow to support them. Specifically, in relation to economic sustainability, a positive and significant impact on store equity was observed for segments 1 and 3, being not significant in segment 2. Regarding the relationship between social sustainability and the store equity, the results show a significant and positive effect for the three identified segments. Finally, it is showed that environmental sustainability has a significant and positive impact on segment 1.

Therefore, the results obtained allow us to confirm the existence of important differences between the estimation of the aggregated model, and the estimation that does consider differences across segments. These differences support the need to study the segments by analyzing demographic variables (gender, age, educational level, employment status) and behavioral variables (preferred establishment, customer seniority, frequency of purchase and percentage of spending).

The analysis of these groups of variables makes it possible to describe each of the segments. **Segment 1**, called "**Sustainable**" is characterized by being the smallest of the three segments and by the effect that economic sustainability, social sustainability and environmental sustainability have on store equity. It is a group of consumers with a high proportion of women, high educational level and a large number of consumers between 36-45 years old. **Segment 2**, which have been labelled "**Social**" is the biggest one. Consumers in this segment are characterized by paying more attention to social actions carried out by stores than consumers in other group. It includes older consumers with lower educational level (mostly primary studies) than other segments, and with a small number of unemployed people. Finally, **segment 3** is named "**Socioeconomic**", since consumers in this segment value actions related to social sustainability and economic sustainability, being the basis for creating positive perceptions of store equity. This group of consumers includes a high proportion of men, where students and the unemployed predominate.

CONCLUSIONS

The results of the aggregate model indicate that economic, social and environmental sustainability are driving forces of store equity. Specifically, social sustainability shows the greatest impact on consumer perception, emerging as the main element in the development of store equity. Furthermore, the analysis of unobserved heterogeneity identifies three latent classes in which the effects of perceptions on sustainable retail activities vary across consumer segments.

From a business management perspective, retailers may use the results of this work in different ways. Sustainable economic, social and environmental actions can be a source of competitive advantage if used by retail store managers credibly. Thus, retailers may increase the presence on the shelves of products such Fair Trade products and ecological products, and may certify their participation and collaboration with social institutions or their reduction of materials for the production of products. In addition, the implementation of actions related to sustainability can be a differentiating element compared to competitors if they are designed according to the needs and preferences of each segment.

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SUSTAINABLE TOURISM SERVICES: WHAT TOURISTS NEED TO WALK THEIR TALK

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ABSTRACT

In facing global challenges such as resource scarcity, climate change, species extinction, poverty and human rights violations, consumers are developing an increasingly sustainable mindset resulting in a higher demand for sustainable products as well as services. However, the majority of consumers fail to translate their positive attitudes into corresponding behavior. In the area of services, this issue becomes a specific challenge. Since services exhibit information asymmetries, we assume that clear, transparent and credible communication can be key to closing the gap between intention and behavior. The results of two studies (semi-structured interviews and a quantitative CIT study) support this assumption and help tourism practitioners and researchers in improving their sustainability communication.

THE SUSTAINABLE MIND BEHAVIOR GAP IN TOURISM

Where their food comes from, how their clothes were produced, what ecological impact their consumption has: Consumers have growing environmental awareness, an even stronger desire for sustainability, and they are increasingly paying attention to ethical and social aspects when purchasing products (Giampietri *et al.*, 2018; Frank and Brock, 2018). It is therefore not surprising that the demand for corresponding products has significantly increased in recent years. The issue of sustainability has even reached the tourism sector and is receiving growing attention. As one of the world's largest service industries, the tourism sector undoubtedly has the economic traction to trigger a global paradigm shift, but at the same time this will have the effect of causing serious ecological and social damage. Therefore, a global rethink can only be achieved with the participation of businesses, customers and consumers (Juvan and Dolnicar, 2017). However, implementation on the supplier side is not easy and many consumers do not translate their attitudes and positive intentions towards sustainable tourism into corresponding bookings (Jarvis *et al.*, 2010). Moreover, travelers often behave differently and less sustainably on vacation than they do at home, indulging in a kind of "exceptionalism" for the duration of the vacation that contradicts their beliefs (Juvan and Dolnicar, 2014; Holmes *et al.*, 2021). Research on this attitude-behavior gap has shown that information asymmetries, in particular, represent barriers for many consumers when it comes to translating their intentions into action.

Numerous research papers have already addressed the gap between attitudes or intentions and corresponding behavior in consumer behavior research (e.g. Sheeran and Webb 2016; Nguyen *et al.* 2018; Haider, Zhuang and Ali 2019). Various meta-studies and research papers show that positive sustainable attitudes or intentions are not sufficient enough to explain consumers green behavior (Frank and Brock, 2018; Carrington *et al.*, 2010; Webb and Sheeran, 2006). Against this background, Ajzen (1991) pointed out that the influence of the constructs within the theory of planned behavior may vary depending on the context, situational factors and reference objects. This is particularly relevant for tourism research since tourism is characterized by its complexity and individuality. Accordingly, consumption decisions made on vacation are based on a different conception of needs than in everyday life (Antimova *et al.*, 2012). Most of the studies on the "green consumption gap" refer to either attitude or intention as the independent variable. However, including the entire process between attitude and behavior allows locating potential behavioral barriers at any point in time within this relationship (ElHaffar *et al.*, 2020). For this reason, the attitude-intention-behavior-gap is referred to as a "Mind-Behavior Gap" (MBG), considering that attitude, intention and behavior are all to be involved in any considerations. The majority of studies about the mind-behavior gap are product-oriented research projects, while only a few studies in the service domain have been conducted. This is surprising since the gap is likely to be more significant in the service sector. But research has largely been neglecting this gap in service industries. The service sector is particularly known for the fact that information

asymmetries, leading to attitude-intention-behavior-inconsistency, are greater and, in some cases, more difficult to overcome than in the product sector (Barile *et al.* 2014). Communicating sustainability is challenging as it is difficult for consumers to recognize and understand the sustainable product attributes, nor do they perceive the added value of sustainability (Tölkes, 2018). The vague nature of the concept of sustainable tourism, the lack of tangibility, and the high level of trust properties of (touristic) services additionally complicate the communication. While there are quantitative studies that examine various consumption barriers associated with sustainable products, the authors are not aware of any studies on the barriers between the intention to consume sustainable services and corresponding behavior. Therefore, scholars recommend that the service sector should also be examined with regard to a possible reduction in MBG (Yamoah and Acquaye 2019). Sustainable services are at least as relevant as sustainable products, but research in the area of sustainable service management is still relatively uncommon. This is surprising as Ostrom *et al.* (2015) identify "designing and delivering services in a sustainable manner" as essential research priority to improve well-being through (transformative) services.

Against this background, the overarching goal of our study is to investigate the sustainable MBG in the tourism-service context and to contribute to a possible reduction of MBG by identifying and addressing specific (consumption) barriers. Previous research regarding this gap has shown that information asymmetries result in declining trust and credibility (e.g. Frank and Brock, 2019). Against this background we make several contributions to previous research. We identify information imbalances as crucial barriers to sustainable consumption behavior and investigate the reasons for such asymmetries from the demand and supply perspective. Further, we conduct a quantitative study to examine the role of sustainability information on tourism' behavior. Previous research shows that, in line with the product sector, information and communication can be key to closing the MBG (Bergel and Brock, 2019; Tölkes, 2020). Communicating sustainability and its added value, as well as developing appropriate communication strategies, has the potential to transform environmentally conscious intentions into corresponding behavior and thus also lead to more sustainable tourism (Tölkes 2020; Untaru *et al.*, 2020).

QUALITATIVE PRE-STUDY

To identify consumption barriers and to develop potential communication strategies, we conducted 40 semi-structured interviews with tourists and representatives of tourism associations, sustainability activists, and hotel managers, as it is important to know how consumers understand sustainable tourism, what consumption barriers they perceive and what basic communication measures they would recognize. First, we conducted 27 interviews with tourists concerning their comprehension of sustainability and possible barriers to touristic sustainability behavior. Furthermore, we asked representatives of tourism interest groups, sustainability activists and hoteliers about the importance of sustainability for the tourism industry, how they perceive tourist behavior and what measures they suggest to overcome the touristic sustainability MBG.

The interviews confirm previous findings of the attitude-intention-behavior gap and the different behavior at home against while on vacation. Further, interviewees have no consistent understanding of the term sustainability. They criticize the poor visibility of sustainable tourism services and miss connectivity between the information of providers such as booking platforms, destinations, and hotels.

Interviewees propose the internet, booking platforms, social media, and mobile devices as the ideal tools to present the benefits of sustainable travel in the most valid and transparent way possible, though they doubted the credibility of some of the information that is provided. They see the latter as hindering sustainable travel behavior. The expert interview study supports this cognition. As tourists have already stated, the common consumer equates sustainability with eco-friendliness, usually product-centered. Experts state that this is the result of misinformation, a lack of a uniform understanding of terms and missing visibility of sustainability characteristics of tourism services. With regard to the benefits of sustainable tourism, experts state that while some tourists might be aware of individual and societal benefits, the majority of tourism practitioners only consider potential economic benefits. They clearly see a lack of legal restrictions and political ambitions. In order to support tourist's sustainable behavior and choices practitioners wish for digital consumer engagement solutions throughout the customer journey.

MAIN STUDY

Based on the qualitative pre-study we show that the lack of valid information is a crucial consumption barrier. Availability and accessibility were, for a long period, the two most dominant barriers to overcome the green MBG. Presently, the availability of sustainable products and services is no longer a challenge (Frank and Brock, 2018). Rather, it is important to support customers in finding the available offers by facilitating their search and implementing the appropriate communication of sustainable tourism offers. Further, it is necessary to create consumption incentives by highlighting beneficial product and service attributes (Nguyen *et al.*, 2018). With regard to the current demand for sustainable tourism services and based on the results of the qualitative study, current communication can be considered as ineffective. Accordingly, consumers find it difficult to recognize, understand, and ultimately consider sustainable attributes in their behavior (Tölkes, 2018). However, information at the point of sale has a direct effect on purchasing behavior by reinforcing consumers' actions and values (Penz *et al.*,2017). Thus, the presence of obvious and accessible information should increase the effect of positive attitude on actual behavior.

However, besides the visibility of information, it should also be ensured that they are credible, as trust is a relevant factor in the purchase decision process. Since the problems underlying sustainability are very complex, most consumers lack the relevant "expert knowledge" to make consumption decisions based on personal knowledge (Juvan and Dolnicar, 2014). If, on the other hand, suppliers provide information that are visible and credible, the individual perception of sustainable offers is strengthened and personal convictions about sustainability are then confirmed. Thus, this information can be considered in the decision-making process and can increase the awareness of any possible consequences of the behavior (Penz *et al.*, 2017). Past research has also shown that increased credibility results in improved purchase intentions (Zhang, *et al.*, 2019).

Based on these preliminary considerations, we assume that credibility and transparency of sustainability information both have a significant impact on sustainable travel behavior. We therefore assume that:

Information transparency moderates the relationship between perceived credibility of information and sustainable travel behavior. The more transparent consumers perceive providers sustainability information, the stronger the positive impact of credibility on sustainable travel behavior.

Based on these assumptions and our qualitative results we conducted a critical incident study combined with survey-based measures of sustainability attitudes, perceived transparency and credibility of tourism providers sustainability information and sustainable travel behavior. We asked participants about their general attitude towards sustainability and sustainable travel, as well as about their last and recent experiences with tourism providers sustainability measures and their corresponding communication. We asked participants to indicate how they perceived the sustainability information they received (if they had received any) from the provider and to what extent they integrated sustainable travel behaviors into their journey. The data was collected via an online questionnaire with a total of 299 completed questionnaires that could be included in our analysis. Of the participants, 59.9 per cent were female (SD= .546), and the average age was 28.5 (SD= 8.102).

All items for measuring the constructs were borrowed and adapted from previous research in the field (for example Prillwitz and Barr, 2011; Vinzenz *et al.*, 2019; Holmes *et al.*, 2021). We applied an ANOVA and t-tests to analyze information perception. Support for one direct effect was found. The level of information transparency has a direct effect on tourist's sustainable travel behavior. More interestingly, we found a significant interaction effect between transparency and the perceived credibility of information (R^2 = .306; $F_{(1,22)}$ = 1,698; $p < 0.032$). While significant differences between the impact of information credibility on touristic behavior were found under the condition of high information transparency, none were found under the condition of low information transparency (see figure 1).

Figure 1: Information transparency, credibility and sustainable behavior
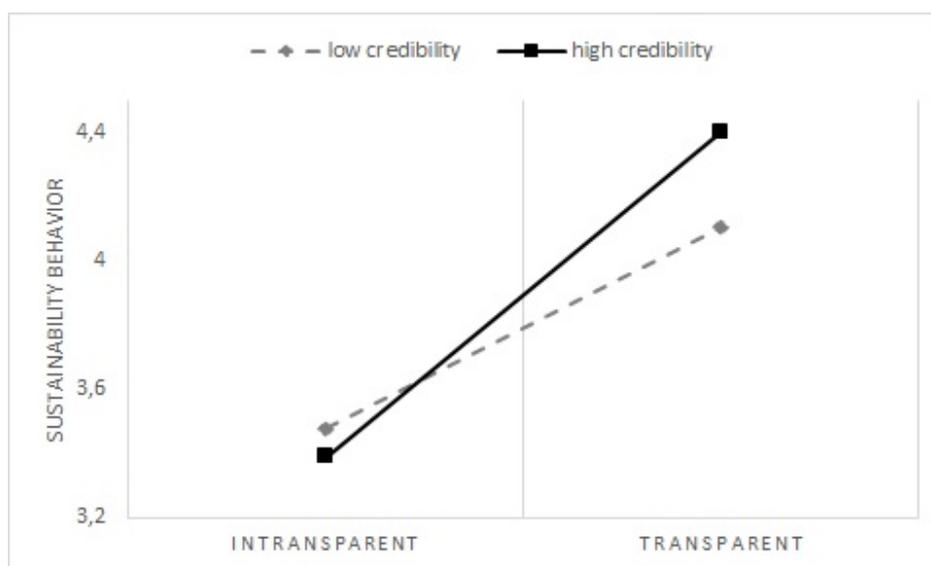
Dependent variable: Sustainability Behavior	Intransparent Information	Transparent Information	Significance of difference
High Credibility	3.48 (n=60)	4.11 (n=47)	0.023
Low Credibility	3.39 (n=43)	4.40 (n=64)	0.001
Significance of difference	n.s.	n.s.	

SUMMARY AND IMPLICATIONS

We assume that information asymmetries are a crucial consumption barrier when it comes to sustainable tourism services. Both studies, the qualitative interview study as well as the quantitative CIT study, support our assumptions and previous research on the role of information within the (sustainable) mind-behavior gap. Consumers as well as tourism practitioners criticize the poor visibility of sustainable tourism services, the lack of information about everyday possibilities to design travelling more sustainably and the inadequate communication of the (personal) added value of sustainable services. Both interview groups state that a major challenge lies in the consumers fear of greenwashing and their skepticism towards the credibility of specific sustainability information. The particular role of information credibility is highlighted through the results of our quantitative study. We found a significant interaction effect between the perceived transparency and the perceived credibility of sustainability information in favor of sustainable travel behavior. Travelers can assess the credibility of information better when they are designed to be as transparent as possible. Only then can they base their consumption decisions on this information. The interaction of these variables illustrates what our interviewees had already assumed: transparency and credibility go hand in hand. Providers who offer trustworthy sustainable services do not shy from offering transparent information about their sustainability measures and will therefore be perceived as credible. Furthermore, transparent and credible information helps tourist to learn more about the importance of sustainable travel behaviors and to learn how to behave accordingly.

Based on the results, we offer several implications for researchers and service managers in the tourism industry. To name but a few: Further research is needed to develop intelligent digital information concepts that encourage customers to behave in a sustainable manner. From a business perspective, overarching information concepts are needed. Before booking, transparency and commitment in the presentation of information are important. During the trip, all available options should be used to sensitize visitors and convey information and knowledge; direct feedback from tourists in particular plays an overriding role. Digitalization can help to provide tourism sustainability information as easily accessible and as transparent as possible.

Researchers should investigate what communication challenges exist from the providers' perspective. In particular, however, it is important to evaluate and assess how effective and efficient communication

measures can be designed and what effect they have on consumers. Therefore, we encourage researchers to analyze sustainability information to increase transparency and credibility. This is a first step in lowering the barrier to consuming sustainable tourism products. Next, we should develop practical measures to reduce these barriers, such as information asymmetries between providers and consumers of sustainable services. Since we found that smart technologies are critical for providing behavioral feedback and information to customers, digital approaches to reduce potential barriers should also be developed and tested.

The results contribute to a better understanding of the impact of information barriers and communication interventions on sustainable tourism services. To the best of our knowledge, this is the first study on sustainability information in tourism that combines both consumer and expert interviews and a quantitative study to investigate the role of adequate information within the intention-behavior gap. This is a first step towards reducing barriers to the consumption of sustainable tourism products. Our studies respond to a call for research to improve and close the understanding of the intention-behavior gap in green consumption. However, experimental designs are needed (ElHaffar et la., 2020). Further experimental studies could help to identify what type of specific information tourists need to translate their positive intentions into sustainable behavior. Given the increasing role of digitalization and the ubiquity of mobile devices, we encourage researchers to investigate the perceived usefulness of mobile apps with a focus on sustainable tourism offerings.

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SUSTAINABILITY PRACTICES: DECOUPLING FROM A SERVICE MANAGEMENT PERSPECTIVE

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ABSTRACT

Decoupling organizational structures from practices adversely affects organizations and their constituents. In the context of corporate sustainability, it unduly delays measures to combat climate change. Service firms can potentially contribute to more sustainability, yet a service-specific view of decoupling is lacking. This paper conceptually determines where in service co-creation decoupling may occur. Using the example of a particularly polluting service sector, the authors present environmental practices in the logistics sector along the service process. It emerges that a majority of environmental practices lies in the provider sphere indicating a high potential for decoupling practices from sustainability commitment in logistics services.

INTRODUCTION

Neo-institutional theory analyzes organizations in their institutional contexts (Greenwood and Hinings, 1996, p. 1025). In this regard, decoupling has long been established as the misalignment between organizational structures and practices (Meyer and Rowan, 1977, pp. 357–358). For instance, organizations may have programs in place intended to reduce emissions from their operations but fail to implement these programs. This type of behavior may entail negative consequences for the organization and its constituents (e.g. organizational members, customers, authorities): Thus, resignation among organization members may ultimately result in the loss of external credibility and even lead to legal repercussions (MacLean and Behnam, 2010). In the context of corporate sustainability, decoupling sustainability commitment from actual practices may unduly delay the changes needed so urgently to combat climate change. With ever increasing customer demands for sustainable products and services, decoupling may not only be harmful to nature but also to business (Schons and Steinmeier, 2016).

While service industries have long been regarded as less polluting than manufacturing (Lin and Ho, 2011, p. 67), the potential contribution of service firms to more sustainability is increasingly being recognized (Centobelli, Cerchione and Esposito, 2017). Yet, a service-specific conceptualization of decoupling, which takes into account the service co-creation process, is lacking. This article thus aims to determine where in the service co-creation process decoupling may occur. We chose the third-party logistics (3PL) sector given its importance for ever increasing flows of goods and its more obvious contribution to environmental pollution compared to other services (Wu and Dunn, 1995; Lin and Ho, 2011). This choice is also justified by the fact that logistics activities are frequently outsourced to third-party logistics providers (Jamali and Rasti-Barzoki, 2019, p. 637).

To answer the research question, we take a conceptual approach. First, the concept of decoupling is introduced. After briefly outlining the Grönroos-Voima Value Model as a basis for our argument, we analyze decoupling in each of the value spheres. Last, we highlight our conclusions. The structure of this paper follows the same logic.

DECOUPLING ORGANIZATIONAL STRUCTURES FROM PRACTICES

To reflect institutionalized rules and thus be regarded as legitimate, organizations adopt formal structures, including policies, programs and communication, consistent with those rules. These may conflict with the efficient performance of tasks. For instance, a 3PL provider may obtain certification for its environmental management system (EMS) such as ISO 14001 (Tacken, Sanchez Rodrigues and Mason, 2014) but fail to implement and monitor environmental performance indicators necessary to reduce the firm's environmental impact.

In order to be both legitimate and efficient, organizations decouple formal structures from one another and from daily work practices which in turn results in ceremonial conformity with institutionalized rules (Meyer and Rowan, 1977). Whether or not such behavior is problematic depends on the reasons for the misalignment and its assessment. Thus, decoupling could be perceived as *inevitable* to keep an organization viable. This view has been shared by other authors who have brought additional explanations for inevitable decoupling to the discussion: Thus, Lim and Tsutsui (2012) found that decoupling may be linked to a lack of capacity (rather than a lack of will). Similarly, putting policies into practice may be hindered by a lack of human or financial resources. Furthermore, decoupling may be the result of rapidly changing external demands put forward to the organization by its constituents (Crilly, Zollo and Hansen, 2012, p. 1430; see also Conrad and Holtbrügge, 2021, p. 540).

In a similar, yet distinct, vein, decoupling can be *inadvertent* in that it results from conscious decisions and the resulting actions: agents may decide to adopt formal policies with the firm intention of implementing them. Yet, full implementation may take time to "bear fruit" (Crilly, Zollo and Hansen, 2012, p. 1443). Frostenson, Helin and Sandström (2012) observe that formal codes of conduct may be in place and affect value perceptions as well as organizational members' identity, and yet be of little relevance to the daily activities of these members. Quite to the contrary, formal policy adoption and the language accompanying it may ultimately lead to a closer alignment of structures and practices. Thus, Haack, Schoeneborn and Wickert (2012) found evidence to support the idea that "talking the talk" might incite an organization to narrow the gap between "walk" and "talk". Decoupling could, in this sense, be regarded as a "transitory phenomenon" (Haack, Schoeneborn and Wickert, 2012, p. 834). Christensen, Morsing and Thyssen (2013) take a similar stance: In as much as goals and plans for the future need to be communicated before they can be implemented, CSR communication is termed transitional as opposed to duplicitous (Christensen Morsing and Thyssen, 2013, pp. 376–378). Adopting a constitutive view of language, the authors show that CSR communication (as one example of organizational structures) may have a motivational, directional and consequently "aspirational" function leading an organization to live up to their stated goals (Christensen, Morsing and Thyssen, 2013, p. 386).

Finally, decoupling may be *intentional* in that structures can purposefully be separated from practices. Albeit intentional, it need not necessarily be deceptive. Thus, a further distinction is made here between *deliberate* and *deceptive* decoupling. A considerable body of research focuses on decoupling as a strategic response to institutional complexity (Arena, Azzone and Mapelli, 2018; Binder, 2007; Greenwood *et al.*, 2011; Kraatz and Block, 2008; Oliver, 1991). Institutional complexity refers to the existence of various, at times conflicting, internal and external demands (Greenwood *et al.*, 2011, 317; Oliver, 1991, p. 153). Organizations respond to such complexity by concealing non-compliance with institutional pressures, buffering, i.e. avoiding external scrutiny or escaping external demands altogether (Oliver, 1991, p. 154; see also Meyer and Rowan, 1977, pp. 356–357; Hirsch and Bermiss, 2009, p. 273; Misangyi, 2016, p. 408). Adherence or non-compliance with institutional expectations has been shown to be a pragmatic choice of individual agents in line with whichever strategy serves organizational goals best (Binder, 2007). On a similar note, Kraatz and Block (2008) present escaping and compartmentalization as strategies for handling conflicting institutional demands. Both approaches can be considered decoupling mechanisms (Greenwood *et al.*, 2011, p. 350). Compartmentalization is achieved by way of separate units which respond to various institutional pressures (Kraatz and Block, 2008, p. 250; Thornton, Ocasio and Lounsbury, 2012, p. 57). In the same vein, buffering has been described as the separation of certain organizational activities from its structures (Lok, 2010, pp. 1324–1325; Meyer and Rowan, 1977, p. 342, 1977, p. 342). Despite their commonalities, compartmentalization and buffering differ in that the former takes an intra-organizational perspective whereas the latter is concerned with the relationship of an organization with its environment. Thus, its function is to protect an organization from external scrutiny (Binder, 2007, p. 563; Oliver, 1991, p. 155). Arena and colleagues (2018) observe decoupling in their study of a company in a changing environment. Here, decoupling describes the adoption of new integrated reporting standards while maintaining old, simplified practices to respond "in parallel" to different institutional pressures (Arena, Azzone and Mapelli, 2018, p. 353; also called grafting by Kodeih and Greenwood, 2014).

Like Oliver (1991), Greenwood and colleagues (2011) labelled approaches such as those summarized above as strategic responses to institutional complexity. As a second type of response, they introduce structural responses to complexity which comprise what they call blended hybrids and structural differentiation. The latter response consists of creating subunits which respond separately to different institutional expectations

(Greenwood *et al.*, 2011, p. 354). Be it in the form of a strategic or a structural response, decoupling as a response to complexity involves an element of active, conscious decision of either individuals or the organization as a whole which is why we refer to it here as deliberate decoupling. Acknowledging that not all decoupling is viewed in a negative light, it must be pointed out, though, that a number of conceptualizations at least imply an element of criticism. Thus, Oliver (1991, p. 154) also speaks of "disguising nonconformity behind a facade of acquiescence", Weaver, Trevino and Cochran (1999, p. 539) call such behavior "window dressing". More recently, Haack, Schoeneborn and Wickert (2012, p. 816) pointed to "merely simulated adherence to societal expectations".

Consequently, the notion of decoupling has taken root in CSR research (Hawn and Ioannou, 2016) which frequently emphasizes the potentially deceptive nature of CSR communication as opposed to actual steps taken towards greater sustainability (Graafland and Smid, 2019). Thus, Conrad and Holtbrügge (2021, p. 542) view corporate misconduct or irresponsibility as decoupling with the (mere) aim of fostering business.

The above discussion illustrates that an assessment of whether or not decoupling is deliberate or even deceptive depends to a large extent on the motives and goals which led to it in the first place. However, determining the real motives behind decoupling is difficult to say the least (Christensen, Morsing and Thyssen, 2013, p. 385).

From the point of view of corporate sustainability, decoupling as a way of misleading or even deceiving constituents in terms of actual practices appears particularly problematic. Promoting sustainability programs and policies while continuing practices that damage the environment and yet being regarded as legitimate by central constituents prevents environmentally-minded constituents from taking action to close the gap. In the context of 3PL services, decoupling environmental commitment from action can prevent customers of these services from achieving their own sustainability goals as logistics make up a large portion of any manufacturer's environmental impact (Colicchia *et al.*, 2013, p. 197). We therefore need to take a closer look at the service creation process to determine where decoupling is most likely to occur.

SERVICE CO-CREATION IN DIFFERENT VALUE SPHERES

A considerable body of research on decoupling has focused on service organizations such as health care (Heimer, 1999; van Wieringen, Groenewegen and van Broese Groenou, 2017), educational institutions (Coburn, 2004; Conrath-Hargreaves and Wüstemann, 2019; Snelson-Powell, Grosvold and Millington, 2016), restaurants (Julian, Ofori-Dankwa and Shepard, 2019) or energy providers (Jacqueminet and Durand, 2020). Yet, a service-specific view of decoupling has not yet emerged. We therefore focus on the process-nature of service (Grönroos, 2006, p. 319) to determine where decoupling may occur.

Service is an interactive process supporting value creation for the customer (Grönroos, 2006, p. 324) with value being conceptualized as value-in-use (Grönroos, 2017, p. 130): Value as value-in-use implies that customers do not buy goods or services for their own sake but for the use they derive from those goods and services before, during or after consumption (Grönroos, 2008, p. 301).

The Grönroos-Voima Value Model divides the value creation process into three separate but mutually dependent spheres: the provider sphere, the joint sphere and the customer sphere. Roles and goals of the provider and the customer in relation to value creation differ in each of these three spheres (Grönroos, 2017, p. 130; Grönroos and Voima, 2013, p. 140). In the provider sphere, the firm uses processes and activities to provide potential value. In this sense, it acts as a value facilitator (Grönroos and Voima, 2013, p. 141). The joint sphere provides a platform for value co-creation in which the customer assumes the role of a value creator. This, however, requires interaction between the provider and the customer (Grönroos and Voima, 2013, p. 142). The provider may interact to co-create value, but without interaction, no co-creation can take place and the provider remains a mere facilitator of value (Grönroos, 2008, p. 307). The customer sphere is closed to the provider. Here, the customer interacts with resources obtained from the provider to create value independently (Grönroos and Voima, 2013, p. 142; Grönroos, 2008, p. 299, 2011, p. 290, 2017, p. 130).

As discussed in the previous section of this paper, decoupling, except in the case of transitional decoupling, is rarely aimed at creating value for the customer. Instead, its original objective is to legitimize the organization among its many constituents including customers without actually living up to the source of legitimacy

perceptions. In this regard, decoupling, especially if discovered, may actively destroy value. The following sections take a closer look at the value creation process focusing in particular on the provider and the joint spheres. As will become clear in the respective sections, the provider sphere is where structures and a majority of practices potentially reducing a 3PL provider's environmental impact are located. A smaller portion of sustainability practices becomes relevant in the joint sphere which we will discuss in turn. Lesser emphasis will be placed on the customer sphere for the reasons outlined in that section.

DECOUPLING IN THE PROVIDER SPHERE

In the provider sphere, the firm uses processes and activities to facilitate potential value (Grönroos, 2017, p. 130). In neo-institutional terms, this also includes structures and practices. Structures refer to the formal adoption (Westphal and Zajac, 1993) and espousal (Fiss and Zajac, 2004, p. 503) of or commitment (Crilly, Hansen and Zollo, 2016, p. 707) to policies, plans, programs and procedures (Bartley and Egels-Zandén, 2016; Guo *et al.*, 2017; Tilcsik, 2010; van Wieringen, Groenewegen and van Broese Groenou, 2017), goals (Cetindamar and Ozkazanc-Pan, 2017) or corporate philosophy (Beverland and Luxton, 2005, p. 104). They are thus more akin to procedural coordination mechanisms than to organizational design (Okhuysen and Bechky, 2009). Practices, by contrast, constitute actual (Guo *et al.*, 2017, p. 525; Haack, Schoeneborn and Wickert, 2012, p. 819; Westphal and Zajac, 2001), concrete (Bartley and Egels-Zandén, 2016, p. 232), ongoing (Meyer and Rowan, 1977, p. 342) or substantive actions (Schons and Steinmeier, 2016), activities and conduct (Crilly, Hansen and Zollo, 2016) or implementation (Fiss and Zajac, 2004; Misangyi, 2016). Likewise, they refer to compliance with external demands or institutionalized rules (Meyer and Rowan, 1977, p. 341).

Table 1: Organizational structures related to sustainability in the 3PL sector

Organizational structures related to environmental sustainability:	Sources:
Setting specific sustainability goals for individual operating units	Lieb and Lieb, 2010
Environmental sustainability programs	Lieb and Lieb, 2010; Tacken, Sanchez Rodrigues and Mason, 2014
Environmental compliance and auditing programs	Lieb and Lieb, 2010; Darnall, Jolley and Handfield, 2008
Third-party certification	Lieb and Lieb, 2010; Tacken, Sanchez Rodrigues and Mason, 2014; Lai *et al.*, 2011
Written sustainability statement (incl. goals and approaches)	Lieb and Lieb, 2010; Centobelli, Cerchione and Esposito, 2020; Centobelli *et al.*, 2020;
Establishing pilot programs directed at reducing emission levels	Lieb and Lieb, 2010
Improving control of a company's service providers through the use of environmental checklists	Lieb and Lieb, 2010
Formal position in charge of sustainability efforts (e.g. sustainability manager)	Lieb and Lieb, 2010
Establishing committees to oversee company sustainability efforts	Lieb and Lieb, 2010

Table 1 above presents organizational structures identified in the 3PL literature aimed at more sustainability. These structures may serve to signal compliance with the expectations put forward to an organization by particularly environmentally-minded constituents (Meyer and Rowan, 1977).

Organizational structures constitute elements of which solely the provider is in charge. They are part of the provider's processes which are not directly involved in value creation (cf. Grönroos, 2011, p. 282). If aligned with sustainability practices, they form a potential for value and may facilitate real value creation (Grönroos and Voima, 2013, p. 141). However, as they are part of the closed provider sphere, it is difficult for customers to assess whether structures are actually aligned with practices. If formal policies and programs aimed at rendering logistics services more sustainable constitute an organization's true efforts to make a difference, actual practices should be aligned with such efforts. Practices can then serve to indicate whether

sustainability structures are in place for the sole purpose of legitimacy or as an expression of a firm sustainability commitment. Thus, the practice of measuring and monitoring emissions from transport operations (cf. for instance Darnall, Jolley and Handfield, 2008) may indicate that environmental compliance programs (cf. Lieb and Lieb, 2010) have been adopted with the aim of reducing the provider's environmental impact.

The green logistics literature has identified numerous practices implemented in the 3PL sector. Many of these practices, however, remain completely or at least partly invisible to the customer if not communicated to them (see Table 2 and Table 3 respectively for an overview). If sustainability practices remain hidden, though, customers will find it difficult to assess whether they are in line with legitimizing sustainability structures. Decoupling, be it inadvertent, inevitable or intentional, will be hard to detect.

In case of an insurance company, MacLean and Behnam (2010) found that, once discovered, decoupling led to customers' complaints to regulators, law suits and high fines imposed on the firm. This example may be indicative of the severe consequences of decoupling. However, we still know little about the broader consequences of decoupling in the 3PL sector.

Table 2: Invisible sustainability practices in the 3PL sector

Environmental practices invisible to the customer	Sources:
Effective shipment consolidation and full vehicle loading (empty running reduction)	Centobelli, Cerchione and Esposito, 2020; Centobelli *et al.*, 2020; Tacken, Sanchez Rodrigues and Mason, 2014; Zhang *et al.*, 2014; Lieb and Lieb, 2010; González-Benito and González-Benito, 2006; Colicchia *et al.*, 2013
Routing systems to minimise travel distances	Jovanovic, Zolfagharinia and Peszynski, 2020; Centobelli, Cerchione and Esposito, 2020; Centobelli *et al.*, 2020; Tacken, Sanchez Rodrigues and Mason, 2014; Zhang *et al.*, 2014; Colicchia *et al.*, 2013
(Re) design of logistics system components for greater environmental efficiency	Murphy and Poist, 2003, 2000; Colicchia *et al.*, 2013
Eco-friendly building design (e.g. energy-efficient lighting systems, building thermal insulation)	Centobelli, Cerchione and Esposito, 2020; Bartolini, Bottani and Grosse, 2019; Zhang *et al.*, 2014; Lieb and Lieb, 2010; Murphy and Poist, 2000, 2003; Colicchia *et al.*, 2013
Energy-efficient material handling equipment	Bartolini, Bottani and Grosse, 2019; Colicchia *et al.*, 2013
Water systems (e.g. plants and landscaping materials that minimise water waste, use of "grey water" systems)	Bartolini, Bottani and Grosse, 2019; Murphy and Poist, 2000, 2003; Colicchia *et al.*, 2013
Materials recycle whenever possible	Jovanovic, Zolfagharinia and Peszynski, 2020; Centobelli, Cerchione and Esposito, 2020; Zhang *et al.*, 2014; Lieb and Lieb, 2010; Murphy and Poist, 2000, 2003; Colicchia *et al.*, 2013
Consumption reduction whenever possible	Murphy and Poist, 2000, 2003; Colicchia *et al.*, 2013
Use of 'green IT' (e.g. reduction in server numbers, use of green software, optimisation of backup numbers)	Agyabeng-Mensah *et al.*, 2020; Lieb and Lieb, 2010; Colicchia *et al.*, 2013
Promote industry cooperative effort	Lieb and Lieb, 2010; Murphy and Poist, 2000, 2003; Colicchia *et al.*, 2013
Personnel training (office staff, employees and operators)	Jovanovic, Zolfagharinia and Peszynski, 2020; Centobelli, Cerchione and Esposito, 2020; Tacken, Sanchez Rodrigues and Mason, 2014; Murphy and Poist, 2000, 2003; Lieb and Lieb, 2010; Colicchia *et al.*, 2013

| Promote environmental awareness among managers | González-Benito and González-Benito, 2006; Colicchia *et al.*, 2013 |

DECOUPLING IN THE JOINT SPHERE

The joint sphere is where the provider and the customer meet and interact to co-create value (Grönroos, 2017, p. 130; Heinonen, Campbell and Ferguson, 2019, p. 97). In effect, it is through interaction that co-creation can take place. During interaction, the provider and the supplier can actively influence each other. Provider and customer processes simultaneously occur during interaction (Grönroos, 2011, p. 289) and the provider's process becomes part of the customer's co-creation process (Grönroos 2011, p. 290). This way, the provider can influence the customers value-in-use both positively but importantly—especially in the context of decoupling—also negatively (Grönroos, 2011, p. 290). It is thus in the joint sphere that the customer logic encounters the provider logic and that decoupling is likely to cause the greatest disruptions.

In the joint sphere, service employees play a particularly important role. An organization acts through its employees. They are boundary spanners in that—during the interaction with the customer—they represent the firm to the customer and at the same time represent customer needs inside the organization (Wirtz and Jerger, 2016, p. 760). They are thus prone to experience various role conflicts. In the context of decoupling, such conflict could involve conflicts between what the organization requires them to do and their fundamental beliefs (Wirtz and Jerger, 2016, p. 761). If, for example, the organization makes strong environmental claims by adopting environmental programs (Darnall, Jolley and Handfield, 2008; Lieb and Lieb, 2010) and engages in practices that fail to live up to such claims or even thwart them, service employees may perceive this as contradictory. They will still be required, though, to promote a positive, environmentally friendly image. This may be perceived by employees as decoupling and cause a role conflict. Along these lines, the few articles dedicated to individual-level outcomes of decoupling, have shown that decoupling may lead to cynicism and negative legitimacy perceptions of ethical programs among organizational members (MacLean and Behnam, 2010; MacLean, Litzky and Holderness, 2015). Decoupling on the part of the organization may thus entail internal conflict and issues of authenticity.

Table 3: Partly visible sustainability practices in the 3PL sector

Environmental practices partly visible to the customer	Sources:
Use of alternative fuels	Jovanovic, Zolfagharinia and Peszynski, 2020; Centobelli, Cerchione and Esposito, 2020; Lieb and Lieb, 2010; Colicchia *et al.*, 2013
Vehicle speed reduction to save fuel and reduce emissions	Lieb and Lieb, 2010; Jovanovic, Zolfagharinia and Peszynski, 2020; Centobelli, Cerchione and Esposito, 2020; Murphy and Poist, 2000, 2003; Colicchia *et al.*, 2013
Use of alternative transportation modes (e.g. intermodal, combined)	Jovanovic, Zolfagharinia and Peszynski, 2020; Centobelli, Cerchione and Esposito, 2020; Tacken, Sanchez Rodrigues and Mason, 2014; Zhang *et al.*, 2014; Colicchia *et al.*, 2013
Use of alternative energy sources	Centobelli, Cerchione and Esposito, 2020; Bartolini, Bottani and Grosse, 2019; Murphy and Poist, 2000, 2003; Colicchia *et al.*, 2013
Efficient land use (e.g. brownfield redevelopment)	Murphy and Poist, 2000, 2003; Colicchia *et al.*, 2013
Waste reduction, transport and disposal	Murphy and Poist, 2000, 2003; González-Benito and González-Benito, 2006; Colicchia *et al.*, 2013
Packaging recycle or reuse	González-Benito and González-Benito, 2006; Centobelli, Cerchione and Esposito, 2020; Lieb and Lieb, 2010; Murphy and Poist, 2000, 2003; Colicchia *et al.*, 2013
Ecological materials for primary packaging	González-Benito and González-Benito, 2006

Reduction of packaging waste	González-Benito and González-Benito, 2006; Zhang *et al.*, 2014; Lieb and Lieb, 2010; Colicchia *et al.*, 2013
Environmental performance measurement and monitoring (e.g. carbon footprint)	Centobelli, Cerchione and Esposito, 2020; Tacken, Sanchez Rodrigues and Mason, 2014; Darnall, Jolley and Handfield, 2008; Agyabeng-Mensah *et al.*, 2020; Colicchia *et al.*, 2013p
Collaborative partnerships with other companies/3PLs	Jovanovic, Zolfagharinia and Peszynski, 2020; Centobelli, Cerchione and Esposito, 2020; Tacken, Sanchez Rodrigues and Mason, 2014; Lieb and Lieb, 2010; Colicchia *et al.*, 2013
Stakeholder dialogues	Agyabeng-Mensah *et al.*, 2020; Colicchia *et al.*, 2013
Network optimization with hub facilities	Tacken, Sanchez Rodrigues and Mason, 2014; Colicchia *et al.*, 2013
Coordinated logistics and transportation programs	Centobelli, Cerchione and Esposito, 2020

In order for decoupling to be observed by the customer, two things need to happen: First, the customer needs to become aware of a gap between organizational structures and practices. Second, he or she must perceive a discrepancy between structures and practices as decoupling. As customers interact with structures to create value, they may learn of structures that are geared towards sustainability. If customers who value sustainability become aware of such organizational structures, they may expect certain practices to follow suit and deem the non-existence of such practices decoupling. As discussed above, of the numerous sustainability practices implemented in the 3PL sector (see Colicchia *et al.*, 2013 for an overview), a minority is visible to the customer. This minority includes practices such as the use of alternative or less polluting transport vehicles or vessels (Tacken, Sanchez Rodrigues and Mason, 2014). A single practice requires active participation of the customer in the process, namely cooperation or consulting with a view of assisting the customer in obtaining environmental certification (Lieb and Lieb, 2010).

Thus far, we know little about how decoupling is perceived by service employees, how this affects their communication with the customer and how this in turn influences the interaction between the customer and the service employee in the joint sphere.

DECOUPLING IN THE CUSTOMER SPHERE

In the closed customer sphere, the customer uses resources provided as part of the service and integrates them with other required resources to create value independently of the service provider (Grönroos, 2017, p. 130, 2011, p. 290, 2008, p. 299). The customer's value creation process takes place in the customer domain (Voima *et al.*, 2011) and thus depends on the context and goals of service use (Grönroos and Voima, 2013, p. 142; Heinonen *et al.*, 2010, p. 534). In the customer sphere, the customer assesses value irrespective of any provider behavior. Heinonen and colleagues (2010) reason that value emerges in the customer ecosystem as a result of mental processes in which they interpret the service experience in the context of their own goals and worlds. Value thus exceeds the joint sphere of value creation in interaction (Heinonen *et al.*, 2010, pp. 536–537). The provider's role then consists of supporting value creation in the customer sphere (or ecosystem) (Grönroos, 2008, p. 306).

As discussed above, whether or not decoupling occurs is essentially a value judgement by the customer (Christensen, Morsing and Thyssen, 2013, p. 385). It is thus conceivable that a third-party logistics provider introduces an environmental management system the implementation of which may take some time. While transitional in nature from the provider's point of view, customers may interpret the fact that expected practices are not immediately implemented as decoupling. The opposite, of course, is also possible: Third-party logistics providers may introduce a routing system to reduce fuel and thus cost (Tacken, Sanchez Rodrigues and Mason, 2014). The customer may perceive this practice—possibly a deliberate response to complex demands—as an attempt to reduce the environmental impact of transport activities and derive value from this interpretation of the practice. Similarly, attempts to actively deceive constituents with claims about internal practices aimed at reducing resource consumption and/or waste (Murphy and Poist, 2000, 2003; Colicchia *et al.*, 2013) may go unscrutinized and thus be deemed legitimate by the customer. Regardless of

whether structures are aligned with practices or not and of whether a misalignment is inevitable, inadvertent or intentional, its interpretation as one or the other takes place in the customer domain.

Whether or not customers derive value from the perceived (mis-)alignment of structures and processes depends on the customer's interpretation and sense-making processes in the context of his or her own eco-system (Heinonen *et al.*, 2010, p. 533). The intricacies of these sense-making process involved in the assessment of decoupling have received little attention and deserve further investigation.

CONCLUSIONS AND IMPLICATIONS

Using the example of the third-party logistics sector, this article aimed at conceptualizing a service-specific perspective of decoupling. To this end, we first introduced the notion of decoupling in its original neo-institutional context, differentiating between inevitable, inadvertent and intentional decoupling. We then sketched out the Grönroos-Voima Value Model as a basis for a service perspective on decoupling. We analyzed the misalignment of sustainability structures and practices in the 3PL industry in each of the three value spheres and observed that both structures and a large portion of sustainability practices reside in the provider sphere implying a potential for decoupling at the facilitation stage of the process already.

Emphasizing the interactive process nature of service, we observed that decoupling in the joint sphere potentially involves the service employee and the customer. We highlighted that the importance of the service employee may be linked to role conflict and authenticity issues and pointed out the need for further research. Likewise, we underlined the customer's interpretive processes in the customer ecosystem. This, we argued, also requires further investigation.

Future research might thus focus on interpretive processes both of the customer and the service employee. Such research might address the question of how service employees interpret inadvertent, inevitable or intentional decoupling and what this means for the interaction in the joint sphere of value creation. Similarly, such research could focus on customers' interpretation of cues provided by the provider to assess whether or not decoupling occurs.

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ENTREPRENEURIAL ACTIVITY IN STEM HIGHER EDUCATION INSTITUTIONS AND THEIR CONTRIBUTION TO THE SDGS. A FUZZY-SET QUALITATIVE COMPARATIVE ANALYSIS.

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ABSTRACT

Research on the entrepreneurial university has been receiving increased attention in recent years. This research aims to analyze the actions carried out by the STEM HEIs in Ecuador to show their contribution to the achievement of the UN SDGs. For this purpose, this article reviews 27 public STEM HEIs on the fuzzy-set qualitative comparative analysis. The results show that sustainable entrepreneurship is still an underdeveloped topic in Ecuador. HEIs are committed to including entrepreneurship in programs. Furthermore, the model indicates that promoting sustainable education and strategic direction that includes entrepreneurship or sustainability is more efficient than only having educational activities.

INTRODUCTION

The Sustainable Development Goals (SDGs) adopted by the United Nations (UN) in 2015 contain the most ambitious global plan adopted by the international community to mobilize collective action around common goals. UN's Agenda has 17 Sustainable Development Goals (SDGs). Each goal has specific targets to be achieved with the efforts of all of society: governments, private sector, civil society, and academia. These global guidelines focus on three essential dimensions such as environmental protection, social development, and economic growth, offering an opportunity to embark on a path to meet society's needs and secure resources for future generations, providing a valuable roadmap for articulating global policymaking (Gil, 2017; Moncayo, 2018).

The academy is an actor that can contribute transversally to the 17 objectives. It is a neutral actor that provides evidence-based information and has credibility within society. Its main tools are learning and teaching, research, innovation, culture, and leadership. The university must play an active and significant role in constructing social capital and the development of its own country, and therefore in the achievement of global goals. It is not enough to think that the university has to interact with its context; it is necessary to focus on what this relationship consists of, who participates, and the most effective strategy to interweave the environment and actors (Cosme Casulo, 2018; Moncayo, 2018).

As for whom, a way to promote the implementation of the 2030 Agenda is to provide students with a competency-based awareness of sustainability. In this way, they could solve many challenges they will encounter in their professional fields, going beyond just educating professionals but rather training ethically aware, responsible, caring, critical, and socially committed citizens (Michelsen, 2015; Caride Gómez, 2017; Serrate González et al., 2019).

On the other hand, Segalas y Sanchez (2019) expressed teachers' lack of awareness, knowledge, and motivation in working on sustainability competencies with their students adequately. If they do not understand sustainability, they are less prepared to integrate it into the classroom. Therefore, teacher training is the main problem for cross-cutting sustainable development goals. (Valderrama-Hernández et al., 2019).

Authorities of higher education institutions (HEIs) also play a strategic role in achieving the SDGs since the design of transformative institutional policies to create an environment that fosters the achievement of the goals depends on them. Thus, Galdos-Frisancho, Ramirez, and Villalobos (2020) mention, "the success of this challenge depends on how universities can assume their internal changes and, of course, the leadership and vision of their authorities and communities."

In terms of strategy, five areas of action are identified in which HEIs should organize all their projects and programs for the achievement of the SDGs: a) Governance; b) Training; c) Research; d) Extension; and e) Management (Sáenz, 2019). These action areas are cross-cutting to all the goals and targets set out in the 2030 UN Agenda.

This study will focus on target 4.4 of SDGs, which calls for: "increasing the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs, and entrepreneurship." Also, this study will focus on target 8. 3, which states: "Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services" (Gil, 2017; Lagüela *et al.*, 2017). For this, public HEIs as an educational service, especially those specialized in technological and engineering studies, are designed with the objective of training students capable of contributing to industry with practical knowledge and providing solutions to society's requirements.

However, while the current situation that the world is going through due to Covid-19 and global warming has slowed the achievement of the SDGs, it has made more evident the need to generate radical changes considering sustainability as a synergy between wealth, social and environmental welfare. In this sense, the empowerment of sustainable entrepreneurial activity based on innovation from public HEIs in Ecuador could help achieve one of the areas of the 2030 Agenda proposed by the United Nations and contribute to the strategy against the socio-economic crisis generated by COVID-19.

Research on entrepreneurial activities has been receiving increased attention in recent years. This research aims to analyze the actions carried out by the Science, Technology, Engineering and Mathematics (STEM) public HEI in Ecuador to show their contribution to the achievement of the United Nations goals 4.4 and 8.3 through the application of the fuzzy-set Qualitative Comparative Analysis (fsQCA) methodology in the field of entrepreneurship. A preliminary literature review revealed a lack of related articles. However, they are focused on particular elements and actors. Likewise, the analysis of the management reports issued by each HEI and a group of keywords determined the relationship with the SDG goal's achievement.

The following structure is proposed to achieve this purpose. Section one presents the relevance of the study. In section two, the development of the method used is discussed. In section three, the results obtained from using the fsQCA tool will be presented. In chapter four, conclusions will be developed, and possible future work will be considered.

METHOD

To examine how entrepreneurial activity can contribute to SDG achievement, we used a configurational approach to study the configurations since outcomes in this research are likely to result from multiple interconnected conditions that are mutually dependent (Sukhov, Abadzhiev, and Johnson, 2021). Specifically, we used fuzzy set Qualitative Comparative Analysis (fsQCA) developed in 2000 by Charles Ragin, which enables the assessment of causation or cause-effect relationship. The purpose of QCA is to integrate the strength of the case-oriented approach, which is the assessment of within-case complexity, with the strength of the variable-oriented approach, which is a systematic cross-case comparison. Fuzzy set QCA explicitly indicates the degree to which cases are members of sets (Ragin and Timberlake, 1989; Ragin and Lieberson, 2001).

Overall, three phases can be distinguished in the protocol for applying QCA. The first phase involves the selection and description of the cases; the second corresponds to the so-called "analytical phase," the technical analysis of the data; and the third phase involves the interpretation of the results. (Zamora Aviles, 2018).

For the first phase, the cases' theoretical background and the study's conditions were studied. The second phase, called the "analytical moment" of QCA, is the most characteristic of its understanding as a method. It begins with the "calibration" of the conditions and the result and the establishment of the thresholds belonging to the conceptually defined analysis set, which in this case will be fuzzy-set. From these characterizations, we proceed to the construction and presentation of each configuration (each case) in the truth table and simultaneously develop an initial process of incoherence analysis in each case. Since not all logically feasible

cases correspond to the empirically existing cases, an analysis of the so-called "logical residues" is performed based on the configuration of the truth table. Subsequently, the logical minimization of the configurations is developed using the Quine-McClusky algorithm. To accomplish data analysis, "fsQCA 3.0" software will be used, and the information will be presented in the results section. The third phase of the QCA application corresponds to an in-depth analysis of the cases presented in the conclusions. (Ragin and Lieberson, 2001; Schneider and Wagemann, 2012).

Theoretical background

Entrepreneurial activity has been widely studied in recent years and with different notations. For example, Ahmad and Seymour (2008) consider that entrepreneur's activities are enterprising human action in pursuit of the generation of value through the creation or expansion of economic activity. All this by identifying and exploiting new products, processes, or markets within a business context, including industry, competition, and national economic structures.

On the other hand, entrepreneurial activity can also be described in terms of the activities it develops. Thus, Shane and Venkataraman (2000) refer to the entrepreneurial activity as carrying out an entrepreneurial process that does not necessarily require the birth of a new company, although some innovation does occur. In this sense, innovation includes discovery, evaluation, and exploitation of opportunities to introduce new products or services, production processes, raw materials, markets, and new organizational formulas that did not previously exist, carried out by existing companies and by new ones.

Another way of measuring entrepreneurial activity is based on the number of new business centers opened, distinguishing between entrepreneurial activity carried out by existing and new companies. (Larraza Kintana, Contin Pilart and Bayona Sáez, 2005; Fuller and Pickernell, 2018; Lasio *et al.*, 2020)

From a different perspective, Obschonka, Moeller, and Goethner (2019) suggest that a person's essential entrepreneurial personality character contributes to shaping actual entrepreneurial activity. A similar idea can be found in Vallerand, (2015) as they relate entrepreneurial activity from a behavioral point of view, such as attitudes and skills.

In Ecuador, the Global Entrepreneurship Monitor (GEM) talks about post-secondary entrepreneurship education, differentiating between entrepreneurship training provided in primary and secondary education and that offered by higher education institutions. According to this report, Ecuador has consistently average performance, surpassing the regional average in business administration training, vocational training, and education systems. (Lasio *et al.*, 2020).

In this research, the entrepreneurial activity will be related to universities' activities to promote entrepreneurship, now called entrepreneurial university. The term "entrepreneurial university" was coined more than thirty years ago and began when university scientists attracted the attention of venture capitalists with their research and decided to exploit its industrial applications. Over time, universities gradually started to see researchers as factors of production and their opportunity to generate other types of revenue (Etzkowitz, 1983). Years later, a new paradigm was developed to understand the emerging entrepreneurial role of the university, giving way to what we know today as the basis of technology transfer between universities and companies (Smilor, Dietrich, and Gibson, 1993).

Subsequently, incubators as a mechanism for supporting the development of new technology-based firms were not very common despite the increased worldwide interest in university-sponsored technology. Nevertheless, the need to establish reasonable objectives and management policies that promote tangible results consistent with the requirements of the new mission of a business university began to become evident (Mian, 1994). These antecedents set a precedent for the university's third revolution, incorporating economic and social development as part of the HEI mission, known as the triple helix model (academic-industry-government relations). Hence, the university plays a more critical role in technological innovation contributing to regional development (Etzkowitz, 1998; Etzkowitz *et al.*, 2000; Salomaa, 2019; Salomaa *et al.*, 2020).

Entrepreneurial universities now encourage interaction and networking. They integrate entrepreneurship into the academic culture to obtain economic returns on the knowledge generated (Formica, 2002). Therefore, universities have been considered sponsors for economic growth (Cohen and Winn, 2007; Pugh *et al.*, 2018;

Salomaa, 2019). Policies have been generated that encourage universities and companies to participate in partnerships and personnel exchanges. For example, through university and industrial centers or science parks, commercialization is incentivized by granting ownership of intellectual property arising from their research and building universities' knowledge transfer capabilities by supporting recruitment and training of technology transfer staff (Adams, Chiang, and Starkey, 2001; Siegel and Zervos, 2002; Valentin and Jensen, 2007; Woolgar, 2007; D'Este and Perkmann, 2011).

Little research exists regarding the entrepreneurial university ecosystem that conceptualizes its structure and function (Guerrero *et al.*, 2016). An ecosystem consists of a collection of individuals, organizations, industry, and environmental elements who join forces in complex ways (Guerrero, Urbano, and Gajón, 2020). Piqué, Berbegal-Mirabent, and Etzkowitz (2020) make an approximation mentioning that entrepreneurship education, interactions between universities and investors, the improvement of specific infrastructures to incubate and accelerate business ideas, and an intensified activity of technology transfer offices could shape an entrepreneurial university ecosystem. In this sense, Polbitsyn *et al.* (2020) question the educational programs as they are crucial within an entrepreneurial ecosystem(Pugh *et al.*, 2021) by identifying strengths and weaknesses to develop entrepreneurial competencies as they do not fully meet the requirements of students (Pugh *et al.*, 2021). On the other hand, Padilla-Meléndez *et al.* (2020) comment that institutional barriers still exist for capital needed for business ideas. Infrastructure (i.e., incubator), on its behalf, influences graduates' career patterns facilitating employability options as academic entrepreneurship. Guerrero, Urbano, and Gajón (2020) show how graduates' risk aversion and work effort are positively influenced when access to university business incubators and relationships with external stakeholders are provided (Bikse *et al.*, 2016). Finally, university-industry collaboration and outputs such as patents and licenses will not be used by society if there are no knowledge transfer activities as a closing aid to the research process (Novela *et al.*, 2021).
.
In addition to all the above described, a sustainable university must have efficient management, address issues of the environment, and social and sustainable resource issues. The management model for a sustainable university should include developing a sustainable vision and mission as the basis for the university, actions, establishing the policies and resources necessary to carry out the task, and establishing a strategy for sustainability based on principles in both research and education (Bratucu *et al.*, 2020). Embarking on the Sustainable Development Goals (SDGs) path requires HEIs to manage specific processes to lead sustainability. Unfortunately, the lack of capacity of HEI to integrate sustainable development into all aspects of education and learning hampers the capability to act as an entrepreneurial university (Fleacă, Fleacă, and Maiduc, 2018).

In Ecuador, the university education system cannot develop students' motivation, competencies, and skills related to innovation and entrepreneurship, even worse than sustainability. On the contrary, entrepreneurship education requires learning methods, pedagogical processes, and frameworks for education, which many HEI universities have not mastered. (Blenker *et al.*, 2008).

RESULTS

Selection and description of cases

In Ecuador, there are 62 universities, 32 of which are public and distributed throughout the country. In this sense, the presented model has taken 27 public higher education institutions that considered STEM a sample. For analysis purposes, the first hypothesis states as relevant the contribution of careers in science, technology, engineering, and mathematics to provide solutions to specific problems of society and the achievement of the SDGs. On the other hand, the second hypothesis states that the primary purpose of public HEIs is academic and professional training and the construction of solutions to problems (Función Ejecutiva, 2010). Private universities were excluded, considering that their purpose could be economic. These assumptions ensure that the model will include the most relevant cases, similar enough to compare and sufficiently variations in conditions and outcomes.

Secondary data was used to define the conditions with accurate data, and cases were selected purposefully to be seen as potential causes of the outcome. Thus, considering the theoretical background, the following conditions were defined for the model based on the university entrepreneurial ecosystem and management.

Having a technology transfer office was not considered since it is a requirement of higher education regulatory entities:

- A: Entrepreneurship education
- B: Sustainable education
- C: HEI strategic management, including entrepreneurship and sustainability
- D: Specific infrastructures to incubate and accelerate

HEIs curricula were investigated one by one to assess conditions A and B corresponding to education. Related subjects on sustainability and entrepreneurship and other forms of training and their scope to all 2020 programs were sought.

The information used to evaluate condition C was based on the 2020 CPCSS (Council for Participation and Social Control in Ecuador) accountability form for higher education institutions. This CPCSS accountability form is a mandatory public document, where the percentage of compliance, results, and description of the strategic objectives and exclusive competencies for the 2020 period must be specified. In this section, HEIs shall show whether their strategic direction includes entrepreneurship and sustainability as elements in the strategy.

Likewise, the information analyzed to evaluate condition D was based on the analysis of HEIs web pages, news reports, and reports of Programs and Projects endorsed and registered in the Secretaría de Educación Superior, Ciencia, Tecnología e Innovación (Senescyt).

Finally, the outcome investigated in these cases corresponds to the contribution of the HEIs in achieving SDG. Each HEI's 2020 Annual Accountability Reports was analyzed to carry out this measurement.

- Y: The contribution of the HEI to the achievement of the SDGs is evidenced.

Calibration

Variables of each case were calibrated into the fuzzy-set membership scores for their degree of membership to produce scores ranging from 0.00 = full non-membership to 1.00 = full membership (Ragin and Lieberson, 2001). Rules for assigning set membership scores to cases are presented in Tables 1 and 2.

Table 1: Rules for assigning set membership scores to conditions A, B, and D

Score	A Entrepreneurship education	B Sustainable education	D Specific infrastructures to incubate and accelerate
0	HEI does not have cross-cutting subjects	HEI does not have cross-cutting subjects	HEI has not developed infrastructure
0.33	Only management programs have entrepreneurship subjects.	Only the environmental programs have sustainable subjects.	HEI is part of the Innovation Hub
0.67	There are extracurricular activities related to entrepreneurship open to the community.	There are extracurricular activities related to sustainability open to the community	HEI sponsors a coworking, incubator, accelerator, or prototyping-lab
1	Entrepreneurship education is transversal to all careers.	Sustainable education is transversal to all careers	HEI has developed a Scientific and Technological Park

Table 2: Rules for assigning set membership scores to condition C and Outcome Y

Score	C HEI strategic management include entrepreneurship and sustainability	Y The contribution of the HEI to the achievement of the SDGs is evidenced

	0	HEI does not have related strategic objectives	HEI does not show a contribution to SDGs in their annual report
	0.5	HEI has strategic objectives related to either entrepreneurship or sustainability.	HEI contribute non-significantly to SDGs in their annual report
	1	HEI has strategic objectives related to entrepreneurship and sustainability.	HEI contribute significantly to SDGs in their annual report

Truth Table

The fuzzy-set scores are used to construct a data matrix as a truth table with 2k rows to operate the Boolean algebra (Schneider and Wagemann, 2012). The data matrix is presented as follows in Table 3.

Table 3: Data Matrix

Code	Higher Education Institution	A	B	C	D	Y
1	EPN Escuela Politécnica Nacional	1	0.33	0.5	0.33	0
2	ESPAM Escuela S. Politécnica Agraria Manabi	0.33	0.33	0	0	0
3	ESPE Universidad de las Fuerzas Armadas	1	0.33	0	0.33	0
4	ESPOCH Escuela Superior Politécnica Chimborazo	0.33	1	1	0.33	0.5
5	ESPOL Escuela Superior Politécnica del Litoral	1	1	1	0.66	1
6	IKIAM Universidad Regional Amazónica	0	1	1	0	1
7	UAE Universidad Agraria Ecuador	0.33	1	1	0	0.5
8	UC UNIVERSIDAD CENTRAL	0.33	0.33	0	0.66	0.5
9	UEA Universidad Estatal Amazonica	0	0.33	0.5	0.33	0.5
10	UEB Universidad Estatal Bolivar	1	1	0.5	0.33	1
11	UG Universidad de Guayaquil	1	1	0	0	0
12	UINPIAMM Amawtay Wasi	1	1	0.5	0	0
13	ULEAM Universidad Laica Eloy Alfaro Manabí	0.33	0.33	0	0.33	0
14	UNACH Universidad Nacional Chimborazo	0.33	0.33	0	0.33	0.5
15	UNAE Universidad Nacional Educación	0.33	0.33	0	0.33	0
16	UNEMI Universidad Estatal Milagros	0.33	0.33	1	0.33	0.5
17	UNESUM Universidad Estatal Sur Manabí	1	1	0.5	0.33	1
18	UNL Universidad Nacional Loja	1	0.33	0.5	0	0
19	UPEC Universidad Politécnica Estatal del Carchi	1	0.33	0.5	0.67	1
20	UTA Universidad Técnica Ambato	0.33	0.33	1	0.66	0.5
21	UTB Universidad Técnica Babahoyo	0.66	0.66	1	0.33	0.5
22	UTC Universidad Técnica Cotopaxi	0.66	0.66	0	0.33	0
23	UTELVT Universidad Técnica Luis Vargas Torres	0.33	0.33	0	0.33	0
24	UTEQ Universidad Técnica Estatal de Quevedo	0.33	0.33	0.5	0.33	0
25	UTMACH Universidad Técnica Machala	0.33	0.33	0.5	0.33	0
26	UTN Universidad Técnica del Norte	1	1	1	0.33	0
27	UY Universidad Yachay	1	0.6	0	0.33	0

Once the variables were calibrated, the following step was developing the truth table, which was carried out through the software "fsqca V3.0". The truth table resulting is shown in Figure 1.

Figure 1: Truth Table result from "fsqca V3.0" software

A	B	C	D	number	Y	cases	raw consist.	PRI consist.	SYM consist
0	1	1	0	3	1	cases	0.769053	0.5	0.60241
1	1	1	1	1	0	cases	0.692308	0.555556	0.555556
0	0	1	1	1	0	cases	0.645022	0	0
0	0	1	0	1	0	cases	0.589474	0	0
1	1	1	0	2	0	cases	0.568404	0.386574	0.401442
0	0	0	1	1	0	cases	0.351515	0	0
1	1	0	0	3	0	cases	0.257772	0.188385	0.188385
0	0	0	0	5	0	cases	0.242315	0	0
1	0	0	0	1	0	cases	0.184015	0.0699153	0.0699153

Logical minimization.

Finally, the logical minimization was carried out, and applying the Quine-McClusky algorithm, the complex, parsimonious, and intermediate logic minimizations were determined. It should be noted that the threshold used was 0.75 because it is considered substantially consistent in the study. The result of the logical minimization and standard analysis evidenced the results shown in Table 4 considering "present" all causal conditions in the software:

Table 4. Standard Analysis result from "fsqca V3.0" software

	Complex Solution	Parsimonious Solution	Intermediate Solution
Solution	~A*B*C*~D	~A*B	~A*B*C
Frequency	1	1	1
Coverage	0.37	0.4433	0.37
Consistency	0.769053	0.6	0.769053

Table 4 shows consistency in the results, which means that the sub-sets of conditions and outcomes are closely related and share conditions or combinations of conditions. On the other hand, coverage has a low degree showing how much of the outcome is covered.

With these results, and following Ragin's recommendation, we will stick to the intermediate solution. It uses only easy counterfactuals for the minimization process and is not as difficult to interpret as the complex solution.

CONCLUSION

The purpose of this study was to provide a comprehensive relation between a condition that promotes sustainable development goals from Higher Education Institutions, primarily related to entrepreneurial activity. To shed more light on the current body of knowledge, we analyzed the theoretical background to determine the model's conditions. This approach leads us to consider specific requirements to promote sustainable entrepreneurship, starting with an ecosystem that helps society.

Going back to the theoretical background is necessary to interpret the results. The HEI's entrepreneurial ecosystem described the need for education, infrastructure, policies that promote entrepreneurship, and knowledge transfer offices(Piqué, Berbegal-Mirabent, and Etzkowitz, 2020). The model indicates that more important is promoting sustainable education and strategic direction tied to either entrepreneurship or sustainability or both (intermediate solution ~A*B*C).

The calibration was performed, understanding that both the complex solution and the intermediate solution exclude variable A as a condition for achieving the SDGs from the entrepreneurship activities. Condition A was a count of the educational offerings proposed for students, including electives, cross-cutting subjects within programs, additional training, and other forms of entrepreneurship-related education. Although many HEIs currently have cross-cutting entrepreneurship education, most engage in any entrepreneurship type of education.

Regarding Condition B, It could be seen that all universities at least introduce sustainability education in their environmental careers. Only 11% of the universities have additional courses related to sustainability, and 33% of the universities have cross-cutting programs in all their study programs.

About condition C of HEIs strategic management, 33% of HEIs include entrepreneurship or sustainability in their axes, and 29% both. In the "entrepreneurship or sustainability" condition, there was a remarkable difference in which entrepreneurship was more prevalent in strategic management than sustainability.

Concerning condition D, which dealt with infrastructure to promote participatory environments for entrepreneurs such as coworking, incubators, accelerator, innovation Hubs, and technology parks, the model shows that this condition can be present or absent as this will not affect the achievement of the SDGs. This fact is not surprising since, due to SENESCYT programs, most public universities participate in innovation HUBS sponsored by this entity. However, few universities have coworking, incubators, or accelerators, not to mention that there are still no science parks in the country.

It is to say that only five universities covered the solution terms: Escuela Superior Politécnica Chimborazo, Escuela Superior Politécnica del Litoral, Universidad Regional Amazónica, Universidad Agraria Ecuador and Universidad Técnica del Norte.

In conclusion, this study showed that Ecuadorian higher education institutions are committed to including entrepreneurship in their policies, programs, and activities, in line with the new mission of universities as part of the triple helix. However, their efforts are not geared towards the sustainable development goals since only 15% of the universities show significant evidence, such as projects or efforts made, and 30% show non-significant evidence since they only show research projects related to SDGs issues but no concrete action carried out.

Entrepreneurship and sustainability are not treated as related topics in Ecuador but are studied or applied as different fields. Future work proposes to include new variables to the model, such as the analysis of linkage projects and other goals of the SDGs to uncover the conditions or combinations of conditions that are sufficient for the expected outcome to avoid these limitations give a complementary view.

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SERVICE ORGANIZATIONS AND NEW WORK: FOCUS ON PSYCHOLOGICAL EMPOWERMENT

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ABSTRACT

The purpose is to provide a framework guiding service organizations while adopting new work practices and to specify effects of psychological empowerment. This research is based on a mixed-method approach to establish new theory and to determine correlations. It is claimed that the managerial framework ensures solid foundation for the quantitative analysis arguing that new work practices have positive effects on service organizations. This study contributes to new work and service literature by equipping service organizations with a framework and stating the positive effects on employees using psychological empowerment as a mediator where employees are the central resource to success.

INTRODUCTION

The new working world and how to focus on employees came to the fore of discussion among academics and practitioners. Digitalization, globalization and COVID-19 pandemic are challenging the service sector (Edvardsson *et al.*, 2018; Voorhees *et al.*, 2020) and as being the main driver of economic productivity and growth service organizations represent an essential part of the world economy (Anderson *et al.*, 2013; Khanra *et al.*, 2021; Ostrom *et al.*, 2010; Ostrom *et al.*, 2021; Sheehan, 2006). In the past and especially now in order to maintain a successful position service organizations need to find ways to prove themselves in a highly competitive field (Kandampully, 1998; Ostrom *et al.*, 2021). The majority of interactions within the service industry are based on human-to-human collaborations, and hence, the adoption of new work practices can create an advantage over competitors (Aksoy *et al.*, 2019; Hart, 1995; Teece *et al.*, 1997). Services itself do not only connect activities within an economy or society but also combine different sectors of it (Kandampully, 2002). Additionally, the ubiquitous shortage of skilled workers is also causing service organizations to revise their current ways of working and to update their abilities towards new work practices (Lindner *et al.*, 2018; Schermuly, 2021). So far, it has been found out that the introduction of new work practices within organizations not only enhances employees' motivation at work (Ollo-Lopez *et al.*, 2010) but also fosters overall productivity within an organization (Askenazy and Caroli, 2010; Schermuly, 2021). In particular, these findings are of high relevance owing to the fact that service employees are deemed as key success drivers for service organizations as they are able to enhance quality of services as well as foster customer loyalty (Herhausen *et al.*, 2020). This leads to the urgent need of adopting new forms of interaction between customers and service organizations through their employees as well as to transform the collaboration amongst employees. In accordance to Schermuly (2021), influenced by the structure of an organization this corresponds to the concept of psychological empowerment. It maps human beings in an organization and acts as a mediator between structural conditions and the intended effects such as increasing job satisfaction or lowering employees' intention to quit (Seibert *et al.*, 2011). Due to the transdisciplinary nature of the service industry and according to Aksoy *et al.* (2019) and Gustafsson *et al.* (2016), further research is needed in the field of new work practices and the role of employees. As of now, despite the rapidly changing and complex context of services, research has so far missed the opportunity to create a clear overview of practices for service organizations and establish a guidance of what effect new work practices have on their employees (Barley *et al.*, 2017; Edvardsson *et al.*, 2018; Leonardi and Bailey, 2008; Ostrom *et al.*, 2021). Thus, this paper is guided by two research questions. First, the qualitative part of the research focuses on how service organization can adopt new work practices. Second, the quantitative part specifies what influence psychological empowerment has on the effects of implementing new work practices. This study aims to equip service organizations with a managerial new work practice framework derived from a manager's point of view and to test whether this framework has a significant effect on employees (e.g. job satisfaction) using psychological empowerment as a mediator. It therefore contributes to the service literature by holistically conceptualizing new work practices and the positive effects of psychological empowerment within service organizations. The result of this paper is twofold. By adapting a mixed-method approach the qualitative part derived a managerial new work practice framework using a grounded theory approach (Gioia *et al.*, 2013).

The quantitative part adopts these dimensions and cast an eye on the employee level examining psychological empowerment as a central mediator for leveraging the positive effects of new work practices in the service environment using a structural equation model (SEM).

THEORETICAL BACKGROUND

Staying flexible and continuously transform business processes as an organization as well as to acquire new competences with respect to new work practices becomes key to stay innovative and competitive nowadays (Janssen *et al.*, 2016). In particular, in the last two years the understanding of work has changed and transformed significantly as the COVID-19 challenged not only organizations but also work behaviour of employees around the world (Dubey and Tripathi, 2020; Voorhees *et al.*, 2020). The implementation of new work practices seems to create an advantage for service organizations. In this sense, the constitution of competitive advantages is linked to an organization's ability to continuously update its knowledge concerning the new working world. This is also supported by Teece *et al.* (1997, p.516) defining "dynamic capabilities as the firm´s ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments.". To respond more flexible to changing work and market environments service organizations need to develop multiple competencies (Eloranta and Turunen, 2015; Hobday, 1998). One of these competencies is related to the adoption of new work practices and to further elaborate on its effects on employees. Currently, academic literature presents a rather fragmented understanding of practices organizations can implement regarding the new working world (Aroles *et al.*, 2019; Schøne, 2009). Therefore, academic literature suggests that new work practices are moving towards fostering flatter organizational structures (Caroli and van Reenen, 2001; Lindbeck and Snower, 2000; Schermuly, 2021; Schøne, 2009), an incorporation of collective work measures through new ways of communication, shared responsibilities or job rotation (Ashford *et al.*, 2007; Askenazy and Caroli, 2010; Schøne, 2009) as well as enabling an organizational culture change based on non-authoritarian style of leadership, open offices, individualization of work arrangements and employee involvement in the decision-making processes (Handel and Levine, 2004; Hornung *et al.*, 2008; Schermuly, 2021). Spreitzer *et al.* (2017, p.477) identified practices of new work and described them as "three dimensions of flexibility that capture the range of alternative work arrangement: (a) flexibility in the employment relationship, (b) flexibility in the scheduling of work, and (c) flexibility in the location of where work is accomplished.". However, a more technical oriented perspective is also widely present among academia. In accordance to Barrett *et al.* (2015), the use of information and communication technology (ICTs) and the incorporation in organizational business processes is considered a practice of new work. Nonetheless, according to Schøne (2009) practices of new work miss a clear definition. With regard to this paper, new work practices are defined as practices which holistically frame the way work is carried out in service organizations in the future and encompass all practices that serve to redesign working environments in order to be prepared for the challenges of the future. Service organizations can therefore overcome challenges and maintain a certain degree of competitiveness by implementing new work practices. In order to understand the concrete effects of new work practices in the service sector it is also important to examine the effects at the level of the employees. The various sectors service organizations operate in (Mills *et al.*, 1983; Mills and Margulies, 1980) and its transdisciplinary (Aksoy *et al.*, 2019; Askenazy and Caroli, 2010; Benoit *et al.*, 2017; Gustafsson *et al.*, 2016) make it especially crucial to conduct further research. According to Gustafsson *et al.* (2016), future research in the service sector should contribute to knowledge and competence acquisition by promoting the incorporation of disciplines using a more refined perspective and by focusing on inter alia activities, e.g. new work practices from a managerial point of view, and how they can serve service organizations by studying the effects of them. Regarding the relevance of service organizations, a unique characteristic is the person-to-person basis service organizations generally operate. In correspondence to Aksoy *et al.* (2019) the majority of interactions within service organizations, especially in the daily work context, is based on human collaborations. Precisely, psychological empowerment starts at this point and places the individual at the core centre of an organization, in contrast to, the structural, and thus, organisationally-oriented approach (Schermuly, 2021). Psychological empowerment can be understood as a motivational construct that is manifested through four dimensions, namely *meaning*, *competence*, *self-determination* and *impact* (Spreitzer, 1995). These four dimensions are described to be the fundamental facets that support psychological empowerment (Schermuly, 2021). First, meaning encompasses how much value is attached to the purpose itself and the purpose of the work (Spreitzer, 1995). Second, competence aims at the individual's perception of his or her own ability to accomplish a task with his or her own skills (Spreitzer, 1995). Third, self-determination refers to influencing one's own daily work flow, and finally, impact is understood as the degree of influence to shape results of a strategic or administrative nature (Schermuly, 2021). The interplay of these four dimensions shapes the perception of psychological empowerment. How

psychological empowerment is perceived in turn depends on structural conditions such as leadership behaviour or organisational culture (Schermuly, 2021). This makes service organizations a profound sample concerning new work practices owing to the fact that the human factor plays a central role. Advantages can arise especially for service organisations as concrete research in the area of individual measures has shown that they foster the productivity of organizations (Askenazy and Caroli, 2010) and motivation (Ollo-Lopez *et al.*, 2010) as well as efficiency of employees (Barrett *et al.*, 2015). In their meta-analysis (Seibert *et al.*, 2011) summarise various empirical findings on the effects of psychological empowerment. Consistently across several studies, positive correlations with job satisfaction, performance, innovative behaviour and organisational commitment were found. In addition, individuals who feel psychologically empowered feel less stress and are less likely to express intentions to quit.

Regarding the quantitative analysis of the effect of new work practices on employees in the service sector this study stated the following hypotheses:

(i) The higher the psychological empowerment, the higher the (1) job satisfaction, (2) productivity, (3) perceived enjoyment, (4) employer attractiveness.

(ii) The higher the psychological empowerment, the lower the (5) inhibition of work efficiency, (6) intention to quit.

METHODOLOGY

The purpose of this study is to identify how service organization can adopt new work practices as well as to specify what influence psychological empowerment as mediator has on the effects of implementing new work practices. The research adopts a mixed-method approach based on qualitative semi-structured interview study and a quantitative structural equation analysis.

In the first step, the qualitative method was applied in order to gather interpretation of experiences from experts as well as to capture the organizational processes (Bluhm *et al.*, 2011). Following the work of Gioia *et al.* (2013) a grounded theory approach is applied based on Gioia methodology. Data were collected conducting 21 semi-structured expert interviews. Service organizations adapting their strategy towards the new working world and with its headquarters in Germany were selected in order to create a comparative basis regarding the similarity of legal and political parameters. Top-level managers were interviews in order to understand the strategic perspective behind new work practices, whereas, mid-level management was considered to capture the tactical perspective behind implementation mechanisms (Langley and Abdallah, 2015). Management level was involved for the reason that based on the managerial new work practices hypotheses for the quantitative part are built up in order to test the effects of these practices respectively. Semi-structured expert interviews were conducted in German between March 2021 and June 2021 lasting between 42 minutes and 69 minutes. All conducted interviews were recorded and transcribed in order to code the data. Coding of the data involved three researchers and in order to maintain a thematical distance and to improve theoretical outcome one researcher iteratively gave feedback (Crosina and Pratt, 2019; Gioia *et al.*, 2013). Hence, the iterative process allowed for created concepts, themes and aggregated dimensions critical revisions. First, interview transcripts were assessed using open coding, and hence, first order codes were created in a more descriptive nature closely linked to the actual quotes. Second, first order codes were subject to axial coding in order to organize and group them in a more theoretical manner (Gioia *et al.*, 2013). The underlying coding process aimed for second order themes. Second order theme *"facilitation of agile work methods"* for instance was clustered from following first order codes *"simplifying flexible and collaborative ways of working"*, *"promoting employee satisfaction and fun at work"* as well as *"introducing working space and desk sharing concepts"*. Third, in the last stage of analysis application of theoretical coding was performed. Axial codes were organizing again to cluster suited and logical forms of aggregated dimensions. Therefore, the derivation of an aggregated form based in second order themes constitutes the underlying data structure leading to three aggregated dimensions, namely, *"introducing new work approaches"*, *"changing leadership attituded"* and *"innovating organizational culture"*. In this regard, Figure 1 presents the data analysis process consisting of first order codes, second order themes and aggregated dimensions denoting the managerial new work practice framework and ensuring a solid foundation for the quantitative analysis.

Figure 1: Qualitative data structure

| 1st Order **Codes** | 2nd Order Themes | Aggregated Dimension |

- Considering complexity and new requirements of applicants
- Expecting openness towards new forms of recruitment
- Fostering professional and personal development of employees

→ Change of recruitment processes

- Simplifying flexible and collaborative ways of working
- Promoting employee satisfaction and fun at work
- Introducing working space and desk sharing concepts

→ Facilitation of agile working methods

⟶ **Introducing new work approaches**

- Introducing flat hierarchical structures
- Seeing leaders as coaches and mentors
- Taking responsibility and integrating employees

→ Enforcement of new leadership levels

- Establishing conditions for open cooperation
- Anticipating openness from management towards feedback
- Creating a culture of trust within the organization

→ Transparency and feedback opportunities

⟶ **Changing leadership attitudes**

- Allowing employees engagement and proactivity
- Creating technical conditions for virtual handling
- Establishing remote working options

→ Flexibilization of working models

- Aligning organization internationally
- Developing new work target in team and defining standards
- Testing pilot projects and innovation ideas

→ Promotion of openness to innovation ideas and international corporate orientation

⟶ **Innovating organizational culture**

In the second step, a quantitative survey was carried out among employees with office-based activities in order to assess the degree of implementation of the identified framework of new work practices as well as the psychological empowerment perceived by employees. In general, the survey was open between May 2021 and March 2021 and 279 observations were gathered from contestants from Germany. Half of the respondents were recruited through social accounts and networks of the researchers and the LF Group Leipzig as corporate partner and the other half was collected via an end-consumer-panel. In each way, a focus was set on employees working with a relative proportion close to the office (min. 30 per cent).

As the research hypotheses deal solely with employees in service organizations all respondents not working in the service sector were removed from the sample. This information was collected through a separate question in the survey about the employer's sector and left a sample of 155 people for further analysis.

The distribution of the survey participants among the individual service sectors is relatively balanced in the sample. Approximately, 34.2 per cent work in the field of information and communication, 10.3 per cent in financial and insurance services, 16.8 per cent in the provision of professional, scientific and technical services, 18.7 per cent in the provision of other economic services and 20 per cent in the provision of other services. Companies with more than 500 employees are overrepresented in the sample in view of the company structure and employees over 50 years of age are underrepresented in the sample. In terms of gender, the sample is balanced with 49.1 per cent female, 50.3 per cent male as well as 0.6 per cent diverse respondents. The share of persons with leadership tasks is 19.4 per cent. Regarding the age of the company, the spectrum ranges from start-ups to traditional companies, with the majority of participants classifying their employer as a traditional company. Firstly, a descriptive analysis of the central variables and in particular the use and relevance of new work practices is carried out. Secondly, the correlation between psychological empowerment and the effect variables mentioned (e.g. job satisfaction, productivity) is examined with the help of a correlation analysis. Finally, the overall model is tested with the help of a SEM model based on Partial Least Square (PLS) method.

RESULTS

The preliminary findings of this study are twofold. The qualitative results provide a potential framework of managerial new work practices facilitating the revision and adaption process. The framework consists of three dimensions: (i) *introducing new work approaches*, (ii) *changing leadership attitudes* and (iii) *innovating organizational cultures*. Service organizations can implement the dimensions in order to create a more competitive position in the market.

First, data analysis demonstrated that the dimension of *introducing new work approaches* considers a composition of changes in recruitment processes and the facilitation of agile working methods. In order to change the recruitment processes interviewed experts mentioned that service organizations have to consider the increased complexity and changed requirements of their applicants. Moreover, both top- and mid-level management need to allow for more openness regarding new forms of recruitment as this is expected by future applicants. Closely linked to that is the growing importance of offering development measures for new applicants. In this regard, service organizations have to develop their personnel professionally as well as the personally. Two managers explained: *"People must be the focus of the strategic orientation during the recruitment processes. Combining different generations means that we have to change even further in this respect. In the past, salary played a role; today, it's the work models, freedom or trust that appeals to new applicants."* Further, experts noted the relevance concerning the facilitation of agile working methods. Hence, simplifying flexible and collaborative ways of working is an often-mentioned aspect by managers. In this context, fun at work plays a major role. According to the management level, the goal is to promote and increase employee satisfaction during work. Furthermore, as data reveal the introduction of novel working spaces and concepts such as desk sharing is often linked to agile working methods. One top-level manager noted: *"The aim of our agile measures is to increase the satisfaction of our employees in any case. We want to achieve this with more dynamic, communication and flexibility during the work processes."*

Second, observed data reveal that the dimension of *changing leadership attributes* can be linked to the enforcement of new leadership levels and the transparency as well as feedback opportunities. Service organizations need to enforce new levels of leadership. Experts emphasized that the introduction of flat hierarchies is often linked to this. Moreover, nowadays leaders need to rather take up the role of a coach or a mentor. It is not enough to just represent a sole decision-making part. In this sense, it gains in significance that the leaders take responsibility for their team and parallelly integrate all of their employees. An expert stated in a similar vein: *"As leadership takes on a different role new work includes the issue of no longer thinking in such a hierarchy-driven way. Increasingly, it will be about collaboration and working together, where the manager is there to support, nonetheless, in the end takes responsibility for the decision."* Interviewed experts further assign a greater importance to the extent of transparency and feedback opportunities within organizations. Integral to that is the establishment of long-lasting conditions for a setting of open cooperation within the organization. With this management level must be open towards feedback from their employees and proactively demand it. Hence, managers disclosed that in this way service organizations are able to move towards a and establish a culture of trust. This is confirmed by one mid-level manager who explained: *"Especially through remote work and feedback opportunities, we can build trust between employees and managers. In addition, managers are motivated to actively seek feedback. Through personal development discussions, we ensure that this is also implemented on both sides."*

Third, interview data showed that the dimension of *innovating organizational cultures* can be connected to the flexibilization of working models and the promotion of openness to innovation ideas and international corporate orientation. To consider more flexibility regarding working models top- and mid-level management described that employees must be invited and allowed to proactively engage in decision-making and internal processes of their organization. Furthermore, experts agreed on the fact that service organizations are obliged to create sufficient technical pre-conditions in order to handle virtual work. Closely connected to this is the high relevance to not only offer but also establish remote working options for all employees. Several experts commented: *"Our work regarding flexibilization is twofold. On the one hand, we want to become more flexible when it comes to remote work. However, we have equipped both our employees and our offices with appropriate technology. On the other hand, it is crucial for us to make our employees more flexible in terms of their own working method. In small projects they have the responsibility to work agile with others."* With respect to the promotion of openness and to innovation ideas and the international corporate orientation a frequent description was that service organizations must align their business processes even more internationally. Changing the business language to English was one aspect which almost all experts mentioned throughout the interviews. Furthermore, observations demonstrated that development of new work targets within the team and the definition of uniform standards positively influences the further promotion of innovation ideas and orientation. This is in particular relevant concerning the possibilities to test pilot and innovation projects. One top-level manager confirmed this: *"We want to make sure in our entire culture and already during the recruitment phase that all the employees know English. Furthermore, the whole world is changing and we try to keep up with the latest innovations and initiate change processes."*

The preliminary quantitative results give first insights into the offered and implemented new work practices of service organizations. In addition, it also reveals new work practices which employees would like to experience. In this context, Figure 2 shows an overview of the results. The most widely available and used new work practices are, for instance, flexible working hours, more flexible working locations and digital communication as well as collaboration tools. New work practices that are currently offered less, but increasingly desired by employees, are modern room concepts and ergonomic workplace design. Additionally, employees would like to use more formats for developing new ideas and the possibility to use part of their own working time for creative and personal projects.

Figure 2: Availability, use and demand of new work practices in the service industry (n=155)
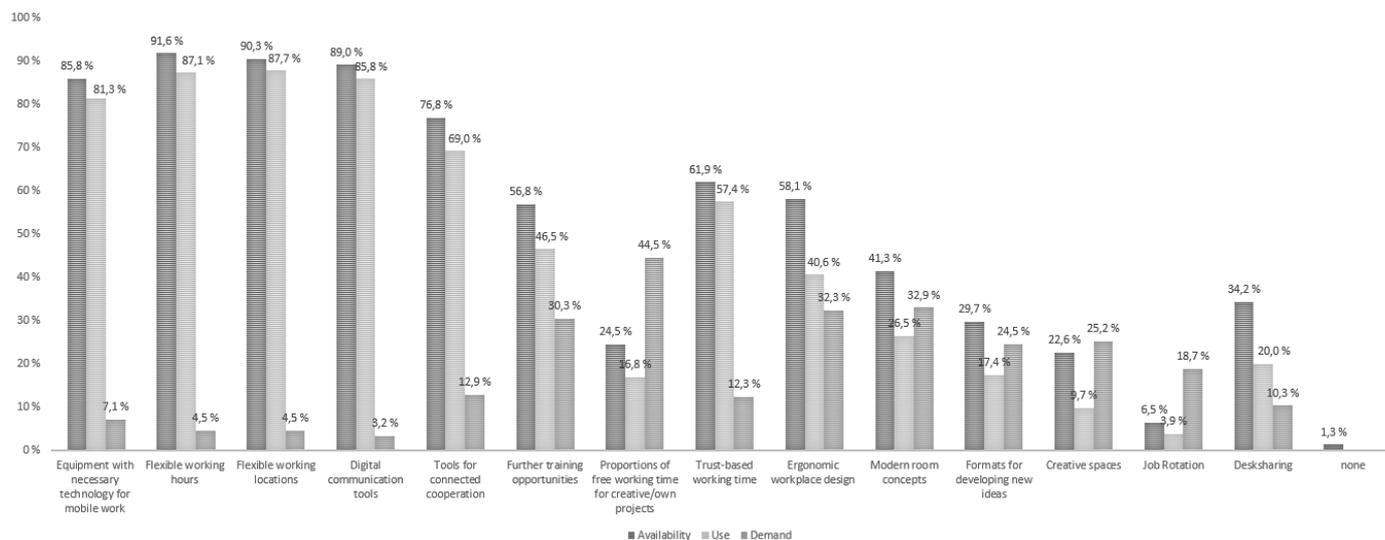
Furthermore, the preliminary quantitative results underline the relevance of new work practices and reveal that the more a service organization implements new work practices the greater its employees experience psychological empowerment. Additionally, results prove that the leadership dimension has a strong impact on psychological empowerment as employer attractiveness and job satisfaction are significantly related to an empowerment-oriented leadership style. Table 1 provides an overview of the correlation between identified dimensions of new work approaches (NWA), organizational culture (OC), new work-oriented leadership (NWL), psychological empowerment (PE), job satisfaction (JS), intention to quit (ITQ), fun at work (FAW), productivity (P) as well as the effects of psychological empowerment on employer attractiveness (EA).

Table 1: Correlation table new work practices, psychological empowerment and effects (n=155)

	NWA	OC	NWL	PE	JS	ITQ	FAW	P	EA
NWA		,365**	,350**	,293**	0,141	0,085	,178*	,202*	,284**
OC	,365**		,264**	,330**	,399**	,280**	,189*	,308**	,377**
NWL	,350**	,264**		,525**	,380**	,334**	,549**	,276**	,507**
PE	,293**	,330**	,525**		,475**	,347**	,596**	,297**	,556**
JS	0,141	,399**	,380**	,475**		,448**	,582**	,318**	,555**
ITQ	0,085	,280**	,334**	,347**	,448**		,474**	,344**	,579**
FAW	,178*	,189*	,549**	,596**	,582**	,474**		,380**	,644**
P	,202*	,308**	,276**	,297**	,318**	,344**	,380**		,381**
EA	,284**	,377**	,507**	,556**	,555**	,579**	,644**	,381**	

DISCUSSION

As indicated by inter alia Barley *et al.* (2017), Edvardsson *et al.* (2018) or Leonardi and Bailey (2008) the emergence of an explicit new work practice framework and an evaluation of its effects are currently missing. Nonetheless, service organizations must overcome pandemic challenges (Dubey and Tripathi, 2020), fierce competition (Tsai and Huang, 2020), digitalization as well as globalization (Edvardsson *et al.*, 2018; Luca *et al.*, 2021) challenges. The adoption of a mixed-method approach allows to cast an eye on these challenges and combines the managerial point of view specifying the effects on service organizations implementing new

work practices. In general, this study potentially contributes to extending service literature by a managerial new work practice framework and by testing as well as describing the positive effects of psychological empowerment. Preliminary results can be translated into potential theoretical and managerial contributions to the current state of literature. Concerning the preliminary theoretical contributions this paper takes new work practices as an overall rather than explaining them as single fragmented measure (Askenazy and Caroli, 2010; Barrett *et al.*, 2015; Oberländer *et al.*, 2020). Therefore, it promotes understanding within the management level of service organizations towards the urgency to implement new work practices. This understanding can as well help to increase value for customers. According to Kandampully (2002) this will additionally foster a competitive advantage of service organizations. Moreover, it sheds light on what exactly management level needs to consider while adapting these practices given the subdivisions of dimension in Figure 1. The preliminary results show that psychological empowerment in the service sector can increase effects such as job satisfaction and reduce the intention to quit. The targeted increase of perceived psychological empowerment through the use of new work practices can therefore represent a relevant success factor. This is especially valid for the service sector where employees are central to the successful provision of services. With regards to the preliminary practical contributions it can be observed that the offered framework creates a uniform basis regarding new work practices. As stated by Aroles *et al.* (2019), Lindbeck and Snower (2000) and Schøne (2009) current practical implications of new work practices are rather inconsistent, and hence, practical implications lack a common guideline. Furthermore, amid the COVID-19 pandemic our working world significantly was interrupted and is still changing, thus, becoming not only a theoretical phenomenon but rather a real scenario (Dubey and Tripathi, 2020). Yet, numerous organizations are keen on going back to normal. In this context, the framework supports a new work practice adaption guides decision-makers through the changing working world. The results of the correlation analysis also show the considerable correlation between leadership behavior and perceived psychological employee empowerment. It therefore seems important to sensitize managers with regard to their influence on employees and thus also on their work results. Depending on the manager and the context, it might be necessary to empower managers as well with regard to their resources and competences.

CONCLUSION

The aim of this study was to provide a framework guiding service organization while adopting new work practices and to specify effects of psychological empowerment. The overall topic around new work practices in service organizations provides a promising approach for enriching theory and practice. Apart from the contributions this preliminary status has limitations which will be addressed in the further course of the study. The qualitative and quantitative data collection was conducted during the COVID-19 pandemic, and hence, results might be subject to change in a different time period. As data were solely retrieved in Germany there is a potential regional bias as other countries face different legal conditions or situations regarding new work. The sample should also be reflected critically as which people under 50 years of age are underrepresented and employees from large companies are overrepresented. Nonetheless, future research could further differ between service organizations with a concrete focus on commerce and service organizations with a majority of their employees working from office spaces. In particular, it would be crucial to find out how new work practices can be implemented and how to deal with differences.

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INTERNAL ANTECEDENTS AND COMPETITIVE CONSEQUENCES OF ENVIRONMENTAL MANAGEMENT IN THE HOTEL INDUSTRY

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ABSTRACT

This paper analyzes antecedents and consequences of environmental management. A mixed methods study with three phases is conducted, combining a first qualitative part, a second quantitative phase, and a third qualitative stage. The findings show that quality management and human resource management have a positive influence on environmental management. Moreover, human resource management plays a mediating role between quality management and environmental management. Regarding consequences, the results show that environmental management has a positive impact on performance, competitive advantages (costs and differentiation) and two dynamic capabilities (innovation and agility).

INTRODUCTION

Environmental management is an important management system with relevance in academic research and practice. In this study, we analyze antecedents and consequences of environmental management. Thus, the main purpose is twofold: first, we study the role of two internal organizational factors in the implementation of environmental management, specifically quality management and human resource management; second, we study the consequences or outcomes of environmental management, examining its impact on performance, competitive advantages and dynamic capabilities.

Several contributions to literature are emphasized. Studies in the field of environmental management usually examine antecedents or consequences; in our study, we examine both aspects. Regarding antecedents/determinants of environmental management, most studies focus on external determinants (pressure from several stakeholders, such as public administrations through regulations, customers or competitors); in our study, we focus on two internal determinants: quality management and human resource management. With regard to consequences of environmental management, most studies focus on financial performance and competitive advantages; together with these outcomes, we also examine the influence of environmental management on two important dynamic capabilities: innovation and agility. Moreover, most studies examine environmental management in manufacturing industries; in our paper, we analyze the service industry, focusing on tourism, and specifically in the hotel industry.

Another contribution is methodological. A mixed methods study (Creswell and Plano Clark, 2018; Tashakkori, Johnson and Teddlie, 2021) is conducted, integrating qualitative and quantitative methods through three sequential phases. A first qualitative phase, through interviews with practitioners in the hotel industry, helps to improve the second quantitative phase (support for hypotheses, knowledge of the industry context and development of the questionnaire). In the second, quantitative phase, relationships between variables were analyzed for 365 Spanish hotels using a structural equations model based on the Partial Least Squares (PLS) approach. In a third and last qualitative phase, practitioners indicated their opinion, elaboration and clarification of the quantitative findings. Using notation of mixed methods, our study is a QUAL→QUAN→QUAL design, combining an exploratory purpose (with the first qualitative phase) and an explanatory purpose (through the last qualitative part).

The structure of the paper is as follows. Next, hypotheses are developed based on literature and the first qualitative phase of the mixed methods design. Then, the quantitative phase is carried out, testing hypotheses about relationships between variables. In the following section, through the last qualitative

phase, practitioners clarify the quantitative findings from their perspective. Finally, some conclusions, implications, limitations and future research ideas are indicated.

HYPOTHESES: LITERATURE REVIEW AND FIRST QUALITATIVE PHASE

Hypotheses were developed using previous literature and supporting this literature review with a qualitative phase conducted through interviews with 14 persons who work in the hotel industry from several positions: six managers of several hotels, two representatives of hotel associations, two representatives of institutions of knowledge transfer to the hotel industry, one representative of tourist policy, one manager of a consulting firm in the hotel industry, and two academic researchers in the hotel industry. These interviews were conducted in the workplace of interviewees, with a mean duration of 2 hours. Interviews were recorded and the transcripts were used in a content analysis. These interviews help to support hypotheses, to strengthen our knowledge about this industry context and to develop the questionnaire to the second, quantitative phase.

Antecedents of environmental management

Regarding antecedents of environmental management, as noted above, we focus on two internal determinants: quality management and human resource management. Most previous studies focused on external determinants based on pressure from several external stakeholders. We focus on internal antecedents, not only because there are less studies about them, but also because organizations and managers can use these internal determinants to develop their level of environmental management.

The implementation of quality management may facilitate the adoption of environmental management. Quality management helps develop some resources and capacities that are useful for environmental management (Curkovic, 2003; Darnall and Edwards, 2006; Molina-Azorín, Tarí, Pereira-Moliner, López-Gamero and Pertusa-Ortega, 2015): commitment of top management, involvement of employees, long term planning, relationships with stakeholders, culture of continuous improvement and prevention, organizational design, system of indicators, etc. Several interviewees also indicated that quality management and environmental management are very similar and when a hotel implement quality management, then it is easier to implement environmental management (we do not include specific quotations in this hypothesis and next hypotheses for space limitations). Then, we propose:

H1: Quality management is positively related to environmental management.

Literature on human resource management and environmental management emphasizes the importance of training, participation, involvement and motivation of employees for a successful implementation of environmental management (Ramus and Steger, 2000; Baum, 2007, 2018; Martín-Tapia *et al.,* 2008; Martínez-del-Río *et al.,* 2012). Human resource management can be a way to develop a vision toward the protection of the natural environment (Temminck, Meharns and Fluhen, 2015), increasing the awareness of employees and their contribution to environmental management. These ideas also were indicated in the interviews (as noted above for H1, we do not include specific quotations in this hypothesis and next hypotheses for space limitations). Then, we propose:

H2: Human resource management is positively related to environmental management.

Regarding these antecedents, the intention was to examine only these two hypotheses. However, in the interviews, respondents indicated some ideas about other interesting relationship that we did not plan at the beginning of our study: the impact of quality management on human resource management, and the mediating role of human resource management between quality management and environmental management. Several interviewees indicated that the implementation of quality management supposed that the hotel carried out training for managers and employees, with creation of improvement groups, and this training and groups were also very useful for the adoption of environmental management. We find some few studies that emphasize that quality management impacts on human resource management (e.g., Bayo-Moriones and Merino-Diaz, 2001) and, as noted above in H1, quality management helps develop some resources and capabilities that are useful for environmental management, with some of these resources linked to human resources (commitment of managers, involvement of employees, etc.). Then, we propose:

H3: Quality management is positively related to human resource management.

H4: Human resource management play a mediating role between quality management and environmental management.

Consequences of environmental management

With regard to consequences or outcomes of environmental management, as noted above, we focus on two internal determinants: quality management and human resource management. Most previous studies focused on external determinants based on pressure from several external stakeholders. We focus on performance, competitive advantages (costs and differentiation) and two dynamic capabilities (innovation and agility).

Regarding performance and competitive advantage, although some works indicate that the implementation and certification of environmental management has a negative influence on firm performance (Jaffe *et al.*, 1995; Walley and Whitehead, 1994), most works indicate that the impact is positive (Sharma and Vredenburg, 1998; King and Lenox, 2002; Segarra-Oña *et al.*, 2012; Molina-Azorin *et al.*, 2015), including systematic reviews and meta-analyses (Molina-Azorin *et al.*, 2009; Albertini, 2013; Friede *et al.*, 2015). The improvement of profitability can be achieved through eco-efficiency, reducing several types of costs (consumption of energy, water and other raw materials). In addition, through environmental management, firms not only improve their competitive advantage in costs, but also the competitive advantage in differentiation, as companies may improve their green reputation, relationships with stakeholders and to meet the need of ecological customers. These ideas also were indicated in the interviews. Then, we propose:

H5: Environmental management is positively related to firm performance.

H6: Environmental management is positively related to competitive advantage in costs.

H7: Environmental management is positively related to competitive advantage in differentiation.

With regard to dynamic capabilities (Teece *et al.*, 1997), usually literature has examined the role and impact of some dynamic capabilities on the adoption of environmental management. However, and as a contribution of our study, we would like to examine whether the implementation of environmental management may influence on the development of important dynamic capabilities. Here, we first conducted interviews, and next we reviewed the literature. We have studied two dynamic capabilities: innovation and agility.

Several interviewees indicated that a correct implementation of environmental management supposes to introduce new technologies and innovations in the hotels, and employees has to indicate new ideas for improvement. Moreover, literature shows that firms that implement environmental actions have a higher propensity to innovate, including environmental innovations (Sharma and Vredenburg, 1998; Bansal and Roth, 2000; Kim *et al.*, 2018; Warren *et al.*, 2018). Then, we propose:

H8: Environmental management is positively related to firm innovation.

Regarding agility, interviewees also pointed out that environmental management may influence in the capability to react to changes in the environment, promoting quick responses. Environmental management changes behaviors in the internal process of firms in order to respond quickly to the needs and demands from stakeholders. Literature found also support these ideas. In this regard, environmental management is based on some principles (continuous improvement, orientation toward stakeholders, involvement of employees, etc.) that may help to develop a capability of quickly adaptation to changes, that is, agility. Then, we propose:

H9: Environmental management is positively related to firm agility.

QUANTITATIVE METHODS AND FINDINGS

Sample and data collection

The population consisted of 3-, 4- and 5-star hotels located in Spain. Obtained from the Alimarket database, the population census was 5,071 hotels (of which 2,233 were 3-star, 2,472 were 4-star and 366 were 5-star). We designed a questionnaire that was sent to the whole population by post and by e-mail in two waves. 365 completed questionnaires were received, which means a response rate of 7.20% and a sampling error of 4.94%. The sample distribution by hotel category was: 38.1% for 3-star; 52.3% for 4-star; and 8.2% for 5-star, while 1.4% did not disclose the category. 48.6% of the hotels belonged to hotel chains, while 51.4% were independent hotels. The average size was 124 rooms.

We tried to address common method bias. First, the accompanying letter that introduced the questionnaire requested that the hotel manager completed the questions on performance, the two competitive advantages, and the two dynamic capabilities, while the questions on quality management, human resource management and environmental management were to be answered by the persons responsible for these areas. Second, we tested for non-response bias, as it is expected that late respondents will be more similar to those who did not answer than will early respondents. The results did not show significant differences between the data sets.

Measures and analysis

Environmental management was measured using a scale with 12 items from Garay and Font (2013), with each item measured on a 7-point Likert response scale (1 = "Strongly disagree", 7 = "Strongly agree"). Quality management was measured using a scale with 12 items from Zhang *et al.* (2012) and Moreno-Luzon *et al.* (2014), with each item measured on a 7-point Likert response scale (1 = "Strongly disagree", 7 = "Strongly agree"). Human resource management was measured using a scale with 8 items from Beltran-Martin *et al.* (2017) and Beltran-Martin and Bou-Llusar (2018).

Hotel performance was measured by means of objective and perceptual variables. The objective hotel performance variables used for each hotel was RevPAR, a variable always known to hotel managers. The perceptual performance variable consisted of five items, based on the studies by Bou-Llusar *et al.* (2009) and Sainaghi *et al.* (2017). The hotel managers were asked to compare the hotel with its known competitors when evaluating each of the five items, using a scale from 1 ("much worse than its competitors") to 7 ("much better than its competitors").

Competitive advantages in costs and differentation were measured using a scale with nine items that were drawn from various earlier scales proposed by Beal (2000) and Govindarajan (1988), measured using a seven-point Likert scale. Items were classified according to their corresponding cost and differentiation advantages.

Innovation was measured using a scale with 11 items from Jansen *et al.* (2006) and Pertusa-Ortega and Molina-Azorin (2018), and agility was measured using a scale with 9 items from Felipe *et al.* (2019), with each item measured on a 7-point Likert response scale (1 = "Strongly disagree", 7 = "Strongly agree").

In addition, three control variables were included to strengthen the model's explanatory power: i) chain affiliation (0 = independent; 1 = chain); ii) number of stars (3, 4 or 5); and iii) size (number of rooms).

Structural equations model (SEM) based on Partial Least Squares (PLS) was applied to test the hypotheses using SmartPLS 3 software.

Assessment of the measurement and the structural models

First, we apply traditional validity and reliability criteria. Regarding loadings for each item, the criterion suggests that loadings should be over 0.707. Construct reliability is examined and all the values are over 0.7. Convergent validity, measured by AVE, is also examined: all the AVE values are over 0.5. Discriminant validity is also checked successfully, based on the Fornell-Larcker and HTMT$_{85}$ criteria.

Second, the validity of the structural model is also assessed. The goodness of fit of the first order structural model is SRMR=0.061 < 0.08 and for the second order model is SRMR= 0.064 < 0.08. In addition, the VIF values of each predictor in the structural model is higher than 0.20 and lower than 5 (our minimum value is 1 and our maximum value is 1.538). Regarding R^2, the values are 0.331 for human resource management, 0.345 for environmental management, 0.078 for perceptual performance, 0.015 for RevPar, 0.081 for costs competitive advantage, 0.130 for differentiation, 0.125 for innovation, and 0.150 for agility.

Findings

Regarding antecedents of environmental management, results show that H1 and H2 are supported, i.e., that quality management is positively related to environmental management (β=0.34, t=5.32, p<0.001) and human resource management is related to environmental management (β=0.29, t=5.23, p<0.001) advantages in the hotel industry. Furthermore, H3 is also supported, as quality management influences human resource management (β=0.58, t=15.14, p<0.001). Regarding the mediating role of human resource management between quality management and environmental management, H4 is supported as the indirect effect is significant (β=0.17, t=4.75, p<0.001), and the mediation is partial.

With regard to consequences of environmental management, findings show that this management system is related with all the outcomes variables examined, being supported H5 about performance (β=0.17, t=2.89, p<0.01 for perceptual performance and β=0.12, t=2.17, p<0.05), H6 about costs (β=0.19, t=3.23, p<0.01), H7 about differentiation (β=0.27, t=4.65, p<0.001), H8 about innovation (β=0.35, t=6.19, p<0.001) and H9 about agility (β=0.39, t=6.97, p<0.001).

LAST QUALITATIVE PHASE

In the last qualitative phase, after the quantitative phase, we interviewed 10 persons (9 managers and 1 representative of a hotel association), to know their opinion and view about the quantitative findings and the relationships examined. In summary, they agree about the findings, explaining and indicating interesting additional ideas that help to elaborate, extend and emphasize interesting aspects for future projects. Therefore, practitioners indicated their opinion, elaboration and clarification of the quantitative findings.

CONCLUSIONS

With regard to antecedents of environmental management, the main findings show that quality management and human resource management have a positive influence on environmental management. Moreover, human resource management plays a mediating role between quality management and environmental management (partial mediation). Regarding consequences, the results show that environmental management has a positive impact on performance and competitive advantages (costs and differentiation). In addition, the impact of environmental management on the two dynamic capabilities studied (innovation and agility) is also positive and significant. Then, environmental management could be considered as a second-order dynamic capability (Schilke, 2014) as it helps to develop important first-order capabilities.

Regarding academic implications, the academic contribution is about how quality management may influence environmental management through human resource management. And the analysis of the role of environmental management as a second-order dynamic capability. With regard to practical implications, we would like to highlight the role of quality management and human resource management as internal mechanisms to promote environmental management in the hotel industry, and the importance of linking environmental management with quality management and human resource management looking for synergies. Hotel managers must also consider the role of environmental management to foster innovation and agility. Regarding social implications, we would like to emphasize the improvement in environmental performance by hotels (environmental sustainability).

As research limitation, a cross-sectional analysis based on managers' perceptions has been conducted.

And we consider that an interesting idea for future research is to examine the impact of environmental management of social performance (social practices or social sustainability). It would be also interesting to examine the mediating role of innovation and agility between environmental management and performance and competitive advantages.

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KNOWLEDGE MANAGEMENT OPERATIONAL STRATEGY FOR CREATING SHARED VALUE

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ABSTRACT

To enhance business competitiveness, the idea of creating shared value has been introduced with the notion to embrace social needs at the center of a firm`s operational strategy. In the era of sharing economy, many transportations network services such as Uber have already established their network worldwide, and to compete with uber it is necessary to focus on the new value propositions. This research aims to observe the extent of creating shared value by observing the real process and actions taken in the context of the ride-hailing service (Careem) in Pakistan. Careem was launched with an innovative idea and a big challenge to work for the benefit of society. Results suggest several knowledge management strategies for creating shared values towards business survival.

INTRODUCTION

Capitalism is an incomparable move for improving productivity, meeting human needs, creating jobs, and building wealth. A slight beginning of capitalism has prohibited business from binding its full capacity to assemble wide-ranging challenges prevailed in the society. There are many opportunities throughout but have been ignored. Businesses are acting as businesses, not as charitable patrons. There is a need to realize a new trend of capitalism by realizing social needs, while customers and employees are asking businesses to step up (Ghasemi *et al.*, 2014; Hawkins, 2006).

The purpose of a company must be realized as creating shared value, not just in terms of profits but also to attain societal benefits simultaneously. This has derived the next wave of revolution in the global economy. Because it has reshaped capitalism and its affiliation with society. Creating shared value (CSV) has gained integrity, acceptability and drive as a new way of doing business (Kim *et al.*, 2021; Porter and Kramer, 2006, 2011). It refers to the creation of economic and societal values simultaneously by addressing the social issues and challenges at the core of the management strategy. This idea has already been incorporated by many of the world's leading organizations like Nestle, Intel, Unilever, Coca-Cola, and Western Union. In recent, the framework of shared value has expanded rapidly to the Government region, like NGOs, civil organizations, and academic institutions.

Many studies about CSV are just snapshot surveys and conducted mainly in developed countries because it is an emerging trend of business. However, the target of this research is Pakistan (a developing country), where Careem is a rapidly progressive ride-hailing service. Because of the unique and instant adoption of regional policies for generating solutions to social issues, it is worth seeing to observe a case of CSV in Pakistan to boost sharing economy.

Careem is a unique type of ride-hailing service that shows an agility trend. First, this service adopted a business model of a conventional ride-sharing service as Uber, but in a short time, Careem realized the fact that no service can be implemented in a developing country in its original form because of limited resources and economic/social issues. The service must be re-shaped. First, it has shown great progress by increasing the scope of a business model as per local needs. Second, Careem has involved many customers and drivers directly in its service model to facilitate community (Javaid *et al.*, 2019b). So, it is a good example to observe the process and implementation of the CSV concept.

Problem statement

In developing countries, the implementation of ride-hailing services creates an issue of uncertainty due to the changing nature of sharing economy. Therefore, because of unfeasible situations including economic situation and inconsistent surroundings, this service cannot be implemented with the same force as in developed countries (Javaid *et al.*, 2019a). There are a few reasons behind this problem which include that: there is no right process to point out the social issue, unemployment, limited and deallocated resources and lack of knowledge towards the adoption of sharing culture.

The main reason behind the issues is the shortage of commodities and merchandise in developing countries that hinders society's well-being and development. Whereas, sharing economy has the power to mitigate the hurdles by improving the social, economic, and financial situation of society. As sharing culture encourages the trust level among the people and brings them together at a common platform, therefore, to transfer the culture of sharing from a developed country to developing countries is nearly impossible in its full form. It requires the reshaping of the sharing services. And this re-shaping can be made by considering the localization, cultural norms, and social trends. That is difficult to handle in a short time but, as Careem has an agile nature, this is a perfect opportunity to observe the role of Careem towards sustainable development in the light of the following questions related to the management strategy (Javaid *et al.*, 2019a).

- What level of CSV has been achieved by Careem?
- What strategy has been adopted by Careem to expand its service ecosystem?
- How Careem is building up new plans as a CSV company?

Purpose and motivation for the study

In the current economy, creating shared value (CSV) has recognized a new way of doing business, because it has reshaped capitalism by constructing its affiliation with society. The target of this research is Careem-a ride-hailing service in Pakistan, where 96.50% population is Muslim. Being an Islamic country, it must follow Islamic traditional views of life and its excellence.

Careem is a unique type of sharing service that shows an agility trend within the Islamic perspective. Initially, Careem adopted the business model of Uber but in a short time, it realized that no service can be implemented as it is in a developing country because of limited resources, therefore, it has involved many customers and drivers directly in its service model to facilitate community. Briefly, there is no interface between ride-hailing services and CSV. From the study of Careem with a service research perspective, we can better understand the knowledge management strategy for CSV and its implementation in the sustainable development of sharing organizations in general.

The remainder of the paper is structured as follows. We discuss the literature gap and past research of the topic in section 2. In the following section, the methodology employed in this research is explained. Later, the research findings are discussed in section 4. Finally, we conclude the study with a discussion of academic and practical contributions and their significance.

LITERATURE REVIEW

Knowledge management and its implication

Knowledge management (KM) is a planned strategy to achieve a knowledge goal, scrutinize the effects of Knowledge management strategies and extract innovative outputs in the firm. However, there is a misunderstanding related to KM strategy. To line up the KM with organizational strategy, it is necessary to focus on knowledge representation that explains the importance of capturing, storing, and employing the available knowledge in an effective manner (Cabitza *et al.*, 2014). Furthermore, it is stated that KM strategy has dual functionality, one function is explained in terms of managing knowledge content, storage, and representation while the second feature is to unify knowledge management with an organizational competitive strategy to accomplish a knowledge strategy.

Strategizing creating shared value to secure a competitive edge

Strategizing can be described in two ways: one is representing it as a plan (deliberate process) another is depicting it as a pattern (emergent process). CSV is an anticipated process in which the firm's operational

management intentionally integrates societal challenges in the core of its strategy from the starting point (Scagnelli and Cisi, 2014). The purpose of strategizing is to set the directions, strengths, and reliability across the firm. A good strategy should state the firm's outer situation (e.g., the market competition), inner situation (e.g., resources and their allocation) and collaborations among stakeholders for resource utilization. Strategy can be implemented at different levels such as operational, business, network and commercial levels (De Los Reyes *et al.*, 2017). So, the focus of CSV is mainly on business-level strategy with the purpose to observe the firm`s competency in specific market segmentation.

Furthermore, strategizing CSV can be measured as a peripheral to businesses that help to differentiate the firm from its competitors and generate a competitive edge by identifying the social needs in a cost-effective manner that will contribute to develop a better economic situation in parallel with social well-being. In addition, employee skills, motivation and safety also enhance firms' effectiveness (Porter and Kramer, 2011). According to Pfitzer *et al.*, (2013) by inserting a social cause in the firm's environment or values, a CSV can be initiated. And for this reason, the allocation of resources to encounter an environmental change in an organization is a priority factor of CSV. As an initiative to achieve CSV the main elements that need to be considered are: Creating an optimal innovative structure inside the organization including the continuous follow-up calculations of social and economic values and finally collaborating with the external stakeholders.

Many scholars have worked on CSV, some presented the elaborated version of the CSV conceptual framework (De Los Reyes *et al.*, 2017; Moon and Parc, 2019). Others stated multiple ways of creating shared values by gathering empirical evidence (Alberti and Belfanti, 2019; Yelpo and Kubelka, 2019; Jackson and Change, 2019). Recently CSV is quoted as a process that is used not only for fostering the managerial understanding of economic and social concerns but also to investigate business models to attain economic, social, and environmental values simultaneously (Ghasemi *et al.*, 2014; McGahan, 2020).

RESEARCH METHODOLOGY

This paper has adopted a case study approach and data are collected through interviews with Careem management, and drivers to identify the Unique characteristics of Careem as a CSV company. Also, to investigate the customization strategies, work opportunities and sustainability check for the society betterment. As a first target, a case study protocol has been developed and then for analysis of interviews together with publicly available company information, an explanation-building technique has been used (Schoch, 2016; Yin, 2018).

Research hypotheses

To analyze the growth of Careem, four research hypotheses are generated as follow:

a) H.1. Islamic principles and effective communication can be a good guideline to achieve CSV.
b) H.2. Careem can manage problematic issues because of its agile nature and re-shaping mechanism to achieve competitive advantage.
c) H.3. Resource integration contributes to develop a business-society relationship that extends value-creation possibilities in CSV.
d) H.4. Building "trust" and "public welfare" in business and community as ethical is a critical value-creating strategy to achieve CSV.

RESULTS AND DISCUSSION

This research proposes that to become a CSV company and for expanding the scope of business towards more employment or work opportunities, Careem has a great emphasis on four steps growth: compliance for business survival, business-in-society dynamics for employee well-being, boundary-spanning for service expansion and strong ethical stance for sustainability and public welfare. Towards the success of driving innovation in Careem by following the vision of CEO (Javaid *et al.*, 2019a), it is stated in an interview that:

"In the presence of giant companies like Uber, Careem is still competing in the Pakistani market just because of focusing the local issues, flexible infrastructure, providing huge work opportunities for achieving the social benefits." (Careem management)

KM operational strategy for CSV in Careem

The results extracted from this research suggest three distinctive knowledge management operational strategies for creating shared value in Careem, see table 1.

Table 1: KM operational strategy for creating economic and societal values

Targets of Careem	KM Operational Strategy	CSV	
		Creating Economic Values	Creating Societal Values
1	Motivation and commitment of drivers	Work opportunities beyond algorithm including incentives and training	Safety + well-being Freedom of work
2	Furthering driver`s prosperity	Balancing of entrepreneur freedom	Entrepreneurs than employees
3	Fueling the growth of regional economies	Collaboration with external investors and 3rd parties	Social campaigns and financing solutions to social challenges

a) Motivation and commitment of drivers

The first strategy employed in Careem is towards encouraging the motivational attitude and commitment of drivers towards their work by providing them work opportunities beyond algorithm that covers several incentives, bonuses, and training sessions. These proposed values by Careem for employees help to redefine the service productivity by increasing the driver's safety and life well-being. Careem drivers have the freedom of work in terms of selecting the ride's capacity to increase the efficiency of the value chain. Furthermore, this expansion in the value chain drives the social change embedded in the economic culture.

> "I started working with Careem in 2019 as a full-time driver. At the beginning of the pandemic (Covid`19), ride-hailing service was fully stopped, and it was difficult for most of the drivers to meet their expenses […] But Careem provided a solution to engage drivers by providing the opportunity of delivering food and medicines to the customers at their homes […] I am satisfied with Careem and will continue my work as driver." (Careem driver)

b) Furthering driver`s prosperity

Careem is facilitating drivers by providing the opportunities to become an entrepreneur. It has launched several entrepreneurship programs with the collaboration of banks and external stakeholders to approach social and financial needs. By interpreting the social needs of the drivers, Careem is partnering with local institutions and central banks to stipulate short-term support to fulfill driver's car loan responsibilities.

> "Careem has launched fair loan opportunities for the drivers to be an entrepreneur […] and succeeded to manage almost over one thousand entrepreneurs." (Careem management)

c) Fueling the growth of regional/local economies

Careem has guaranteed an optimal management structure to make sure that social purpose is combined with the existing management strategy. Careem has put its maximum efforts to define its social business and skills to solve prevailing social issues in society. Careem is fueling the growth of regional markets by involving multiple stakeholders to expand its social business and finding appropriate solutions to mitigate the problems. These stakeholders are the government organizations, banks, NGOs, academia, and other local private firms. Careem is using the supply capabilities of the external stakeholders to leverage its business to meet economic values embedded with social values.

> "Careem provides a ride-hailing platform that is not directly linked to the financial benefits but also it is outsourcing expertise and resources to progress solutions to resolve social issues." (Careem management)

Hypotheses result to discuss the ways to create shared values in Careem (H1-H4)

a) Business survival (H1)

Careem is an Arabic name that means "generous". This name is assigned to the ride-hailing platform with the philosophy to be gentle with the customers, drivers and management staff while using the service platform. Careem is currently working in many Muslim countries and follows the structure of Islamic conditions (e.g., humanity first then business). Careem has proven itself as a market leader in the Middle East. Based on the working environment and interaction mechanism, the focus of Careem is to promote constructive dialogues between management and the team to realize market trends for business survival, see figure 1.

"Careem is trying to bring out many operational changes that suit local challenges and needs to develop a successful business model that inspires." (Careem management)

Figure 1: A proposed CSV model of Careem
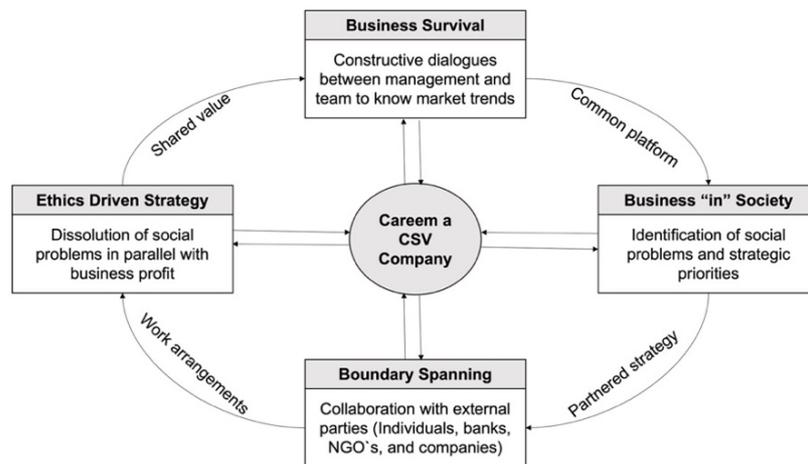
b) Business in society (H2)

Careem has commenced a common platform that is used for the identification of social problems and strategic priorities to seek effective solutions. Consideration of local issues and amendments in the business model to provide better job opportunities for the drivers to improve their social status can raise a step towards societal well-being, see figure 1.

c) Boundary spanning (H3)

Towards service expansion, Careem has fostered the development of links to promote cross-business collaborations for solving social issues. The business model expansion is made possible by involving outsourced stakeholders like NGOs, traffic regulatory authorities, and banks. Careem plays the role of an intermediary or boundary spanner that encourages connection building among stakeholders. This boundary spanning has become a success factor of Careem under which it has introduced the sharing culture in Pakistan to engage the whole society. Careem has adopted a partnered strategy for involving external parties that can be individuals, groups, or companies, see figure 1.

"The focus of Careem is to indulge many global partners to extend the network of stakeholders […] We are facilitating a service platform where companies can come closer to share their resources for business expansion." (Careem management)

d) Ethics driven strategy (H4)

Community development is the preference of many companies these days. Without achieving sustainability, it is difficult to work for the well-being of the community. To meet this situation at a broader level by Careem and to keep it alive, it is necessary to initiate a work arrangement that can resolve social issues in parallel with economic benefits. The role of Careem is more intended towards the social growth of an economy by offering employment opportunities, safe and convenient rides, and finally society development. Building "trust"

and "public welfare" in business and community is a value-creating strategy adopted by Careem to become a CSV company, see figure 1.

> "We have formed a special team that promotes awareness programs and arrange seminars, where public get a chance to communicate with the management bodies […] Everyone has a freedom to share their suggestions and concern to improve the service quality." (Careem management)

Moreover, Careem is getting appreciation from society because of analyzing social problems, suggesting solutions that are consistent with the market trends.

CONCLUSION

The results show that to become a CSV company and for expanding the scope of business towards more work opportunities, Careem has a great emphasis on four steps growth for reshaping its business model using knowledge as firstly, compliance for business survival signifies that Careem is currently working in many Muslim countries and follows the structure of Islamic conditions so, Islamic principles and effective communication can be a good guideline to achieve CSV. Secondly, business-in-society dynamics for employee well-being represents that Careem can manage problematic issues because of its agile nature and re-shaping mechanism to achieve a competitive advantage. Thirdly, boundary-spanning for service expansion through resource integration contributes to develop a business-society relationship that extends value-creation possibilities in CSV. Lastly, a strong ethical stance for sustainability and public welfare by building "trust" and "relief" in business for the community.

As an academic implication, Careem has made a big contribution in the service industry by measuring the business operations and developing ethical value-creating knowledge management operational strategy in both economic and social dimensions. For the practical contribution, this case will contribute to describe organizational knowledge management by identifying how Careem is trying to penetrate the global market. Whereas the consideration of local issues and amendments in the business model to provide better job opportunities can raise a step towards platform sustainability.

Research limitations:

This study is grounded on a convenience sample in Pakistan, but the use of a random sample and selection of other countries is vital to recognize the generalizability of the results.

Research significance and originality:

Many studies about CSV are just a snapshot survey mainly in developed countries, but studies in developing countries are still limited. Additionally, Careem is the first case that addresses the real process of adapting the trend of CSV implementation and transformation in a ride-hailing company in Pakistan. This case can set a good live example of agility in marketing.

ACKNOWLEDGEMENT

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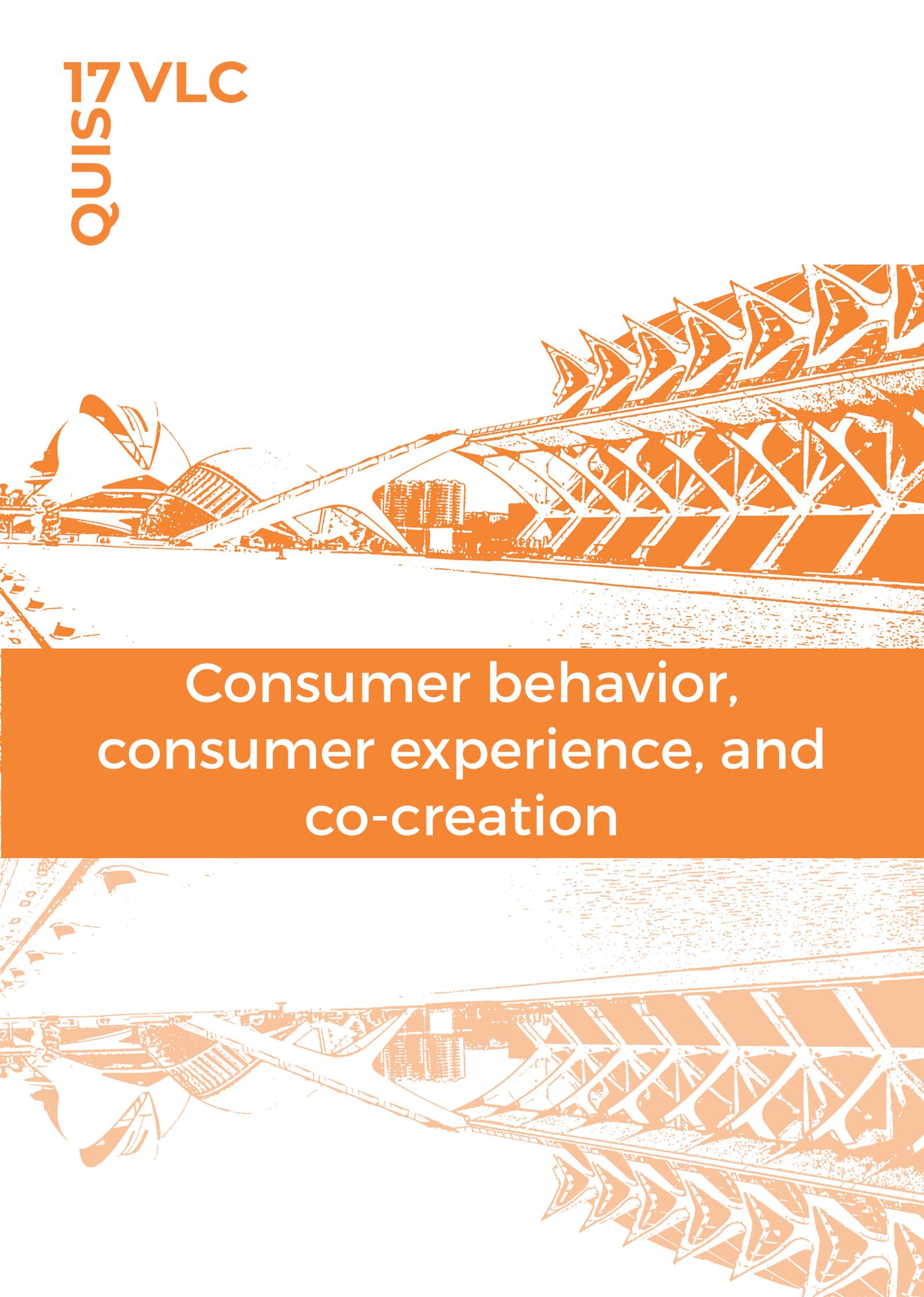
Consumer behavior, consumer experience, and co-creation

THE BENEFITS AND PITFALLS OF CONTEMPORARY POP-UP SHOPS: STRATEGICALLY UNDERSTANDING TEMPORARY RETAILING

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ABSTRACT

Temporary retail spaces, or pop-up shops, are becoming a promotional strategy for retailers. In this study, a survey of retailing organizations reveals that among those that had implemented at least one pop-up shop, more than 80% considered it a success. The results show that reasons for activating pop-up shops were to create connections with customers, increase brand awareness, introduce a new product/brand, and staging new products/brands. While the respondents deemed revenue generated at pop-up shops important, they considered improving market visibility a more significant objective. This research provides retailing organizations with guiding principles for developing and operating successful pop-up stores.

INTRODUCTION

Pop-up shops are appearing across the globe in Europe, Asia, the Americas, and elsewhere, as they have become an important strategic marketing tool for retailers of all types and sizes, including online, brick-and-mortar, and multi-channel organizations (De Lassus and Freire, 2014; Scott and Szili, 2018; Warnaby and Shi, 2018, 2019b). Pop-up shops have assumed their name in analogy with pop-up windows appearing on users' computer screens when accessing the Internet.

Despite their kitsch name, contemporary pop-up shops represent strategically planned, temporary, physical retail operations that are open for a limited time, ranging from a few days to several months (De Lassus and Freire, 2014; Ibrahim and Chua, 2010; Warnaby and Shi, 2019a). Rudkowski *et al.* (2020) identify contemporary pop-up retailing as temporary stores in multi-faceted, non-traditional retail environments and label them as an innovative and highly experiential marketing strategy that marketers and retailers leverage to ensure their customers receive the innovative and interactive experiences they crave.

Despite the nomenclature association with the Internet, pop-up shops are far from a novel concept in retailing; flea markets, garage/yard sales, farmers' markets, home product parties (e.g., Avon, Tupperware), door-to-door selling, night markets, vending machines, food trucks, mall kiosks, and even some forms of illicit retailing (e.g., selling items out of a car) are all forms of pop-up shops, or temporary retailing, operating for only a limited time. A feature that separates contemporary pop-up shops from these other types of common temporary retailing is that, today, many represent strategic initiatives by retail organizations to temporarily enter marketplaces in a way that mirrors a permanent locale in terms of construction of a physical consumption setting (Spitzkat and Fuentes, 2019). That is, many organizations, including brick-and-mortar, online, and resellers/distributors, are investing in crafting visually appealing and complex pop-up shops (Ballantyne and Nilsson, 2017), even though these temporary outlets, regardless of their attractiveness, are slated to be dismantled within relatively short periods.

Although retailing academics and practitioners seem to understand the benefits (e.g., enjoyment, curiosity) that customers obtain from patronizing pop-up shops (Chen and Fiore, 2017; Zogaj, Olk and Tscheulin, 2019), they know considerably less about the benefits organizations realize from engaging in temporary retailing. On the one hand, research suggests that retailing organizations use pop-up shops to accomplish strategic goals, such as generating new revenue or selling excess or seasonal inventory, or to test potential sites for permanent physical locales (Overdiek, 2018; Warnaby and Shi, 2018). On the other hand, research suggests that rather than simply selling merchandise (Klein *et al.*, 2016; Ko, Phau and Aiello, 2016), pop-up shops primarily serve as promotional initiatives that help firms launch new products; generate brand awareness; create marketplace buzz (e.g., using pop-ups to promote collaborations between retailing

organizations and product designers); experiment with new products, technologies, and formats (Robertson Gatignon and Cesareo, 2018); and enhance brand image.

As a result, there is a dearth of knowledge on why retailing organizations open pop-up shops and the benefits and risks they encounter in doing so. This article addresses these research voids by empirically investigating four research questions:

- What motivates traditional retailers, e-commerce retailers, and brand owners to open pop-up shops?
- How successful are pop-up shops in helping traditional retailers, e-commerce retailers, and brand owners achieve their objectives?
- What benefits do retail organizations realize from operating retail pop-up shops?
- What obstacles impede the success of retail pop-up shops?

METHODOLOGY

Data collection occurred through a self-administered questionnaire, which was available to respondents via links on organization X's Twitter, Facebook, and LinkedIn social media feeds (i.e., Organization X preferred anonymity). Organization X is one the world's largest proprietors of short-term retail spaces throughout the world. The organization specializes in creating pop-up activations for retailers, including proprietors of fashion, music, and art, as well as providing clients with layout and design consulting services. The links were available for one month, and weekly reminders of the link's availability were posted on organization X's social media, including its LinkedIn and Facebook landing pages. In addition, organization X emailed it customer base to participate in the survey.

In total, 545 respondents agreed to provide their perspectives on pop-up shops. Of these, 290 (53%) respondents confirmed that their organizations had made use of a "temporary storefront or pop-up" at some time, so we focused our analysis on these respondents. When queried on how many times their "organization used a temporary storefront or pop-up in the last year," 41 (14%) respondents indicated zero, 71 (25%) indicated once, 82 (28%) indicated two or three times, and 96 (33%) indicated more than three times.

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RESULTS

Reasons to open pop-up shops

The respondents indicated several factors that motivated them to make use of the pop-up shop format. The list, which organization X developed, is based on its global experience in offering short-term leases for temporary retailing. Table 1 provides the reasons the respondents chose to open a temporary storefront.

Table 1: Reasons provided to explain why respondents opened their latest pop-up

Reason	Number of organizations	%
Increase brand awareness	164	66
Create a connection with customers	158	63
Introduce a new product or brand	120	48
Stage an event for customers and/or partners	105	42
Increase sales for a specific product or brand	93	37
Test market a new domestic region or neighborhood	54	22
Test market a new country/international market	27	11
Other (seasonal, result of new store delays, Black Friday)	25	10
Offer customer service (e.g., order pickup, a return facility)	18	7

Overall, the table shows that many organizations are employing pop-up shops as advertising and promotional tools—that is, as an integrated marketing tool more than as a tool to generate additional sales for a product or brand.

Perceived organizational success of pop-up stores

The respondents were asked to subjectively rate the successfulness of their last pop-up shop with respect to achieving their organizations' goals on a scale from 1 (not successful) to 4 (very successful). Of the 247 respondents answering this question, 201 (81%) rated the successfulness as positive (scores 3 or 4), while 46 (19%) offered a negative perspective (scores of 1 or 2).

The benefits and pitfalls of operating temporary (pop-up) retail outlets

Respondents were then asked to explain open-endedly why they believed their temporary pop-up shop helped them achieve their organizations' goals or why it failed to do so. We then coded the open-ended answers, reaching agreement on the conceptual categories created from the qualitative data. Of the 290 respondents, 198 (68%) provided descriptive insights into the benefits and drawbacks their organizations realized in operating a pop-up shop, with 155 (78%) discussing how they achieved their organizations' goals with pop-up shops and 43 (22%) discussing why they failed to achieve these goals.

Figure 1 summarizes the respondents' responses regarding their perspectives to the benefits, and obstacles, or pitfalls, of operating pop-up stores.

Figure 1: The benefits of operating pop-up shops and the pitfalls of doing so
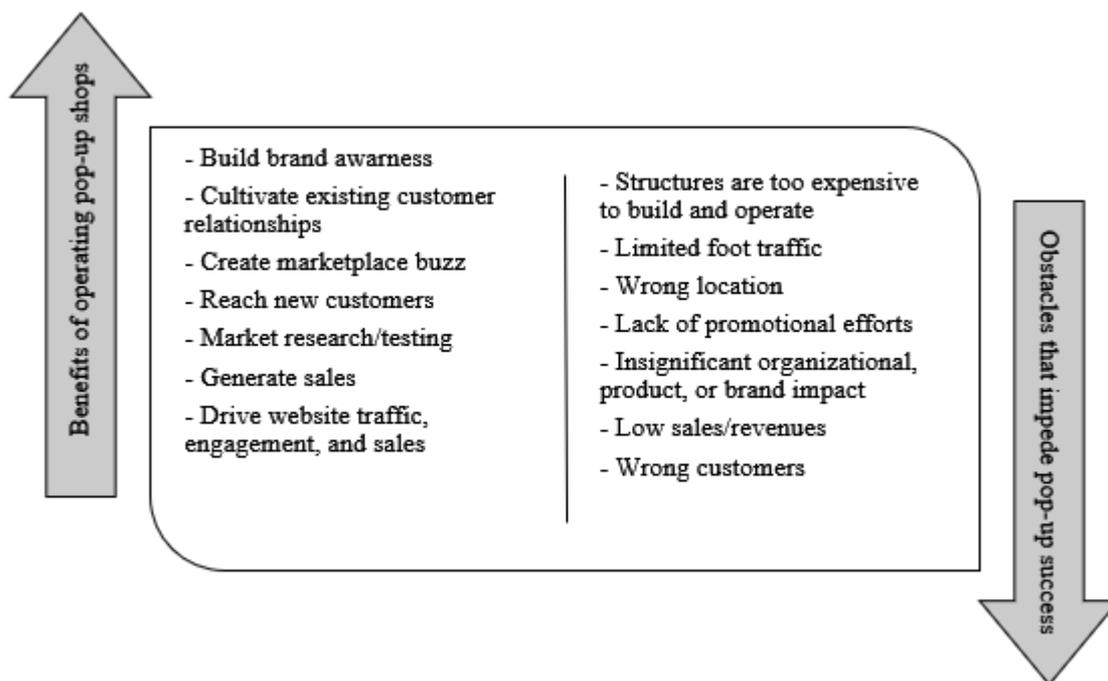
CONCLUSION

Many retail pundits suggest that physical store retailing is in a state of decline or even a so-called apocalypse. This work reveals that within the physical retail store segment, temporary stores, or pop-up shops, are thriving. Pop-up shops are a means for retail organizations to generate marketplace buzz, customer interaction, and buy-in and to test new products, brands, or markets for permanent locations. Retailers no longer need to build or maintain expensive monumental flagship stores to support customer relationships or to amass extensive inventories to generate marketplace hype. Rather, this research shows that consumers respond well to temporary retail outlets that offer them engaging and memorable shopping experiences. This does not mean that pop-up stores are a panacea for the decline of brick-and-mortar retailing and not without

their own challenges. Our research shows that organizations must balance the financial and time investments involved in pop-up activations with the realization that the benefits they most likely obtain from pop-up activations are related more to increased brand awareness and marketplace buzz than to direct sales or revenue generation.

The future of pop-up shops around the world is bright. That is, the amount of vacant commercial space will likely increase in many industrialized countries as e-commerce retail sales continue to surge ahead of brick-and-mortar retail sales. In 2018, e-commerce accounted for a record 14.3% of total retail sales in the United States, with the retailing powerhouse Amazon.com accounting for slightly over 40% of sales (Ali, 2019). The same year, retailing organizations announced plans to shut a record-breaking 145-million square feet of commercial retail space across the United States (Tokosh, 2019). Today, more than 10% of the United States' commercial mall space is unoccupied, with retailing experts predicting additional commercial and retailing vacancies and falling commercial property rents. This combination of increased vacancies and falling rents is likely to continue in the foreseeable future. Therefore, pop-up shops may represent a temporary solution to address the revenue loss that commercial property owners are likely to experience until their properties are repurposed for other revenue-generating operations (e.g., residential living; medical, educational, or fitness centers; Rosenbaum *et al.*, 2019).

In terms of limitations, it is worth noting here that because respondents participated in the survey via Organizational X, they most likely understood the term 'pop-up' as being a form of temporary retailing that requires resources, in terms of location selection and layout/design features. Indeed, given Organization X's global prominence in securing short-term rentals in prime global locations, and its ability to provide clients with customized layout and design consulting services, the respondents were biased towards those who perceive pop-up activations as part of strategic marketing programs. As such, organizations that engage in architecturally simplistic, and historically older forms of temporary retail activations, such as home parties, vending machines, garage sales, flea/farmers markets, or jobbers that may sell directly from pallets, were most likely not represented by this study. Therefore, the results should be viewed from a contemporary perspective, in which pop-up activations are viewed as part of strategic marketing program.

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UNRAVELLING THE CAUSAL MECHANISMS OF THE SERVICE PARADOX

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ABSTRACT

The "service paradox" describes how manufacturing businesses make significant investments to enhance their service business, but fail to achieve positive profitability effects. Even though it is a commonly recognized phenomenon in servitization research and practice, its underlying causal mechanisms remain unclear. This study examines the causal factors responsible for the service paradox, by analyzing and comparing both the occurrence of service profitability and overall profit growth, as well as their absence, using fsQCA. By comparing the resulting necessary conditions and sufficient configurations it becomes clear that a mismatch between the kind of service offering and the structure of the service organization is causally responsible for the service paradox.

INTRODUCTION

Manufacturers increasingly face competitive pressure from low-cost economies and the commoditization of their physical products (Baines *et al.*, 2009). As a response, to realize higher profit margins and more stable revenue flows (Fang, Palmatier and Steenkamp, 2008), and to strengthen their competitive position by providing unique value for their customers (Kowalkowski *et al.*, 2015), many manufacturing businesses add services to their core offering. This entails a "transformational process of shifting from a product-centric business model and logic to a service-centric approach" (Kowalkowski *et al.*, 2017), which is referred to as servitization (Vandermerwe and Rada, 1988). However, not all servitizing companies achieve the intended positive effects. Some invest in the service business, which leads to increased service offerings and higher costs, but fail to achieve the expected higher returns (Gebauer, Fleisch and Friedli, 2005). This phenomenon is referred to as the service paradox (Brax, 2005; Gebauer, Fleisch and Friedli, 2005).

Even though the service paradox is a commonly recognized phenomenon in servitization research and practice (Brax *et al.*, 2021), its underlying causal mechanisms remain unclear. Previous research has predominantly focused on successful cases of servitization (Kowalkowski, Gebauer and Oliva, 2017), while little is known about servitization failure (Valtakoski, 2017). Even less is known about how any of the previously identified success- or failure factors combine and interact with each other in producing positive servitization effects as well as a lack thereof – in other words, how they relate to the service paradox.

The purpose of this study is to investigate the causes of the service paradox from a configurational perspective, examining both the occurrence and the absence of service profitability and profit growth. Complex phenomena like organizational success and failure are more accurately and realistically understood in terms of different, equifinal configurations of relevant factors (Fiss, 2011; Lexutt, 2020). The service paradox is consequently conceptualized as a causally complex phenomenon, as indicated by the inconclusive and interconnected results of previous research (Fliess and Lexutt, 2019). This study adds to the sparse literature on servitization failure and the service paradox. It offers a theoretically sound, fine-grained and realistic understanding of the causes of the service paradox, which ultimately aids managers of servitizing companies in better decision making.

In the next section, it is argued that the service paradox is best understood from a configurational perspective in terms of complex causality. Based on configuration theory and the extant servitization literature, the configurational model is built to contain elements of strategy and structure. After presenting fuzzy set qualitative comparative analysis as the appropriate methodology for dealing with complex causality, the results are presented and discussed. The paper concludes with a summary of its contribution and suggestions for future research.

THE SERVICE PARADOX AND COMPLEX CAUSALITY

Following the definition of (Gebauer, Fleisch and Friedli, 2005) and focusing on the financial service paradox (Brax *et al.*, 2021), this study conceptualizes the service paradox as an inability of the servitizing company to achieve higher profit from services, even though efforts to enhance the service business have been made. This might be because 1) the offered services are not profitable, or 2) the effects are not strong enough to impact overall profit growth. Discrepancies between achieving profit with services and overall profit growth are indicative of the service paradox (Gebauer, Fleisch and Friedli, 2005). Furthermore, the causal mechanisms leading to service level and company level profitability are assumed to be different (Gebauer and Putz, 2007), however they are not often examined together. In existing research, superior servitization performance is usually captured in terms of revenue or profitability, either at the company or at the service level (Brax *et al.*, 2021; Fliess and Lexutt, 2019). In order to disentangle these effects and thus provide a fine-grained explanation of the service paradox, *service profitability* and *overall profit growth* are analysed separately and compared.

This study argues that the service paradox is best understood from a configurational perspective in terms of complex causality. The main concern of configuration theory is the identification of constellations of organizational characteristics leading to superior performance (Zaefarian and Henneberg, 2010). It has been widely used in organization research to explain why some companies succeed while others fail and explicitly addresses complex causality (Ordanini, Parasuraman and Rubera, 2014). Even though configuration theory is gaining popularity in servitization research (Brax *et al.*, 2021; Kohtamäki *et al.*, 2019; Lexutt, 2020; Salonen, Zimmer and Keränen, 2021), few studies fully address the conceptual and methodological implications of causal complexity i.e. *equifinality*, meaning that different configurations of causal factors can lead to the same result; *conjunctural causation*, meaning that a causal condition might not have an effect on the outcome on its own, but only in combination with other causal conditions, and that it might even have opposing effects when combined with different factors; and *causal asymmetry*, meaning that different combinations of causal conditions explain the presence and the absence of an outcome (Schneider and Wagemann 2012). Particularly asymmetry is often neglected (e.g. Brax *et al.*, 2021; Salonen, Zimmer and Keränen, 2021), which is of particular importance for understanding why some companies are successful with servitization while others fail. Current research mostly focuses on successful cases of servitization (Kowalkowski, Gebauer and Oliva, 2017). Lack of success or failure are usually not mentioned. The models found to relate to servitization success are assumed to be equally suitable to explain its absence, meaning that symmetric causality is implied (Woodside, 2015). However, perceiving failure as a mirror image of success is not sufficient for fully grasping failure (van Rooij, 2015). The present study contributes to this literature by examining both the occurrence and the absence of positive profitability effects of servitization from a configurational perspective.

The most commonly studied organizational attributes in configuration research are strategy and structure, as they have repeatedly been shown to impact on organizational performance in complex ways (e.g. Vorhies and Morgan, 2003). Elements of strategy and structure have been shown to be particularly critical for servitization performance as well (Fliess and Lexutt, 2019; Kohtamäki *et al.*, 2019). Furthermore, a mismatch between strategy and structure has been attributed to be responsible for the service paradox (Gebauer *et al.*, 2010), constituting the managerial decisions on strategy and structure particularly relevant to avoid the service paradox. Figure 1 summarizes the conceptual model. It contains strategic and structural conditions, for which previous results have, on the one hand, shown effects on servitization performance, but have, on the other hand, been contradictory, particularly interrelated, or generally ambiguous, indicating complex causality (Fliess and Lexutt, 2019; Lexutt, 2020) .

The first step in the transformation from a product-centric to a service-centric business model is to assign strategic importance to the offering of services (Fliess and Lexutt, 2019). To capture the service strategy, the *existence of a clearly formulated strategy* (Oliva, Gebauer and Brann, 2012) and the focus of the service offering on *services supporting the product (SSP)*, which "…ensure the proper functioning of the product and/or facilitate the client's access to the product" (Mathieu, 2001), p.40, as opposed to mostly *services supporting the client (SSC)*, which aim at supporting different processes, actions and strategies of the customer (Mathieu, 2001) are examined in this study.

As "structure follows strategy", refocusing the strategy on services comes with adaptations in the vertical and horizontal elements of organizational structure, i.e. the formal structure as well as integration mechanisms

(Chandler, 2003). In terms of formal structure, the existence of *a separate service organization* with profit and loss responsibility (Gebauer *et al.*, 2010) is examined. Corporate culture is considered a soft element of organizational structure, serving as an integration mechanism between the structural elements of the organization (Kohtamaki *et al.*, 2015) . To capture this, s*ervice orientation of corporate culture* (Homburg, Fassnacht and Guenther, 2003) is included in the configurational model.

Figure 1: Configurational model
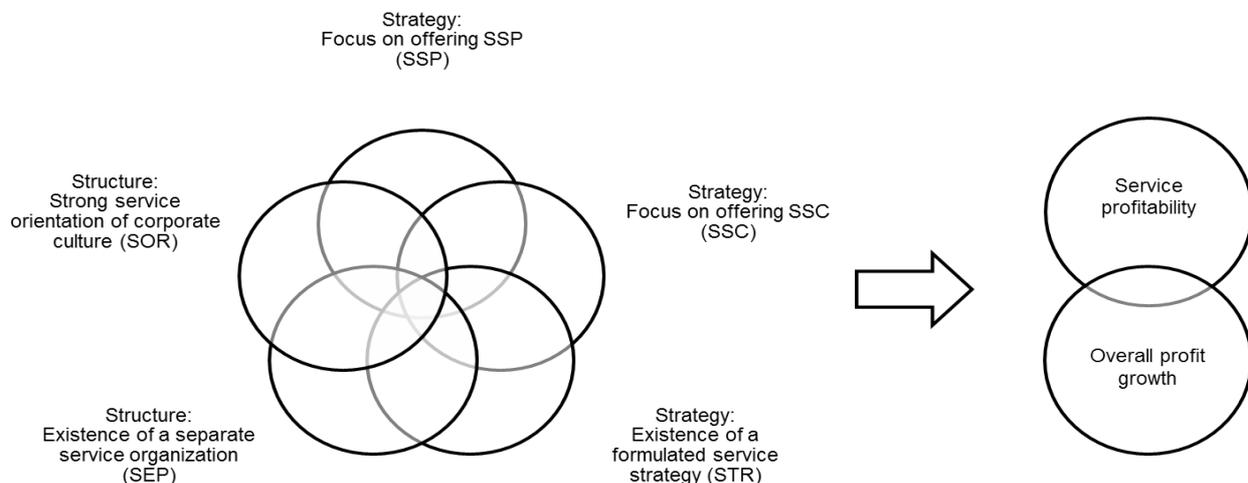
METHODOLOGY

Contrary to the most widely applied statistical methods, fsQCA is capable of capturing equifinality, conjuncturality, and asymmetry (Woodside, 2015). FsQCA identifies configurations of conditions that are necessary or sufficient for the occurrence of an outcome based on Boolean algebra and the set theoretic rules of logical minimization (Schneider and Wagemann, 2012). Differentiation between necessity and sufficiency is a central characteristic of complex causality (Schneider and Wagemann, 2012). Necessity means that an outcome cannot be achieved without the condition, while sufficiency means that whenever the condition is observed, the outcome is also observed (Schneider and Wagemann, 2012).

Data were gathered in an online survey of the German manufacturing sector in December 2017, addressing CEOs and higher management with extensive knowledge about the service business and financial performance of the firm. 143 cases of companies belonging to the manufacturing sector and undergoing servitization were selected for the analysis. To test for non-response bias, independent sample t-tests for early and late respondents were conducted. No significant differences were found, so non-response bias appears not to be an issue in the sample (Hair *et al.*, 2014).

Operationalizations from the extant literature were used for the measures. To assess the suitability of the latent constructs to capture the intended meanings, a confirmatory factor analysis was conducted, which resulted in satisfactory model fit, given the size of the sample and the number of constructs (Hair *et al.*, 2014) (x^2/df=72.627/41=1.77; Comparative Fit Index (CFI)=0.967, Tucker-Lewis Index (TLI)=0.956, RMSEA =0.073, SRMR =0.037).

The Set Methods (Medzihorsky *et al.*, 2016) and QCA packages (Duşa, 2007) in R are used for the assessment of necessary and sufficient configurations for the outcomes, in terms of superset and subset relations (Schneider and Wagemann, 2012). Following Greckhamer *et al.*, 2018; Schneider and Wagemann, 2010, the analyses for necessity and sufficiency are performed separately, for both the presence and the absence of the outcomes. As QCA accounts for causal asymmetry, the absence of the outcomes, i.e. the absence of service profitability and of profit growth, are examined in separate analyses (Schneider and Wagemann, 2010). To avoid logical contradictions, both the Standard Analysis and the Enhanced Standard Analysis are performed, where required (Schneider and Wagemann, 2012).

For the analyses of sufficiency, inclusion consistency thresholds of .943 and .923 were set for the presence of service profitability and overall profit growth, and of .90 and .91 for the absence of service profitability and profit growth, respectively. All thresholds are well above the recommended .80 threshold and are supported by the data (Greckhamer *et al.*, 2018). A frequency threshold of 2 cases is applied, in order to avoid drawing conclusions from single cases (Fiss, 2011). As robustness checks, analyses with different consistency and frequency thresholds as well as with different calibrations are conducted (Lexutt, 2020). No major differences in the results occurred, indicating that the results are robust (Thomann and Maggetti, 2017).

RESULTS AND DISCUSSION

The first step is the analysis for necessary conditions (Schneider and Wagemann, 2010). The existence of a clear service strategy and of a service orientated corporate culture pass the consistency threshold of .9 for accepting statements of necessity (see Table 2). The high relevance of necessity (RoN) scores (.843 and .777, respectively) and coverage (.871 and .831), further support accepting the existence of a clear service strategy and a strong service orientation of corporate culture as necessary conditions for service profitability. No necessary conditions are found for overall profit growth or for the absence of the outcomes.

Table 1: Analysis of necessity

| | Service profitability | | |
Condition	Consistency	Coverage	RoN
SSP	.591	.780	.855
ssp	.667	.682	.709
SSC	.456	.809	.916
ssc	.777	.663	.588
*STR**	*.900**	*.873**	*.843**
str	.456	.647	.805
SEP	.618	.694	.756
sep	.607	.717	.788
*SOR**	*.908**	*.831**	*.777**
..sor	.426	.661	.834

Whether or not a formulated service strategy leads to higher performance is a widely discussed question in servitization research is (Fliess and Lexutt, 2019). The identification of a clearly formulated strategy as necessary for service profitability is in line with research that emphasizes the importance of clearly defined service related objectives for servitization (Neu, 2005) and with (Gebauer and Fleisch, 2007), who showed that a systematic strategy formulation procedure, involving all parts of the company affected by the service strategy, positively impacts on service revenue. It has been suggested that a clearly formulated strategy is more important at advanced levels of servitization (Fischer *et al.*, 2010), where the company offers services extensively, and that in many instances servitization follows an emergent rather than a strategically planned process (Kowalkowski *et al.*, 2012). This study shows that a clearly defined service strategy is necessary to achieve service profitability, regardless of the kind of service offering.

The transition to services is a challenging change process (Kowalkowski *et al.*, 2017) that "requires managerial attitudes and approaches that may not be straightforward for a company with an historical focus on goods" (Benedettini, Neely and Swink, 2015 p. 967). Having clear service related objectives and a formulated strategy can help with managerial commitment, which has been found to be necessary for servitization success (Lexutt, 2020). Furthermore, the co-existence of the product- and service-business that comes with servitization is an important challenge (Lütjen, Tietze and Schultz, 2017), as it requires the internal alignment of several organizational factors of both business models (Neu and Brown, 2008). A clear strategic intent can help overcome these challenges, as it aids the integration of these diverse factors, making it easier for the organization to follow a common path (Lütjen, Tietze and Schultz, 2017).

The importance of a cultural reorientation towards services is generally acknowledged in servitization research (Kowalkowski, Gebauer and Oliva, 2017; Lexutt, 2020). The identification of a service oriented corporate culture as a necessary condition for service profitability further supports this notion.

A case can exhibit a formulated strategy or high service orientation but not service profitability, without that contradicting the statements of necessity. This means that service strategy or service orientation on their own are not sufficient for service profitability. Therefore, separate analyses of sufficiency are performed, Table 2 summarizes the results. Overall, one configuration is identified as sufficient for the occurrence of service profitability (1) and 5 for the occurrence of overall profit growth (2-6) in the examined cases. Configurations 1 and 2 are identical, meaning that this configuration consistently leads to both service profitability as well as profit growth. Three configurations are sufficient for the absence of service profitability (7-9) and the absence of overall profit growth (10-12). All solutions pass the consistency threshold of .8 for sufficiency and display PRI scores over .5 (Greckhamer *et al.*, 2018). The high solution coverage scores demonstrate the empirical relevance of the solutions, while all configurations display unique coverage above 0, meaning that they all uniquely contribute to the solution (Schneider and Wagemann, 2012).

Table 2: Sufficient configurations for the occurrence and the absence of service profitability and profit growth

Conditions	Configuration sufficient for service profitability	Configurations sufficient for overall profit growth				
	1	2	3	4	5	6
SSP			○	○	●	●
SSC			○	○	○	●
STR	●	●	●			
SEP				●	○	●
SOR	●	●		●	●	
Cons.	.914	.852	.864	.913	.949	.899
PRI	.846	.735	.695	.799	.827	.787
Raw Cov.	.852	.800	.549	.400	.361	.305
Unique Cov.		103	.028	.022	.011	.022
Solution Cons.	.914	.815				
Solution PRI	.846	.691				
Solution Cov.	.852	.889				

Conditions	Configurations sufficient for the absence of service profitability			Configurations sufficient for the absence of overall profit growth		
	7	8	9	10	11	12
SSP		○	●	○	●	○
SSC		○	●	○	○	●
STR	○	○	○	○	○	○
SEP	●		●	○	●	●
SOR	○	○		○		○
Cons.	.919	.938	.923	.936	.925	.912
PRI	.820	.829	.674	.581	.673	.551
Raw Cov.	.506	.577	.254	.410	.300	.228
Unique Cov.	.040	.144	.035	.190	.070	.027
Solution Cons.	.922			.903		
Solution PRI	.812			.628		
Solution Cov.	.685			.535		

○ indicates the absence of the outcome, ● the presence of the outcome, empty cells mean that the condition is not causally relevant.

The differentiation between necessity and sufficiency made possible through fsQCA adds more nuance to the discussion. Since according to the statement of necessity, service profitability cannot be achieved without the presence of a service strategy and a service-oriented culture, these two conditions play a central role in explaining the service paradox. Companies lacking any or both of these two factors will consistently not achieve high service profitability, regardless of how they design and align the other examined factors. Cases that display both a service strategy and service orientation consistently also display service profitability and profit growth (configurations 1 and 2, Table 2). This means that, while both conditions are independently

necessary for service profitability, they are sufficient for both service profitability and profit growth only when combined with each other. Comparing this to configuration 7, it becomes evident that the absence of these two factors is also sufficient for the absence of service profitability, when combined with a separate service organization. This further emphasizes the causal importance of service strategy and service orientation for the service paradox. It indicates that, in the examined cases, not only is service profitability consistently not achieved in the absence of service strategy or service orientation (necessity), but also the cases that display a lack of service strategy and service orientation consistently display a lack of service profitability as well, as long as there is a separate service organization (sufficiency, configuration 7).

While establishing a service strategy and a service culture is a good starting point, it does not guarantee success. To achieve overall profit growth, an important aspect is the right match between the service offering and the structure of the service business. The results indicate that superior performance as well as the service paradox can occur with a limited service offering (i.e. the absence of both a strong SSP and SSC offering, configurations 3-4, 8, 10), a service offering focused on SSP (configurations 5, 11) as well as an advanced service offering containing SSC (configurations 6, 9 and 12). Previous research usually suggests that superior performance can only be achieved if a critical level of service volume is achieved (Fang, Palmatier and Steenkamp, 2008; Visnjic Kastalli and van Looy, 2013). Introducing too many new offerings, however, can also increase the risk of failure (Barnett and Freeman, 2001). The results of this study are in line with Benedettini, Swink and Neely, 2017 who showed that the performance impacts of service offerings depend on firm level contextual factors. The present study demonstrates that it is not as much the extent of the service offering that causes success or failure, but the match or mismatch with structure and strategy, as has also been argued by Gebauer *et al.*, 2010.

A limited service offering means that there is no clear focus on neither SSP nor SSC. Both types of offering potentially co-exist, but are not being offered extensively. A limited service offering consistently leads to positive overall profitability effects, when combined either with a clear service strategy (3) or with a separate service organization and a strong service culture (4). There appears to be a substitution effect between a formalized service strategy and a service-oriented structure and culture, since both configurations are equally suitable in leading to positive overall profitability effects.

For the absence of overall profit growth, the limited service offering is combined with all three of these factors (10). Comparing configuration 8 to configuration 10, we see that the absence of a separated service organization makes the difference between not achieving service profitability and not achieving overall profit growth. The creation of a separate service organization has been argued to be an essential first step for servitization (Oliva, Gebauer and Brann, 2012), as it emphasizes the strategic intent and facilitates the consolidation of all offered services in one organization (Oliva and Kallenberg, 2003). By consolidating the services in one organization, the efforts for their deployment are concentrated and can thus contribute to overall profit growth, even if the total number of offered services is small. Furthermore, resistance to change and conflicts between the product and the service business are particularly likely to occur at early phases of servitization, for which a limited service offering is typical (Oliva and Kallenberg, 2003). The creation of a separate service business early on is a way to prevent the existing product business and production-centred culture from inhibiting the success of the service business (Markides and Charitou, 2004).

Configuration 5 is indicative of a product-oriented service offering. To achieve profit growth with such an offering, the service organization should be integrated (as indicated by the absence of a separate service organization in configuration 5) and combined with a strong service culture. An integrated service organization allows for spill-over and synergy effects between product and service business, which are of particular relevance for the profitability of product-oriented services (Visnjic Kastalli and van Looy, 2013). It could furthermore be a way to facilitate the coexistence of distinct but synergistic product and service cultures (Story *et al.*, 2017), and to allow for greater integration of the product and service elements in the hybrid offering (Storbacka *et al.*, 2013). Conflicts between product and service business, which are often used as an argument for the creation of a separate service organization, are not as strong in these configurations, as the SSP-focused service business is closely related to the core product business (Fang, Palmatier and Steenkamp, 2008). The importance of the right structure is further emphasized by the fact that in configuration 11, the existence of a separate service organization is causally relevant for a lack of overall profit growth, which can be explained by the costs of restructuring (Benedettini, Neely and Swink, 2015) and inefficient knowledge exchange between product and service business (Forkmann *et al.*, 2017). The service culture is

not relevant for the absence of profit growth with a product-oriented service offering, clearly indicating that the causal factor responsible for success and failure in this configuration is the formal structure of the service business.

Finally, configuration 6 stands for an advanced servitization, where both SSP and SSC are offered extensively. A separate service organization is present in this configuration. The co-existence of two business orientations, as indicated by a strong offering of both SSP and SSC, necessitates the creation of a separate organization for services at this stage (Lütjen, Tietze and Schultz, 2017). However, comparing this with configurations 9 and 12, it becomes evident that the existence of a separate service organization is not enough to avoid failure, as it is present in both configurations that are sufficient for the absence of service profitability (9) and profit growth (12). Specifically, comparing configuration 6 to configuration 9, we see that the absence of a defined service strategy is what makes the difference between overall profit growth and a lack of service profitability with an extensive service offering. This is true even if a separate service organization is in place and regardless of culture, once again emphasizing the significance of a clearly defined service strategy for performance. The presence of clear strategic intent in these configurations facilitates the integration and co-existence of the otherwise competing business models (Lütjen, Tietze and Schultz, 2017). This is of particular importance in these configurations, since offering process-oriented services requires particularly high levels of integration (Korkeamäki, Kohtamäki and Parida, 2021).

Configuration 12 furthermore provides insight regarding the importance of offering product related services for overall profitability. Specifically, a process-oriented service offering (SSC) without a product-oriented service offering can lead to the absence of overall profit growth, if combined with a separate service organization and a lack of both service strategy and culture (12). While positive profitability effects can be achieved when offering only SSP, offering only SSC is related to a lack of profit growth. This could be because of the higher risks and costs of offering SSC. SSC generally require higher levels of internal integration (Brax and Jonsson, 2009) and therefore increase the costs of internal organization and control (Benedettini *et al.*, 2015). Their offering also requires close cooperation with the customer and high levels of external integration (Brax and Jonsson, 2009), exposing the company to greater environmental risks (Benedettini *et al.*, 2015). Consequently, sufficient resources are necessary to be successful with SSC (Benedettini *et al.*, 2017). It has been argued that these resources can stem from a profitable product-oriented service business (Salonen, Saglam and Hacklin, 2017), stressing the importance of product related services even in more advanced stages of servitization, as manufacturers do not abandon their product business and the related services when advancing along the product-service continuum (Storbacka *et al.*, 2013), but rather utilize the more advanced services to boost their core business, which still has the greatest impact on financial performance (Salonen, Saglam and Hacklin, 2017).

CONCLUSIONS

This study adds to the scarce literature on the service paradox and servitization failure, by explicitly identifying causal mechanisms for the occurrence and non-occurrence of positive profitability effects from servitization. It is shown that, while in principle profitability can be achieved with a limited, a product-oriented, and an advanced service offering, a mismatch between the type of service offering and the structure of the service organization consistently leads to the service paradox in the examined companies. Consequently, this study demonstrates the configurational and complex nature of servitization performance and the service paradox, illustrating that being profitable with servitization is a matter of finding the right match between service offering and structure, rather than a matter of "the more the better". Future research can add to this finding, by using different conceptualizations of service offerings, specific service strategies that go beyond the kind of the service offering or by including aspects of power distribution, decision making authority, steepness of hierarchy, and leadership styles. Strategy and structure are of course not the only causal elements of the service paradox. More research is required to shed light on the complex role of organizational capabilities, environmental conditions, or the customer organization in servitization success and failure as well.

Furthermore, this study provides empirical evidence for the financial implications of a clearly defined service strategy. This finding contributes to the discussion of planned versus emergent strategies in servitization (Kowalkowski *et al.*, 2012). More research is needed in this direction, utilizing existing operationalizations of planned, emergent, and umbrella strategies. Finally, this study copes conceptually and methodologically with the complexity of servitization related profitability effects, thus demonstrating the advantage of adopting a

configurational approach and set theoretic methodology. Future research should examine different servitization outcomes, like revenue growth, market share and firm value, from a configurational perspective. Also other aspects of servitization, like the decision to servitize, the adopted servitization strategy and the chosen servitization path should be studied configurationally.

The identified configurations can serve as a tool for managerial decisions, as managers of servitizing companies can identify the configuration that best represents their current situation, locate discrepancies and adjust accordingly, in order to avoid the service paradox and achieve profitability through services.

The present study is not without limitations. Objective, self-reported measures of performance are used, which tend to be positively biased. While this was considered during calibration, future research should consider using independent measures of performance, also to avoid common method bias (Hair *et al.*, 2014). As almost always the case in the social sciences, the identified subset relations are not perfect. The existence of cases that deviate from those relations warrant further investigation in order to allow for conclusive causal inferences. Future research should utilize the case-based nature of QCA and examine individual typical and atypical cases in depth. Finally, the present study does not examine the dynamic evolution of a firm along the product-service continuum. Rather, the maturity of servitization is captured only based on the type of offering. Future research should utilize different, more complex operationalizations, or a temporal approach based on longitudinal data, so as to capture the dynamic and procedural nature of servitization.

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DOES THE TIN MAN HAVE A HEART?

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ABSTRACT

Research states that it is unlikely that robots will take on roles that require high emotional-social capabilities soon due to perceptions that robots offer inferior means of coping with human emotional states. We challenge this assumption, investigating individual responses to and evaluations of robot (versus human) encounters in complex emotional-social service settings. In an experiment, we find that robots are more positively evaluated than humans after a service failure and equivalently in conditions without failure. Contradicting prevailing wisdom, our results suggest that robots might be more effective taking on service roles requiring higher intuitive and empathetic skills.

INTRODUCTION

Organizational life is full of situations where individuals much choose to guard or share secrets with others. These secrets come in many forms, such as strategic plans, insights about colleagues, or even personal information that one does not want to bring up at work. Current scholarship suggests not only that having and guarding secrets can be cognitively taxing and psychologically burdensome (Lane and Wegner, 1995; Slepian, Camp and Masicampo, 2015), but that disclosing these secrets to appropriate confidants (e.g., advisors, mentors, psychologists) can help improve psychological and health outcomes (Kelly, 1999; Kelly and McKillop, 1996; Pennebaker, 1997). While research has examined the disclosure of secrets to various types of service providers, it has omitted one type of confidant that is increasingly becoming part of organizational life: Robots.

The role of robots as service providers has made extensive progress, moving from being exclusively contained in works of science fiction to now being active participants in service interactions. Though service providers are increasingly aware of the benefits of interactions with AI-enabled digital service providers (Ho, Hanckock and Miner, 2018; Lucas *et al*., 2014), there is increasing need and opportunity for the embodied form of these service providers (robots) to play an important role in service encounters. For instance, to grapple with an aging population human front desk staff at Japan's "Henn-na Hotel" were replaced by robots, and in 2017 the EU provided 2 million euro to fund a project "CARESSES" where a Softbank developed robot "Pepper" was programmed to provide service and assistance to the elderly (Papadopoulos, Sgorbissa and Koulouglioti, 2017). While the role of robots in service encounters is moving beyond mundane tasks to situations that require humanized understandings of needs and support, it remains unclear within existing scholarship how end-users feel about these developments. Although previous conceptual work states how it is unlikely that robots will take on roles that require high emotional-social capabilities soon due to perceptions that robots offer inferior means of coping with human emotional states (Wirtz *et al*., 2018; Huang and Rust, 2018), such theoretical claims remain empirically untested. In other words, robots are increasingly taking on actual (vs hypothetical) roles in service encounters in many settings, yet research has not tested if service users find these developments particularly beneficial.

We investigate individual responses to and evaluations of robot encounters in complex emotional-social service settings, comparing these effects to similar encounters with human service providers. Specifically, this paper explores the consequences of disclosing secrets to robots (versus humans) in two different ways. First, it helps to explore the supply side of secrets, understanding how individuals feel about trusting technology-based agents (Logg, Minson and Moore, 2019). To do so, it builds on existing work that tries to understand the psychological consequences of sharing secrets with others (Slepian and Kirby, 2018), extending this work into disclosures to robots. Second, it explores the potential consequences of doing so when it might lead to incidents of service failure. As technology is fallible, this research helps outline if and

when individuals prefer or punish robots to humans for disclosing sensitive information that otherwise should be kept confidential. By helping to understand the dynamics of secret disclosure, this research delineates how the implementation of embodied AI at work (robots at work) can augment or attenuate the sharing of closely held ideas, affecting levels of trust, commitment, and team performance.

METHOD

In this exploratory study, we investigate two related effects. First, we explore whether sharing stressful personal secrets with robots who are trained to provide advice to mitigate these experiences is equivalent (or inferior/superior) to sharing similar information with humans who play a similar role. Thus, we establish whether it is worthwhile to have robots in roles where they could counsel individuals through stressful events. Second, we explore what happens upon the eventuality that there is service failure: where secrets are disclosed to third parties without the express permission of those who told them. Said simply, what happens when individuals' privacy is violated by robots (versus humans)?

Four hundred and seven full-time employees in Europe (56 percent female, M_{age}=32.52, SD=9.27) were recruited to take part in the study. Participants had an average of 10.83 (SD=8.96) years of work experience and worked 38.82 (SD=9.31) hours per week. Participants worked across nineteen industries, with the highest concentration being in Technology (18.0 percent), Society and Government (6.7 percent), Services (6.7 percent), Retail and Trade (6.7 percent), and Health and Pharmaceuticals (5.9 percent).

The study employed a 2 (Agent: Robot vs. Human) X 2 (Privacy Violation: Disclosure vs. Non-Disclosure) factorial design. Participants completed a reconstruction of events task (Kahneman *et al.*, 2004) and were asked to recall a stressful event at work, specifically one that they wanted to keep secret from others, thus representing a secret (Selpian, 2018). Specifically, participants were prompted:

In the past year, many people have felt stressed in their lives and at work. The demands on our work have caused many to question their ability to get work done, or whether work is really worth it. In this study, we want you to think about one event where you have been stressed at work. We are particularly interested in events that you have or tried to keep secret from others, for fear of what would happen if it was told to others.

Please take the next couple minutes to write about the stressful event. We do not care about the names or the location of the event, but rather are interested in how you experienced this one event. Please think carefully about this instance, and write as honestly about it as you can remember (again we do not need names or locations, unless they help to frame the situation for you).

After writing about the event, participants were asked to complete the stress subscale of the Depression, Anxiety, and Stress Scale (DASS21: α=.87). Additionally, participants were asked to indicate to what degree (1=Not At All; 7=Extremely) they would describe the event as "*Private*", "*A Secret*", and "*Public Knowledge*". The three items, with the final one reverse coded, were combined into a scale measuring how secret the recalled event was in the eyes of participants (α=.81).

Participants read about how organizations are adjusting to increased work stress through the hiring of counselors – those tasked with addressing stress and anxiety in the workplace. Participants were asked to picture that their organization had recently hired a counselor to help employees deal with stress. Participants were then randomly assigned to either a Robot or Human condition. In the *Robot* condition (n=205), participants read that they would be talking with Physical Autonomous Tutor (PAT) – a physical AI-based organizational counselor (i.e., a Robot) – to address their stressful event. In the *Human* condition (n=202), participants read that they would be talking with PAT – the organizational counselor – about the stressful event. In both conditions, PAT offers participants three tips about how to deal with the stress which is the same across conditions.

Following the disclosure of the stressful event, participants again completed the stress scale (α=.91) as well as a series of items designed to assess service quality (α=.91), trust (α=.91), distrust (α=.70), morality (α=.88), agency (α=.71), warmth (α=.94), competence (α=.95), support (α=.95), willingness to work at a

Table 1: Construct Measures

Construct	Scale Item
Stress	1. I find it hard to wind down 2. I tend to over-react to situations 3. I feel like I am using a lot of nervous energy 4. I feel myself getting agitated 5. I find it difficult to relax 6. I am intolerant of anything that keeps me from getting on with what I am doing 7. I feel that I am rather touch
Trust (1-5)	*How do these words describe your feelings about PAT?* 1. Hopeful 2. Faithful 3. Confident 4. Assured 5. Motivated
Distrust (2-6)	6. Fearful 7. Skeptical 8. Cynical 9. Wary 10. Vigilant
Support	*To what extent would you:* 1. Like to have PAT as your personal counselor 2. Recommend PAT to your friends at work 3. Praise PAT for their actions
Service Quality	1. PAT provided quality service 2. PAT gave the kind of service I desired 3. PAT met my needs 4. I would recommend PAT to a friend 5. I was satisfied with the help received from PAT 6. PAT helped me effectively deal with my problems 7. Overall, I am satisfied with PAT 8. I would use PAT again in the future
	How would you rate PAT on the following dimensions?
Morality	1. Honest 2. Moral 3. Ethical
Agency	4. Can do what they want 5. Has a mind of their own 6. Is in full control of their actions 7. Intentions are not their own (*reverse coded*)
Warmth	8. Warm 9. Kind 10. Thoughtful
Competence	11. Competent 12. Capable 13. Qualified
Work at Company	*To what extent would you:* 1. Work for a company that uses Artificial Intelligence (AI) to support their employees?
Buy AI Solution	2. Purchase Artificial Intelligence (AI) solutions in your own life?

company that buys AI solutions (r=.368, p<.001), and a single item asking participants to indicate their willingness to buy AI solutions.

Participants then were asked to picture a scenario where their manager approached PAT at work to try and better understand the stress that everyone was feeling at work. The manager asked PAT to disclose what participants had ostensibly told PAT in secret. Participants were randomly assigned to either a Disclosure or Non-Disclosure condition. In the *Disclosure* condition (n=205), participants learn that PAT responds "*Sure, I'm happy to tell you what was discussed*" and proceeds to tell the manager what was said. In the *Non-Disclosure* condition (n=202), PAT instead responds, "*I'm sorry, but I am not at liberty to discuss personal conversations*" and declines to tell the manager what was said. Participants again complete the same series of items assessing stress scale (α=.93), service quality (α=.98), trust (α=.96), distrust (α=.83), morality (α=.93), agency (α=.66), warmth (α=.96), competence (α=.95), support (α=.97), willingness to work at a company that buys AI solutions (r=.387, p<.001), and a single item asking participants to indicate their willingness to buy AI solutions (see Table 1 for survey items). As a manipulation check, participants were asked to describe PAT on a 1-7 Likert scale (1=Human, 7=Robot), as well as their agreement (1=Not At All; 7=Extremely True) as to whether PAT violated their privacy. Finally, participants completed basic demographic information, were thanked and debriefed.

RESULTS

Manipulation Check. As expected, participants described PAT in the *Robot* condition as significantly more like a robot, M=6.12, SD=1.23, than in the *Human* condition, M=4.65, SD=1.97, t(405)=9.00, p<.001, 95% CI=[1.14, 1.78]. Additionally, participants indicated that PAT violated their privacy significantly more in the *Disclosure* condition, M=6.14, SD=1.41, as compared to the *Non-Disclosure* condition, M=1.55, SD=1.06, t(405)=37.02, p<.001, 95% CI=[4.34, 4.83].

Reducing Stress by Disclosing Secrets. Participants in the *Robot* condition indicated a significant reduction in stress when comparing recalling the event, M=4.41, SD=1.17, to getting advice from robotic PAT, M=3.79, SD=1.29, t(204)=9.53, p<.001, 95% CI=[-0.75, -0.49]. Participants in the *Human* condition also reported a significant reduction in stress between recalling the event, M=4.41, SD=1.22, to getting advice from human PAT, M=3.44, SD=1.31, t(201)=11.35, p<.001, 95% CI=[-0.82, -0.57]. A comparison of the difference scores between the two rounds did not identify a significant difference when comparing the change in stress in the *Robot* condition, M=-0.62, SD=0.93, to the change in stress in the *Human* condition, M=-0.70. SD=0.87, t(405)=0.86, p=.393, 95% CI=[-0.09, 0.25]. An equivalence test with an effect size boundary of Cohen's d = +/- 0.50, found a 95% confidence interval for Cohen's d = -0.28, 0.11, an interval which suggests the mean effects of each group are equivalent (neither inferior nor superior) given an assumed medium effect size. These results suggest that disclosing stressful secrets to either human or robotic agents - who subsequently give reasonable advice to help deal with these issues - helps to reduce feelings of stress in ways that are not immediately distinguishable from each other.

Service Failure. However, critical to our study is the reaction of individuals upon learning that their privacy has been violated, such as would be the case when PAT discloses ostensibly private conversations to others. A two-way analysis of variance (ANOVA) with planned contrasts revealed a couple notable results. First, there were no significant differences in reported stress in the *Disclosure* or *Non-Disclosure* conditions when comparing robot PAT to human PAT (*all ps > 0.05*, see Figure 1 for difference scores of stress and other items). However, participants reported significantly higher support for robot PAT compared to human PAT in both the *Non-Disclosure* condition, M_{Robot}=0.59, SD=1.05 vs. M_{Human}=0.11, SD=1.07, F(1,403)=6.50, p=.011, η_p^2=.720, 95% CI=[0.20, 0.94], as well as in the *Disclosure* condition, M_{Robot}=-1.30 SD=1.25 vs. M_{Human}=-1.86, SD=1.89, F(1,403)=9.00, p=.003, η_p^2=.849, 95% CI=[0.11, 0.86], perhaps suggesting that the novelty and usefulness of dealing with robotic PAT was something that participants wanted to experience again or tell others about.

Perhaps explaining the emotional antecedents of decisions to support Pat, participants in the *Disclosure* condition reported that robot PAT was significantly warmer, M=-1.30, SD=1.31, than human Pat, M=-1.69, SD=1.75, F(1,403)=4.59, p=.033, η_p^2=.570, 95% CI=[0.03, 0.74], as well as marginally more competent, M=-1.17, SD=1.31 vs M=-1.46, SD=1.53, F(1,403)=3.03, p=.082, η_p^2=.412, 95% CI=[-0.04, 0.63]. These effects did not replicate in the *Non-Disclosure* condition regardless as to whether it was reported warmth, M_{Robot}=0.28 SD=0.96 vs. M_{Human}=0.13, SD=0.97; F(1,403)=0.76, p=.385, η_p^2=.140, 95% CI=[-0.20, 0.51], or competence,

M_{Robot}=0.48 SD=0.98 vs. M_{Human}=0.36, SD=0.92; $F(1,403)$=0.47, p=.491, η_p^2=.106, 95% CI=[-0.22, 0.45]. Thus, it appears that when individuals' privacy is violated, they feel better when the violation is enacted by a non-human agent (robot) when compared to another human. In summary, robotic service providers are supported more and seen as warmer than human service providers when they publicly disclose secrets.

Figure 1: Results
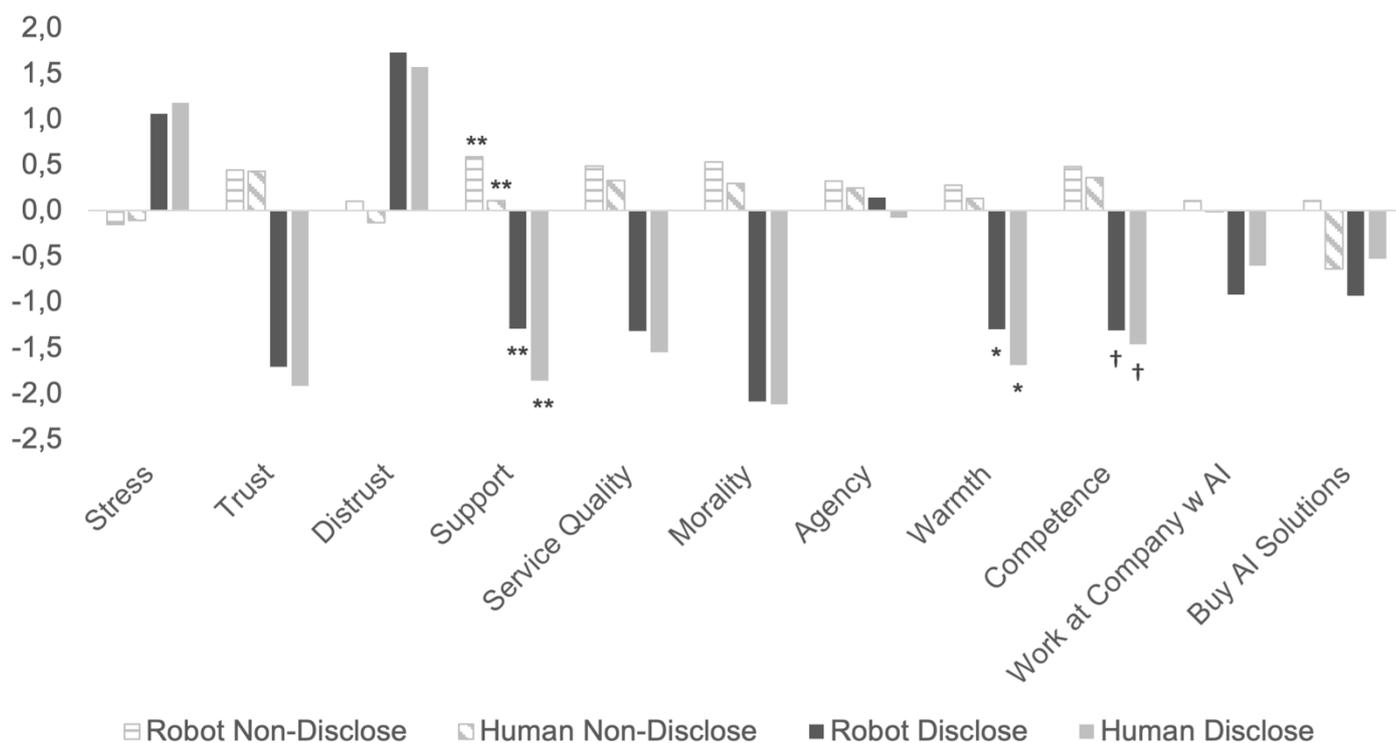
(† $p<0.10$, * $p<0.05$, ** $p<0.01$)

DISCUSSION

In an exploratory study involving human and AI-based (robot) agents in service encounters we identify a unique benefit to robots. In settings involving service failure, we find that individuals feel better about robots when compared to humans in conditions where their privacy has been violated – outlining one benefit of robots in service settings involving emotionally complex issues. Additionally, getting advice about stressful secrets from robots and humans was similarly effective in reducing the experienced stress arising from these events, providing evidence that undermines the proposition that robots are always inferior to humans in these contexts. Furthermore, individuals were even more supportive of robots compared to humans regardless of whether their privacy was violated or not. In other words, if we feel just as good getting help from robots (versus humans) and feel better about robots (versus humans) in conditions of service failure, this suggests that robots may – under certain conditions (such as the ones we outline here) – be effective in helping individuals deal with stress. As both accidental or the purposeful disclosure of personal secrets is likely to happen both with humans (slip of the tongue, willful violation) or with non-human agents (mis-programming, hacking), it is important to understand what the resulting effects might be. Here, we find evidence that robots may provide equivalent or superior outcomes when considering the telling and subsequent disclosure of personal secrets.

The research adds to previous publications highlighting the unforeseen value of technology-based services (Logg, Minson and Moore, 2019). However, future research is necessary to investigate the underlying mechanisms for the findings. First, our results indicate that technology-based services can provide equivalent benefits to humans in socially-emotionally complex service roles in terms of reduced stress. One possible explanation is that the reduction of stress is due to the emotional release of telling a stressful secret, rather than who is the receiver, which would explain the equivalent outcomes. Future research should investigate the role of the act itself (i.e. telling a secret) versus the receiver (i.e. a robot versus human) in reducing stress. Second, the study shows that individuals are more supportive of and evaluate robots more positively

compared to humans after a service failure (i.e. disclosing a secret). One possible explanation for this effect is that people have lower expectations of robots compared to humans when it comes to maintaining privacy. Whereas humans are expected to be aware of social norms and codes and thus know whether it is appropriate to disclose a secret, robots are not, which leads to less of a negative effect on perceptions and support when they violate them. Third, the study shows that people have higher support for robots compared to humans in the non-disclosure condition as well. This might also be connected to initial low expectations of robots (compared to humans) in terms of social capabilities. When robots act according to social norms and codes, they are rewarded more in terms of support meaning that people are more likely to recommend and willing to relive the experience. Hence robots might have an inherent advantage in certain service settings compared to humans. When they live up to expectations, they are rewarded more, but when they fail to do so, they are punished less. Further research should investigate whether robots benefit from a "beginner's luck" in these conditions, and if so, whether the effect is due to the relative novelty of robots in certain service roles, effects that might subside as consumers start expecting more from robots over time.

Our results offer guidance for managers working with employee well-being and increasing support for employees. As organizations are increasingly offering services to help employees mitigate stress and improve their mental health – and given there is a prevailing belief that AI-based service is inferior to human-based service in emotionally laden settings - our findings indicate that robots can take on service roles requiring higher intuitive and empathetic skills than previously assumed. As the outcomes in the scenarios manipulated are equal or sometimes superior to human counseling, it points to not just equivalence but benefits in having robots as service providers. Given the limitations of having humans available at all times, places, or industries, it may be that robots can potentially serve as helpful counselors, psychologists, and mentors both in and outside of work.

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CONNECTING SERVICES TO PRODUCT (GOODS) DEVELOPMENT: A STUDY BASED ON STRATEGIC ORIENTATION AND CUSTOMER EXPERIENCE

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ABSTRACT

This paper provides the preliminary analysis based on the survey which we conducted on Strategic Orientation (SO) and Customer eXperience (CX) issues. The results indicated that both understanding, and business perspectives are important. The findings also show that especially in designing human-based services, the view based CX should be emphasized. In addition, regarding goods design, CX was considered more important than the comprehension of the SO.

INTRODUCTION

The disciplined approach of focusing on customers and continuous improvement was initially emphasized in the 1950s by the principles of the Total Quality Management (TQM) (Deming, 1986). Similarly, more recent approaches emphasize user-oriented design as an iterative design process in which designers focus on the users and their needs in each phase of the innovation and design process (Siakas and Siakas, 2016). In many software development approaches, such as Agile development (Lampropoulos and Siakas, 2018) and DevOps (Lampropoulos *et al.*, 2019) even customers take an active role in the development process. It is generally accepted that the voice of the customer plays an important role in the success of product and service innovation and has turned out to be an effective way for value creation and competitive advantage (Siakas and Siakas, 2016). Nowadays, due to the immense competition in the field of innovation, intensified CX is mainly materialized through strategies including social networking, crowdsourcing, open innovation, artificial intelligence (AI), Internet of Things (IoT) and Big Data. A holistic approach needs to be catered for in order to provide innovations in the increasingly demanding global market (Sivula and Kantola, 2016). The added value of offering a good CX include improved customer loyalty, increased customer satisfaction, enhanced word-of-mouth marketing including positive reviews and recommendations (Colomo-Placios *et al.*, 2014). Value of any service is created, comprehended, and defined by the customer / user in the case of service use, also called value-in-use (Siakas and Siakas, 2016).

Product development should be customer-oriented while products should be derived from the strategy of a company. Hence, customer orientation needs to be taken into consideration in strategy development. In this process, the use of a business model helps notably. By using business models, we can create products that have services at their core.

Morris (2013) argued that in order for both continuous and discontinuous types of innovations to be developed in companies, business models should be considered as the third dimension of innovations. Through the use of business modelling, product innovations can be connected to the necessary services seamlessly throughout the whole product life cycle.

In the current era of the 2020s, the technological advancements and particularly the rise of AI, IoT and Big Data resulted in the development of intelligent, autonomous and automated services that led to fourth industrial revolution, called Industry 4.0 (Lampropoulos *et al.*, 2018). As the use of bots in the service business has been significantly expanded, the majority of services are no longer human-based which, in return, brought about drastic changes to the overall customer experience (Ameen *et al.*, 2021). However, all services cannot be replaced by enforcing technology-based solutions. Thus, it is essential to examine which services and to what degree can remain human-based and which services can be automated. From a

business perspective, product and service development can be assessed according to two perspectives: strategic orientation (SO) strategy and customer experience (CX). Furthermore, in order to create successful product and service innovations, as well as successful business models, it is necessary to understand both related strategic viewpoints and customers' perspectives (Pisano, 2015; Keiningham *et al.*, 2020).

Based on the above-mentioned points, the following questions arise:

- what the role of SO in developing goods-service innovations is;
- what the role of CX in developing goods-service innovations is;
- what the role of SO in developing visible goods is;
- what the role of CX in developing visible goods is;
- what the role of SO in developing human-based services for visible products is;
- what the role of CX in developing human-based services for visible products is;
- what the role of SO in developing automated services for visible products is;
- what the role of CX in developing automated services for visible products is.

In this study, the theoretical background along with the discussion on product-service alignment is presented. The concepts of strategy orientation and customer experience are described. Moreover, the research questions, the methodology and the results are presented and analyzed. Finally, suggestions for future research direction are provided.

ALIGNING PRODUCTS AND SERVICES

Kohtamäki *et al.* (2015) emphasized the shift toward service-orientation in developing and delivering traditional industrial goods which had co-creation with customers as its main point value. As good service enables increased sales and profits for a company, it is of great importance to comprehend what the main elements and essence of the core product are. This process can be greatly affected by applying the correct strategies. Modern business strategy emerged as a field of study and practice in the 60s (Minzberg and Quinn, 1996). Porter (2001, p. 71) defined strategy as "*how all the elements of what a company does fit together*". He argued that taking the business model into isolation from the company's strategy may be an obstacle to certain advantages of the company. Instead, the company should cater for a clear emergency backup strategy ready to modify the existing business model in case of different eventualities. A company is constantly exposed to new competitors and substitute products and therefore, it needs to continuously improve and innovate. Furthermore, strategy usually involves two major processes, namely strategy formulation and implementation of the chosen strategy, which aim to accomplish the long-term objectives of the company. The strategy implementation converts the selected strategy into short term goals, plans, and actions that the company should take so as to achieve the objectives. Project failures have frequently been attributed to misalignment of strategic aims and project management (Becker and Bostelman, 1999; Kaplan, 1994; Sheriff *et al.*, 2013). Projects invariably fail when the company fails to translate vision and mission statements into tangible plans and actions applied at different levels. A number of frameworks for addressing this misalignment at different levels have been proposed, such as Balanced Scorecard (BSC) developed by Kaplan and Norton (1996a; 1996b) and Goal-Question Metric (GQM) developed by Basili (1992; 1995). While the BSC defines the scope and four perspectives of a company's information needs by using Key Performance Indicators (KPIs) for measuring the success of the agreed goals, it does not provide a means of quantifying and interpreting the acquired information. On the contrary, the GQM proposes that the goals must be traced to the data that is intended to define the goals operationally. Sheriff *et al.* (2013) combined BSC with GQM in order to bridge the gap by providing companies a more comprehensive and holistic framework for planning, organizing, monitoring and controlling their performance at all levels. The key selling point of the BSC over the years has been that it provides a comprehensive strategic roadmap for effective competition. They further enhanced the business model with an explicit value model, aiming to guide the definition and evaluation of specified KPIs.

Da Silva and Trkman (2014, p. 9) asserted that "*theoretical grounding should be able to explain both the observed trends receiving scholarly attention as well as establish a clear distinction among existing terms within the literature*". They quoted that business models refer to our understanding of how business works and how value is created for different stakeholders; hence they refer to the transfer of the selected strategies into the every-day business activities (Da Silva and Trkman, 2014).

A business model consists of four components (Osterwalder and Pigneur, 2002). These are product innovations, customer relations, infrastructure management and financial issues. By understanding these components and applying them in the right context, it is possible to create a sustainable business model. The customer relations are considered to be the main component, because it connects services to products. Our approach to business model is predominantly CX driven.

CONNECTING STRATEGY AND CUSTOMER EXPERIENCE

Business models emphasize the significance of customer strategy and as it was mentioned above, business models derive from SO. Therefore, it is essential to study both SO and CX so as to find the main components that lead to good product-service alignment.

Keiningham et al. (2020) presented a model in which business modeling was approached from both CX and SO perspectives. More specifically, according to Keiningham *et al.* (2020):

CX includes the following elements:

- Cognitive (How all needs are satisfied);
- Physical (How this service helps you);
- Sensory (What kind of feelings you have after using the service);
- Emotional (How good the atmosphere is in a service);
- Social (How services support interaction).

While SO involves the following alternatives:

- Cost leadership strategy;
- Differentiation strategy;
- Differentiation focus strategy;
- Cost focus strategy;
- Hybrid strategy.

OUR STUDY

In this study, the important factors in goods and service design are explored based on students' views and attitudes. The main aims were to find out:

- What technology companies should be aware of when designing products overall, and
- What instructors especially should take into account when creating teaching approaches for their students.

Based on the CX driven business model described in the previous section the major variables were:

- CX in general;
- SO in general;
- CX in product design;
- SO in product design;
- CX in human-based service design;
- SO in human-based service design;
- CX in automated service design;
- SO in automated service design.

In total, fifty-two master students, 9 females and 43 males who had mean working experience of 10 years, took part in this survey. Particularly, 40 of the students who participated were from three different higher education institutes in Finland while the other 12 were from a higher education institute in Greece. The data collection process involved the use of an online questionnaire which was uploaded on the Webropol platform as well as the use of a paper-based one. The respondents rated each item (variable) of non-functional attributes on a Likert scale of 1 to 5 where 1 mean "not at all important" and 5 meant "extremely important ".

Statistical analysis was made on SPSS.

ANALYSIS OF DATA

Table 1 shows the means of the responses concerning the general variables.

Table 1: Variables

Variable	Mean
CX in general	3.81
SO in general	3.77
CX in product design	4.04
SO in product design	3.63
CX in human-based service design	4.31
SO in human-based service design	3.54
CX in automated service design	4.06
SO in automated service design	3.70

The Kolmogorov test showed that the data based on the responses of the students concerning the themes in this study agreed with the normal distribution. Thus, the T-test was appropriate for statistical analysis of the data. The results of these T-tests are shown in Table 2.

Table 2: Comparing CX and SO means

Variable	p
CX in general versus SO in general	.791
CX in goods design versus SO in goods design	.046
CX in human-based service design versus SO in human-based service design	.017
CX in automated service design versus SO in automated service design	.490

Moreover, the role of CX in product development in two different types of service development was compared. The results of these T-tests are shown in Table 3.

Table 3: Comparing CX means

Variable	p
CX in goods design versus CX in human-based service design	.829
CX in goods design versus CX in automated service design	.221
CX in human-based service design versus CX in automated service design	.205

DISCUSSION

The results of this study highlight the importance of CX in the development of goods and human-based services. Furthermore, the findings showcased that developing automated services that focus on CX is less important compared to those that focus on SO. But when it comes to the product design process and the development of new products, the overall CX is more important than the comprehension of the SO. Since the respondents were technology students and not product producers, they obviously answered the questionnaire from a customer viewpoint opposed to a production viewpoint. The CX interprets the customers overall perception of a company, based on the result of every interaction a customer has with the company, from navigating the website to talking with customer service and receiving the product or service purchased. University students are usually early adopters of innovation. Their CX is mainly based on online shopping, particularly during this last year of the COVID19 pandemic. Our results confirm the power of the customer. The SO needs to focus on CX and embrace it in business models and strategic flexible measurable maps that can swiftly be adapted to changing circumstances for increasing value-in-use.

The two views of product and service development can be easily combined. SO provides basic ingredients for creating business models and looking at CX ensures the success in the goods/service business. In this way, product/services alignment can be achieved.

In addition to CX, it is important to study customers' perspective in the context of value-creation, because in the long run maximizing is a crucial goal. The study by Osterwalder et al. (2009) provided a framework describing the main relative sources that create additional value. These sources include newness (value offerings that satisfy an entirely new set of needs), performance (acting more efficiently and effectively overall by doing things better with fewer defect, faster, with fewer resources), customization (tailoring products and services to the specific needs of individuals or customer segments), "getting the job done" (creating value to customers by helping them with particular things), design (aesthetic styling to fit with fashion trends, designing for modularity of or fewer components for easer assembly, designing for environmental friendliness, branding or status (customers may want to show society certain aspects of themselves), , price (similar value products and services at a lower price), cost reduction (through online customer relationship management application, online recruitment or an online accounting software package), risk reduction (employing warranties, guarantees or service level agreements), accessibility (making products and services accessible to previously untapped customer segments), and convenience or usability (making things more convenient or easier to use).

FUTURE WORK

Future work will include more detailed analysis on SO and CX issues related to product and service alignment. Particularly, each feature of CX related to goods and service alignment and development will be looked into. We will focus on product and service producing companies and examine their viewpoints, opinions, and practices. Due to the fact that automated services are becoming more and more popular and common, special attention will be paid to their design and development process in the light of the framework presented by Keiningham *et al.* (2020).

Another future aim is to test the value model developed by Sheriff *et al.* (2013) on a customer level to understand how value of any service is comprehended, defined and created, by the customer / user in the situation of service use (value-in-use). The model takes into consideration the continuous interaction of three forms of value, as described by Morris (2013), namely Conceived Value (believe that/anticipate),, Object Value (physical features) and Operative Value (like/dislike). These manifestations of value tend to originate from subjective, objective, and interactive sources respectively, and by interacting with each other, they actualize a complex value system that can alert managers and organizational evaluators regarding the variety and interacting complexity of value sources and manifestations.

Additionally, it is essential to loop into various software development issues. Huikkola *et al.* (2021, p.10) have clarified that "*managers should align innovation processes for product, service, and software innovation to facilitate the development of smart solutions. Such a synchronized model provides a common platform and base logic to be fine-tuned by managing the underlying practices and routines to nurture different business units and product line collaboration*".

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DIVERSITY OF TOUCH POINTS ALONG A DYNAMIC CUSTOMER JOURNEY LOOP

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ABSTRACT

Here, we propose a comprehensive analysis about the effects of different touch points and their relative importance on each customer journey stage. Lemon and Verhoef (2016, p. 85) recognized that "much research is needed to understand the relationships among these touch points and their influence in each customer journey stage". To date, no research has distinguished different touch points types from both the firm's and customer's perspective along the different stages of the customer journey. To do so, we will develop two different studies (in-depth interviews and focus groups) and design an integrative conceptual framework with the main findings.

INTRODUCTION

The proliferation of smart technologies, the emergence of artificial intelligence, together with the exponentially increased common use of worldwide social media, they all have undoubtedly increased the number of touch points and complexity of the customer journey. The Marketing Science Institute (MSI) (2020-2022) specifically acknowledges the important roles of touch points in understanding the dynamic nature of customer journey and their influence in consumers' experiences with service providers.

Customer journey is a recent "customer-oriented technique, which maps all the touch points that a customer has with a product and service when he/she is engaging with the company. It highlights all the essential moments which determine the way of how customer experiences are formulated in the entire journey, from the beginning to the end of the service trajectory (Canfield and Basso, 2017). Hence, the analysis of the customer journey could not be carried out without the understanding of each of the customers' interactions with different encounters, considering that the journey itself is defined as a series of touch points (Zomerdijk and Voss, 2010). Most importantly, they constitute valuable sources of knowledge about the specific customer tastes and preferences at each stage of customer journey that allow firms to better understand patterns of consumer behavior (Beckers, van Doorn and Verhoef, 2018). It is evident that the customer journey represents an emerging research interest in the marketing and service literature but, unfortunately, the marketing literature on customer journey currently is still very fragmented.

To date, key studies about customer journey have focused on: (1) what customer journey is and how it is articulated through its different touch points (De Keyser *et al.*, 2020; Lemon and Verhoef, 2016; Yadav and Pavlou, 2014); (2) the role of outsourced touch points (Kranzbühler, Kleijnen and Verlegh, 2019); (3) different customer journey segments (Herhausen *et al.*, 2019); (4) hedonic vs. utilitarian purchases in online customer journeys (Li *et al.*, 2020); and (5) the understanding of loyalty loops and spirals in customer experience journeys (Siebert *et al.*, 2020). However, there is no research that distinguishes different types of touch points from both the firm's and customer's perspective. Most importantly, there is a lack of dynamic and integrative perspective to view how the roles of such touch points might vary depending on the stage of the customer journey (pre-purchase, purchase and post-purchase stages) and the circular loop of such journey (i.e., iteration of customer journey) (Hamilton *et al.*, 2020; Siebert *et al.*, 2020).If the management of touch points is standard for all the stages of the customer journey (even when firms are segmenting customers according to other criteria), the found results are likely to be imprecise. In fact, Lemon and Verhoef (2016, p. 85) recognized that "much research is needed to understand the relationships among these touch points and how they influence each stage of the customer journey" in order to identify the most effective ones at each stage. More worryingly, in practice, companies frequently encounter challenges in optimally managing different touch points at the right place (i.e., the corresponding customer journey state) and time (i.e., the

encountered customer journey circular loop), so a deep study on this topic is required to extent the background in this area.

This study will shed light to this respect. To fill this important gap, in this research we: (1) grounded on both the firm's and customer's perspective to comprehensively classify the different types touch points along the customer journey depending on whom initiated the interaction; (2) identify the different stages of the customer journey and the key types of touch points that may take place along each of the stages of the customer journey and its circular loop; (3) taking a dynamic perspective, we accurately discuss about the effectiveness of adapting a proper management of touch points to the specific stage of the customer journey and the correspondent circle loop; and (4) we propose concise managerial guidelines to properly manage the diversity of customers' touch points along the stages of the customer journey and its subsequent circular loop and to increase the efficiency. To do so, we develop two different methodological approaches with expert researchers and managers on the topic: in-depth interviews and focus groups.

CONCEPTUAL FRAMEWORK: CUSTOMER JOURNEY AND TOUCH POINTS

As we have previously mentioned, the customer journey refers to every single touch point from the beginning of the customer-firm relationship, ranging from the feedback collected from past interactions or even other customers in their past experiences to the customer willingness or intention to keep interacting with the firm in the future. In this section, following the robust development carried out by Lemon and Verhoef (2016), we describe the main stages of the customer journey: prepurchase, purchase and postpurchase.

Prepurchase stage. This stage comprises all customer's interactions with the firm before the purchase decision and it encompasses behaviors such as need recognition, information search and evaluation of the collected information during the customer decision process (De Keyser *et al.*, 2020; Lemon and Verhoef, 2016). Specifically, this stage encompasses "the customer's experience from the beginning of the need/goal/impulse recognition to consideration of satisfying that need/goal/impulse with a purchase" (Lemon and Verhoef, 2016, p.76). The length of this stage will vary depending on each customer, but in general it lasts from the beginning of the relationship to the first purchase.

Purchase stage. This stage covers all customer interactions with the firm during the purchase act—customer choice, ordering, paying, pickup and delivery— (De Keyser *et al.*, 2020; Lemon and Verhoef, 2016). This stage is usually the shortest, as all the process of searching information, comparing and considering the purchase corresponds to the previous stage. It is especially relevant for firms, since it provides direct incomes to firms. However, firms should be very careful at this stage, considering thatseveral atmospheric aspects may have effects on the customer purchase decision (positive vs. negative shopping experience, levels of perceived purchase risks, levels of perceived purchase confidence, etc.).

Postpurchase stage. This stage "encompasses customer interactions with the brand and its environment after the purchase" (Lemon and Verhoef, 2016, p.76), such as customer consumption or usage of the new product or service, potential customer complaints, decisions to return products, decision to repurchase, touch points in brand communities, co-creation behaviors, referrals, etc. (Caru and Cova, 2015; De Keyser *et al.*, 2020; Lemon and Verhoef, 2016). The length of this stage is also undetermined as it could extend temporally from the purchase to the end of the customer-firm relationship—and consequently, the end of the customer journey—. In this stage the customer may think about repurchasing (second phase), or about looking for other alternatives that will drive him/her to a prepurchase stage again (first phase). In this vein, the customer journey or customer journeys—in the case of repurchase or starting a new purchase— will build the customer experience.

Circular loop. Recent marketing literature has pointed out that focusing on stages within a single journey circle results in a myopic picture about the concept of customer journey (Siebert *et al.*, 2020). The way of how customers assess the encountered touch points during the first customer journey is more likely to be different from the repeated ones, thus calling for an expanded perspective to view customer journey patterns. As a consequence, customer journey loops emerge in the literature of customer journey, referring to that customer journey is consisted of a set of trajectory circles, ranging from the initial one, the subsequent one, to the termination trajectory and progressed through a nonlinear path with circular loops (Siebert *et al.*, 2020). As emphasized by Hamilton *et al.* (2021), the customer journey across multiple trajectory circles is not

repetitive but iterative. More specifically, in the initial customer journey circle, it is characterized by the highly careful and multiple customer decisions in which customers tend to go through all the stages of a customer journey (i.e., pre-purchase, purchase and post-purchase). The customer journey loop is expected to be infinite if favorable customer experience across different touch points along the customer journey are maintained. In contrast, the termination trajectory of customer experience will be followed (Siebert *et al.*, 2020).

Customer goals. As emphasized by Puccinelli *et al.* (2009), customers have different goals to achieve at each stage of customer journey, ranging from the need recognition, information search, evaluation, purchase and post-purchase phases. Based on the literature of cognitive psychology, goals are located at the center of information system and guide individuals to proceed the acquired information and determine their relative salience (Murphy and Medin, 1985). As a consequence, such goals affect the way of how customer evaluate the touch points through which customers interact with different encounters (i.e., firms, other customers andsmart devices). Moreover, the goals of customers are not static but dynamic, considering that they vary depending on the circular loop of customer journey. More specifically, once experiencing the first customer journey through which customers might acquire knowledge and turn to be more familiar with the firm's product or service, they might not necessarily proceed each stage of customer journey before reaching the final purchase decision. Consequently, the associated touch points in the repeated customer journey might be perceived in a different manner in comparison to the first journey, thus illustrating that the roles played by touch points might further differ depending on the circular loop of customer journey.

In addition of taking into account the stages of the customer journey, we should pay especial attention to the touch points developed by customers or firms during this customer journey.

Different types of touch points. Fundamentally, touch points are regular interactions between a customer and a company or between customers that constitute building blocks for the customer journey, assuming that customer journeys are defined as a set or sequence of touch points to determining the future of the relationship (Patricio *et al.*, 2011; Zomerdijk and Voss, 2010).

In marketing literature, there are several classifications of "touch points" or "contacts" or "interactions" although the conceptual idea behind all of them is very similar. The research of Bowman and Narayandas (2001) started to analyze the role of customer-initiated contacts (CICs) as any communication with a company that is initiated by a customer (Bowman and Narayandas 2001, p. 281). Libai (2010) introduced the concept of customer-to-customer interactions. This theoretical concept has been also labelled in literature social influence. Customer-to-customer interactions refer to "the transfer of information from one customer (or a group of customers) to another customer (or group of customers) in a way that has the potential to change their preferences, actual purchase behavior, or the way they further interact with others" (Libai *et al.* 2010, p. 269). Wiesel, Pauwels and Arts (2011) analyzed firm-initiated contacts (FICs) as marketing communication activities and customer-initiated contacts (CICs) (e.g., paid search advertising) and quantified them reporting a much higher sales elasticity for CICs than FICs. This is because customers or prospective customers are more attentive to information that is directly relevant to what they are searching for, while firm-initiated contacts may reach them at the wrong time and with a suboptimal message.

Going a step further, Yadav and Pavlou (2014, p. 21) classify interactions into four key types: consumer-firm interactions (consumers' interactions with firms), firm-consumer interactions (firms' interactions with consumers —firms' strategies and tactics—), consumer-consumer interactions (consumers' interactions with other consumers) and, firm-firm interactions (firms' interactions with other firms). Although this study is based on marketing in computer-mediated environments, it laid the foundation for a better understanding of the role of interactions in all their forms.

Within the customer journey literature, Lemon and Verhoef (2016, pp. 76-78) identify four touch point categories: brand-owned, partner-owned, customer-owned and social or external. They argue that brand-owned touch points —that allude to the concept of firm-initiated contacts— "refer to customer interactions planned and controlled by the firm itself, including aspects such as: advertising, websites, loyalty programs and other elements of the marketing mix, managed directly by the company". Partner-owned touch points — or firm-to-firm interactions— "are interactions managed by the firm and one of its partners such as: distribution partners, marketing agencies and/or any other partner with potential impact on customer interactions".

Customer-owned touch points —that refer to customer-initiated contacts— "are interactions beyond the company's control representing customers' desires or unanticipated, innovative product uses". Finally, external touch points —which reflect the idea of social influence or customer-to-customer interactions— "identify those interactions that are influenced by external agents such as other customers, social media, review sites or any other independent sources". More recently, De Keyser *et al.* (2020) reveal that touch points can be classified into firm-controlled (store environment, corporate website, advertising, employees, etc.) and non-firm-controlled touch points (controlled by other customers, influencers, or other firms).

This literature review on the topic evidences the diversity of touch points and the variety of classifications that we can find in marketing journals. To shed light to this respect, we will develop two interesting studies with expert on the field to homogenize all the ideas in literature and to present a holistic model to work with in future. Importantly, given the exponential growth of artificial intelligence and in the use of smart objects worldwide, we propose that another interesting touch point we should consider it is customer-to-objects interactions.

METHODOLOGICAL APPROACH AND EXPECTED FINDINGS

This study draws on the literature in customer journey, customer relationship management, social influence and customer experience, linking them to theoretical concepts to develop a new conceptual model and a research agenda to serve as a starting point to explore the impact of the diversity of touch points along dynamic customer journey loop.
To do so we will develop two different studies: (1) in-depth interviews with expert academics and managers that will serve as a pre-test to firstly identify the diversity of touch points that literature encompasses; and, (2) focus groups also with expert academic and managers to classify all the identified touch points along the stages of the customer journey. These studies will serve us to design an illustrative conceptual framework that helps future researchers and managers to properly analyse and manage the customer journey.
Study results enable a detailed understanding of the nature and different roles played by a diversity of touch points alongside the dynamic customer journey loop from a goal-oriented perspective. First, different types of touch points are identified and categorized accordingly. Second, as customers have different goals to pursue at each of the stage of customer journey and the journey circle loops, the same touch points can be valued in a different manner.

PRACTICAL IMPLICATIONS

Companies and organizations should extend their view by integrating with customers' goal to dynamically assess the type of touch points are desired by customers for each specific stage of the customer journey and the correspondent circle loop and identify the most relevant ones. This provides orientations to better design touch point's management strategy.

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THE ROLE OF SERVICE DESIGN AND MOMENT OF TRUTH TOUCHPOINTS IN DETERMINING B2B CUSTOMER OUTCOMES

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ABSTRACT

This study examines the impact of customer-firm touchpoints, service process and moment of truth on financial (i.e. profitability) and behavioral (i.e. customer retention and customer cross-buy) customer outcomes in a B2B setting. Taking a longitudinal perspective, the model proposes that human, digital and physical touchpoints, and the service process affect the evaluation of the moment of truth, which in turn will determine future customer outcomes. Based on a panel dataset of 2,970 B2B customers, the GMM method is developed to estimate the model. The findings provide the first empirical evidence of the impact of moment of truth in B2B relationships.

INTRODUCTION

Business customers and providers interact through a multitude of encounters or touchpoints during the B2B customer journey (Zolkiewski *et al.*, 2017). The rising academic and managerial interest on customer journeys and customer-provider touchpoints is determined by the fact that customers nowadays have at their disposal increasingly more touchpoints over multiple channels to connect with firms, which ultimately determines more complex customer journeys (Lemon and Verhoef, 2016). However, not all touchpoints are the same. Practitioners and academia alike are starting to focus progressively more on some very special touchpoints called moments of truth (e.g., Gartner, 2016; Voorhees *et al.*, 2017). These key touchpoints usually refer to instances of contact between a customer and a firm that could potentially present a substantial impact on the customers' responses towards the firm (Voorhees *et al.*, 2017). They have also been considered critical encounters or touchpoints between customers and firms throughout the customer journey that have a superior influence on customer outcomes (Lemon and Verhoef, 2016; Voorhees *et al.*, 2017). Moments of truth are also related to complications during the customer journey or whenever the customers find themselves in distress (Roy, Sreejesh and Bhatia, 2019).

During the customer journey, Gartner (2016) acknowledges that a customer might encounter several moments of truth for which providers must prepare and manage properly. Moment of truth touchpoints are crucial in the development of customer journey and key to trigger desirable customer outcomes (Voorhees *et al.*, 2017). Lemon and Verhoef (2016) argue that identifying these touchpoints is vital for a service provider, since they exert more influence on valuable customer outcomes. Once they are identified, firms then need to determine how they can be influenced and to what extent they can further determine other customer perceptions and the evolution of the customer-firm relationship (Cambra-Fierro, Polo-Redondo and Trifu, 2021). In this sense, several authors urged researchers to examine how different types of touchpoints work together (De Keyser *et al.*, 2020).

On the other hand, the literature suggests that some touchpoints could exert influence on other touchpoints throughout the customer journey and the interplay between touchpoints is critical for the customer-firm relationship (Becker and Jaakkola, 2020). In this context, service design plays a fundamental role in planning and coordinating all customer-provider touchpoints and the overall service process (Patrício *et al.*, 2011; Teixeira *et al.*, 2012). Service design provides the unique opportunity to improve both service experiences and organizational design (Andreassen *et al.*, 2016). As a result, through a proper service design, companies can influence customer-firm touchpoints and the service process, which can play an important role on how moments of truth are evaluated and perceived by the customers. Determining these effects is vital for

practitioners in order to manage possible negative moments of truth (i.e. critical incidents, service failures, etc.) (Van Doorn and Verhoef, 2008).

However, to the best of our knowledge, there is no empirical evidence of the effect of customer-firm touchpoints on the customer's evaluation of the moment of truth in a B2B setting. As a matter of fact, the current literature has a very narrow understanding of moments of truth, since this knowledge is given by mostly exploratory studies for which there is extremely limited empirical evidence. In addition, studies focused on moments of truth mostly overlooked B2B contexts, as current understanding is concentrated on consumer markets. Very little is currently known about the role of moments of truth in determining customer outcomes, specifically for business customers. Since customer-firm relationships evolve over time (Lemon and Verhoef, 2016), it is vital to determine if moments of truth determine a long-lasting effect on customer outcomes. However, research to date has not yet established the impact of such touchpoints on either financial or behavioral outcomes.

Taking everything into consideration, this study seeks to address the following research questions: What is the effect of customer-firm touchpoints and service process on the B2B moment of truth? How B2B moments of truth influence financial and behavioral customer outcomes over time? To answer these questions, this study proposes a conceptual model that examines the role of different customer-firm touchpoints on the customer's evaluation of the moment of truth. The first touchpoint is *human* and is related to the interaction with the provider's employees. The second touchpoint refers to *digital* interactions. The third touchpoint is *physical* and is connected to the physical environment and the tangible or physical elements of the service. We also include the service process referring to the customer's evaluations of the overall process of the service. We propose that these elements will determine an effect on the B2B moment of truth, which in turn will determine several customer outcomes. We focus on profitability as a financial outcome and customer retention and customer cross-buy as behavioral outcomes.

To fulfil these objectives, this research takes a longitudinal approach and relies on a panel dataset of 2,970 B2B customers provided by a multinational leader. The dataset spans over five years and includes both objective and subjective data from each customer. With this data, we develop a Generalized Method of Moments (GMM) panel data analysis (Arellano and Bond, 1991; Blundell and Bond, 1998). The findings of this study have the potential to contribute to the literature by providing the much needed empirical evidence on what influences the B2B moments of truth and to what extent they determine future customer outcomes in the B2B context. In addition, this research presents some relevant implications for omnichannel strategies and management, given that it points to how multiple channels may exert different effects on moments of truth. This research reveals further managerial implications given that firms need to understand how key touchpoints are evaluated by the customer and to what extent they can further affect the evolution of the customer-firm relationship. This is especially relevant as providers need to cautiously allocate resources and determine how profitability, customer retention and cross-buy behavior are influenced over time.

The remaining part of the paper proceeds as follows. The following section examines the theoretical background, presents the conceptual framework and sets out the hypotheses development. Next, the methodology employed and data analysis is presented, followed by the description of the results. To conclude, the theoretical contributions and implications for best practice are discussed.

THEORETICAL BACKGROUND AND CONCEPTUAL FRAMEWORK

Moment of truth touchpoints

A considerable amount of literature has grown up around the topic of customer journey and customer-firm touchpoints. It is widely acknowledged that customer journeys are built upon a sequence of customer-firm touchpoints developed in time, where touchpoints represent the building blocks of customer journeys (Lemon and Verhoef, 2016; De Keyser *et al.*, 2020). Touchpoints represent any point of interaction between a customer and a provider (De Keyser *et al.*, 2020). However, as noted by a large body of research, some touchpoints are more important than others in determining the customer experience and the overall outcomes of the customer journey (Lemon and Verhoef, 2016; Voorhees *et al.*, 2017). In this context, the concept of moment of truth emerges, acknowledging these differences in the impact of touchpoints.

According to several authors, moments of truth have enormous power to influence the future of a customer's relationship with the provider (Demangeot and Broderick, 2016). These touchpoints are also related to instances when things go wrong and to the provider's reaction to those incidents (Roy, Sreejesh and Bhatia, 2019). Even though there is no widely accepted definition, Voorhees *et al.* (2017) argue that moments of truth represent "critical encounters between customers and firms that significantly impact customers' impressions of the firm and consumption" (p. 270). Lemon and Verhoef (2016) also referred to moments of truth as critical touchpoints occurring along the customer journey "that have the most significant influence on key customer outcomes" (p. 82). For the purpose of this study, we rely on these conceptualizations and consider moments of truth to be touchpoints during the customer journey that can present a superior influence in determining the outcomes of a customer-firm relationship.

On the other hand, critical moments normally occur in every customer journey, yet moments of truth are different depending on the specific service context. For instance, in online retailing, a moment of truth is represented by the visit to the retail website (Demangeot and Broderick, 2016); in healthcare, a basic moment of truth is given by the hospital and staff (Kashif *et al.*, 2016). All this evidence indicates there is little agreement on what constitutes the moment of truth given that it widely depends on each context.

In addition, to date, limited empirical evidence exists on their role in determining desirable customer outcomes. Some consider moments of truth as part of a wider construct, namely as a dimension of the customer experience (e.g., Roy, Sreejesh, and Bhatia, 2019). Yet, most studies are still of a conceptual nature (e.g. Voorhees *et al.*, 2017; Willems *et al.*, 2017; Zolkiewski *et al.*, 2017). Compared to more prominent topics that are closely related with moment of truth touchpoints (e.g., customer journey, customer experience), there is a relatively small body of literature that is concerned with moment of truth touchpoints. It is surprising that such a critical aspect of the customer journey has been overlooked in the marketing and service literature. Moreover, with limited exceptions (e.g., Zolkiewski *et al.*, 2017; Roy, Sreejesh, and Bhatia, 2019), virtually all studies identified in the literature pertain to the B2C settings, to the neglect of business relationships. This has important consequences, as managers and marketers of B2B companies need to comprehend how to properly manage moment of truth touchpoints and what role they play in determining the outcome of the customer-firm relationship. There is a strong need for advancing the current academic understanding, as well as for providing managerially meaningful implications for best practice on moments of truth management in general, and for B2B relationships, in particular.

Hypotheses development

Drawing from the current understanding of the topic in the literature, we propose a conceptual framework that analyzes the effect of a series of touchpoints on the evaluation of the moment of truth touchpoint. We postulate that a series of successful touchpoints can influence the evaluation of a critical moment. These touchpoints refer to human, digital and physical touchpoints (De Keyser *et al.*, 2020). Moreover, we suggest that the service process will also exert an important effect on the evaluation of the moment of truth touchpoint. We also postulate that the moment of truth will impact the future customer outcomes, as customers rely on their evaluation of a critical moment to decide the future of the relationship with a provider. In this sense, we will examine the impact of the moment of truth on future profitability, customer retention and customer cross-buy. Figure 1 reveals the proposed model. In what follows, we present the hypotheses development.

During the customer journey, a customer encounters multiple touchpoints with the focal firm (Lemon and Verhoef, 2016). These touchpoints refer to instances of contact between the customer and the firm (Lemon and Verhoef, 2016; De Keyser *et al.*, 2020). Most of touchpoints are controlled by the company and planned during the service design (Patrício *et al.*, 2011). They are vital for determining customer assessments on the provider and the service received (Lemon and Verhoef, 2016). De Keyser *et al.* (2020) acknowledged the existence of various types of touchpoints given their nature or how the firm is represented in each specific touchpoint. Accordingly, touchpoints can be human, digital or physical (De Keyser *et al.*, 2020).

Human touchpoints usually refer to interactions with employees (De Keyser *et al.*, 2020). They reveal the human and interpersonal features of a commercial transaction (Solnet *et al.*, 2019). Touchpoints with sales representatives and other employees are crucial for the outcome of the overall business relationship. They are especially relevant in B2B contexts, as prior research demonstrated that the departure of an employee can dramatically sever the business relationship (Shi *et al.*, 2017). Successful customer-employee

touchpoints can lead to interpersonal connections, which could help overcome complications during critical moments (Delcourt *et al.*, 2017). In this context, we argue that, given the bonds developed with employees, customers will assess a difficult moment in a more positive manner, knowing they can rely on the provider's employees for assistance. Therefore, we propose the following hypothesis:

H1: Human touchpoints positively affect the evaluation of the moment of truth.

Figure 1: Proposed model
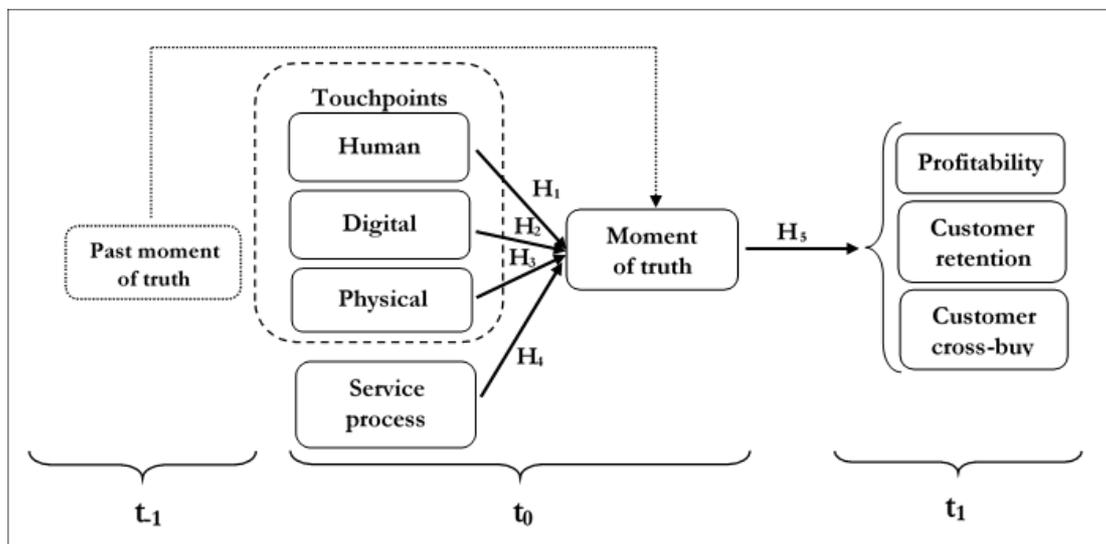
Digital touchpoints are relatively recent and provide new ways of customer-firm interactions (Bolton *et al.*, 2018; Bacile, 2020). They present both challenges and opportunities for customer relationship management (Garrido-Moreno *et al.*, 2020). Companies usually try to develop digital relationships with their customers, as these touchpoints are highly interactive and generate engagement (Vieira *et al.*, 2019; Kauffman and Pointer, 2021). For that matter, customers depend on digital forms of contacting during their service encounter (Bacile, 2020). Based on this evidence, we propose that, during critical moments, when customers are in distress, they need to count on reliable digital options of interactions with the provider. Hence, we put forward the following hypothesis:

H2: Digital touchpoints positively affect the evaluation of the moment of truth.

Physical touchpoints given by the physical environment of a service encounter provide a tangible aspect of an otherwise intangible offering (Ding and Keh, 2017). Often, customer rely on tangible attributes to make evaluations. Prior research indicates that these touchpoints can determine positive perceptions of service reliability (Cambra-Fierro, Polo-Redondo and Trifu, 2021), since customer have at their disposal palpable features and a physical surrounding of their service encounter. We postulate that, when faced with a difficulty during the service encounter, customers need to rely on palpable features so as to successfully overcome critical moments. Thus, the following hypothesis is proposed:

H3: Physical touchpoints positively affect the evaluation of the moment of truth.

The service process is given by how the service is delivered to the customer, based on continuous interactions between customers and service providers (Huang and Rust, 2021). We posit that a successful service process is vital during a time in distress, as it makes a service more consistent and the service provider more reliable; thus, the service process can influence the assessment of a critical moment in a positive manner and the following hypothesis is put forward:

H4: The service process positively affects the evaluation of the moment of truth.

During critical times, customers have the opportunity to discern the provider's response to the problem and their trustworthiness (Odekerken-Schröder *et al.*, 2000). These moments have the power to ultimately to

break the relationship or, on the contrary, to strengthen their bond, thus affecting the future of their relationship (Baliga *et al.,* 2021). Given this, we hypothesize that, if a customer assesses that the critical moment has been successfully overcome, their future customer outcomes will be increased, as they are more likely to remain a customer, more likely to purchase products from other categories and, thus, to become a more profitable customer. Consequently, we propose the last hypothesis:

H5: The evaluation of the moment of truth positively affects future (a) profitability, (b) customer retention and (c) customer cross-buy behavior.

We also intend to observe a possible positive effect of the past moment of truth on the evaluation of the current moment of truth, given the dynamic nature of customer assessments and the possible trend effect developing in time. We posit that the evaluation of a current moment of truth can be also determined by past evaluations of similar situations. We base this assumption on the fact that predictions of future behaviors are usually made based on trends from the past (Ariely and Carmon 2000); however, we do not pose a specific hypothesis.

METHOD

As regards the approach taken to test the conceptual model, data were obtained from a company operating in the B2B insurance sector. This company is widely acknowledged as an international leader in the sector, specializing in B2B markets. It operates in approximately 120 countries and has more than 50,000 employees worldwide. The company provided a random sample of 2,970 B2B customers. The customers pertain to a wide range of sectors (e.g., professional services, finance, distribution, energy, IT, construction, etc.). The sample profile indicates that most B2B customers operate in services industries and the industrial sector, with a smaller participation of the primary sector. Regarding the size of these firms, the sample comprises a variety of customers, including small, medium and large firms. The profile of the sample and the variety of the sectors covered indicate that each business customer is unique and the provider develops a distinctive relationship with every one of them and it has to adapt to their specific needs. Owing to the structure of the sample, the findings based on these data may be extrapolated to other business contexts. Prior empirical research from the B2B literature has employed data from a single provider (e.g, Roy, Sreejesh and Bhatia, 2019; Mostafiz, Sambasivan and Goh, 2021) and it has been argued that data from a sole industry increase the explanatory power and the internal validity (Lam *et al.*, 2004).

The panel dataset comprised data collected over five years, from 2013 to 2017. The dataset included both subjective and objective data. The objective data are related to the customer outcomes and referred to the yearly measures of customer profitability, customer cross-buy and customer retention. The subjective data refer to customer assessment of several aspects of the interactions and relationship with the provider. This type of data was obtained from the results of a yearly questionnaire administered to the customers by the provider. The measurements of all variables have been extracted from the dataset and the operationalization of the variables was made according to prior literature (see table 1). The variable moment of truth was considered to be the evaluation of the claim management. Given the characteristics of the specific service context, claim management fulfills the conceptualization of the moment of truth as defined by Voorhees *et al*. (2017), which considered moments of truth to be a critical incident that can impact customer's impressions of the firm. The following equations indicate the proposed model:

$$MOT_{it0} = \alpha_0 + \beta_1 MOT_{it-1} + \beta_2 HUM_{it0} + \beta_3 DIG_{it} + \beta_4 PHYS_{it0} + \beta_5 PROCES_{it0} + \varepsilon_{it}$$

$$PROFIT_{it1} = \alpha_0 + \beta_1 MOT_{it0} + \varepsilon_{it}$$

$$RETEN_{it1} = \alpha_0 + \beta_1 MOT_{it0} + \varepsilon_{it}$$

$$CROSSBUY_{it1} = \alpha_0 + \beta_1 MOT_{it0} + \varepsilon_{it}$$

To empirically test the proposed model, we relied on the Generalized Method of Moments (GMM) estimations (Arellano and Bond, 1991; Blundell and Bond, 1998). We opted for this estimation given that other methods for analyzing panel data such as fixed-effects estimations and random-effects estimations refer to static panel data models. Static models indicate that the dependent variables are not influenced by their own values from the past (Egger and Pfaffermayr, 2005). However, the relationships of the proposed model are dynamic over

time and, thus, they are not appropriate static panel data estimations; thus, we developed estimations based on the GMM estimator. Through this methodology, we used the lagged values of the dependent variables as instruments so as to control for endogeneity (Ullah, Akhtar and Zaefarian, 2018). Employing a panel dataset also present further advantages such as controlling possible measurement errors (Wansbeek, 2001), and reducing estimation bias and data multicollinearity (Hsiao, 1985).

Table 1: Operationalization of variables

Variable	Operationalization	References
Human touchpoint	Customer i's evaluation of the interaction with the employees of the service provider.	Zomerdijk and Voss (2010); De Keyser *et al.* (2020)
Digital touchpoint	Customer i's evaluation of the interactions through digital channels.	De Keyser *et al.* (2020)
Physical touchpoint	Customer i's evaluation of elements pertaining to the physical environment related to the service experience.	Bolton *et al.* (2018); De Keyser *et al.* (2020)
Service process	Customer i's evaluation of the service process across all stages.	Zomerdijk and Voss (2010); Huang and Rust (2021)
Moment of truth	Customer i's evaluation of a critical incident between a customer and a provider that influences their impressions of the firm.	Voorhees *et al.* (2017)
Profitability	Difference between revenues earned from customer i and the cost associated with the customer i during t: Profitability = Revenues – (Direct cost + Indirect cost + Business development).	Pfeifer, Haskins and Conroy (2005)
Customer retention	Dichotomous variable, yearly measured: Customer i's decision to remain with the current provider at the time t (yes: 1; no: 0).	Verhoef (2003); Dawes (2009); Cambra-Fierro *et al.* (2021)
Customer cross-buy	Number of product categories purchased from the same provider.	Kumar, George and Pancras (2008)

RESULTS

In order to check the model fit, several tests have been performed. The Hansen test indicates the validity of instruments. The results of the Hansen test were checked for the estimation of each equation and the findings confirmed the validity of the instruments. Additionally, the Wald test was significant ($p < .01$) and the results of the Arellano-Bond test for second order (AR2) were appropriate, which further corroborates the validity of the model. The results obtained are available in table 2.

Table 2: Estimation results

Independent variables	Dependent variables			
	Moment of truth (t_0)	Profitability (t_1)	Customer retention (t_1)	Customer cross-buy (t_1)
Intercept	0.0563***	4020.04***	0.5939***	3.6622***
Moment of truth (t_{-1})	0.3251***	—	—	—
Human touchpoint (t_0)	0.2591***	—	—	—
Digital touchpoint (t_0)	0.1408**	—	—	—
Physical touchpoint (t_0)	0.1774*	—	—	—
Service process (t_0)	0.3838**	—	—	—
Moment of truth (t_0)	—	0.1866***	0.0793*	0.2112***

Note: ***$p < .01$, **$p < .05$, *$p < .10$.

In view of the results of the estimation, all relationships proposed are confirmed. However, some differences can be observed. The evaluation of the past moment of truth exerts a significant effect on the evaluation of the current moment of truth (β = .3251, $p < .01$). This indicates that, during critical times, customers rely on past events to develop predictions of the future and the history with the provider matters in evaluating critical moments.

As regards the customer-firm touchpoints analyzed, the human touchpoint presented a significant effect on the moment of truth (β = .2591, p < .01); thus, H1 is supported. In fact, of all touchpoints examined, the human touchpoint was the most important one for determining the evaluation of the moment of truth. The digital touchpoint also positively influences the moment of truth (β = .1408, p < .05), although it presents the smaller effect of all touchpoints analyzed; therefore, H2 is supported. Last but not least, the physical touchpoint was also found significant (β = .1774, p < .10), supporting H3. Concerning the effect of service process, our findings indicate it positively affects moment of truth (β = .3838, p < .05); therefore, H4 is also supported. As a matter of fact, of all elements examined, the service process exerted most influence on the moment of truth.

Regarding the hypotheses related to the influence of moment of truth on future customer outcomes, the results indicate it positively affects future profitability, customer retention and customer cross-buy. In this sense, our findings corroborate that the effect of the evaluation of a moment of truth has the power to determine the future customer profitability (β = .1866, p < .01); as a result, H5a is supported. Customer retention was also found influenced by the moment of truth (β = .0793, p < .10); thus, H5b is supported. Lastly, moment of truth also influences customer cross-buy (β = .2112***, p < .01), supporting H5c. All this evidence corroborate that moments of truth play an important role in determining future financial and behavioral outcomes.

DISCUSSION AND CONCLUSIONS

Given the importance of moments of truth during the B2B customer journey, this study set out to analyze to what extent a series of touchpoints and the service process affect the moment of truth, and the role moment of truth plays in determining customer outcomes, crucial for the continuity of the business relationship in a B2B setting. The findings provided by our analysis corroborate the effects proposed, yet some aspects deserve further consideration. In what follows, we present a discussion on the contributions and implications of this research for academic literature and best practice alike.

Theoretical contributions

First, this pioneering study contributes to the literature by providing the first empirical evidence on a critical topic that has been overlooked by the literature. The importance of moments of truth has been acknowledged by academia (e.g., Lemon and Verhoef, 2016; Voorhees *et al.*, 2017) and practitioners (e.g., Gartner, 2016) alike. Conceptual and exploratory studies urged researchers to provide empirical evidence on the significance of moments of truth. However, to the best of our knowledge, no empirical research has specifically focused on what elements affect moments of truth and their specific influence on customer outcomes. In this context, this research fills in important research gaps in the literature and opens up further lines of research on developing a more profound understanding of this topic.

Second, this study further contributes to the customer experience and customer journey literature by answering calls for research on analyzing how touchpoints of different nature work together (De Keyser *et al.*, 2020). In this sense, we corroborated that, specifically for B2B customers, the most important touchpoint affecting the assessment of the moment of truth is by far the human touchpoint. This is comprehensively as prior research indicated that, in B2B relationships, interactions with employees are vital for the continuity of the relationship (e.g., Shi *et al.*, 2017). Through customer-employee touchpoints, bonds are created and interpersonal connections prove to be vital during difficult moments (Delcourt *et al.*, 2017). As a result, our findings support prior studies acknowledging the importance of human interactions in B2B relationship.

However, what is more surprising is that, after human touchpoints, the physical touchpoint was the second touchpoint in importance, while digital touchpoints came in last. These are remarkable findings, as it is corroborated that physical surroundings are still relevant for B2B customers. In consumer markets, the physical environment appears to become increasingly more connected to the digital world, as retailers are expected to also provide in-store virtual touchpoints using augmented reality and other smart technologies (Gäthke, 2020). Nevertheless, for B2B customers, physical surroundings were found more relevant than digital touchpoints in determining the evaluation of the moment of truth. It is true that digital touchpoints have become ever more prevalent for business customers as well (Kauffman and Pointer, 2021), yet our findings indicate that the physical environment is still more important. Yet, it remains to be seen if this will still be the case in the near future. The increasing frequency of online interactions and the foreseeable impact of the

COVID-19 pandemic might have accelerated the trend towards the importance of digital touchpoints. Future research will reveal if the consequences of the pandemic have thoroughly changed the way businesses interact in favor of more digital touchpoints or if, on the contrary, business customers will remain more focused on interpersonal interactions through human and physical touchpoints.

In addition, we also contribute to the literature by answering call for research on the interplay between different touchpoints (Becker and Jaakkola, 2020), by focusing on the impact of a series of touchpoints on the moment of truth touchpoint. What is more, we took a step forward and focused on the dynamic nature of touchpoints, as they can affect each other and customer outcomes in the future, by employing longitudinal data. This is an important contribution to the customer experience and customer journey literature in the B2B setting, as B2B studies are very limited and longitudinal approaches are virtually non-existent. Thus, we corroborated the effect of some touchpoints on others, while also demonstrating their importance in determining future customer outcomes.

Finally, the findings of this study also contribute to the service literature by providing empirical evidence of the importance of service design through customer-firm touchpoints and the service process in determining positive assessments of moments of truth. In this sense, we found that the overall service process was the most important element in determining the evaluation of the moment of truth. Prior studies acknowledged the relevance of the service process (e.g., Zomerdijk and Voss, 2010; Huang and Rust, 2021), yet there was no empirical evidence of the linkage between service process and moment of truth. In this context, our findings are especially important for the marketing and service literature, as the significance of providing a superior service process along the customer journey and especially during critical moments is corroborated.

Managerial implications

The findings of this study also present important implications for practitioners. First, we encourage practitioners to identify and properly monitor the customer's assessment of moments of truth given their specific context, service and industry. As stated before, moments of truth occur in every customer journey, yet they are different depending on each specific context (e.g., Demangeot and Broderick, 2016; Kashif *et al.*, 2016). Thus, we urge practitioners to accurately identify the moments of truth of their customer's journey, so as to constantly improve them; next, they need to keep track of how customers evaluate these critical moments, given their vital consequence on relevant customer outcomes and the continuity of the business relationship.

Second, by considering the impact of three types of touchpoints (i.e. human, digital and physical), this research has enormous implications for resource allocation and management of omnichannel interactions. Through a proper resource allocation, firms can focus and invest substantially more in the human touchpoint, as it was found most important for B2B customers. However, even though there were differences in their impact, all types of touchpoints have a significant role in determining the moment of truth. Given the influences of digital and physical touchpoints, we believe these findings could be especially relevant for omnichannel management. Thus, we recommend companies to properly coordinate different channels so as to provide seamless experiences at every touchpoint and a perfect integration of all channels (Alonso-García, Pablo-Martí and Núñez-Barriopedro, 2021).

Third, the service process was found to be the most important element influencing moments of truth. This finding presents interesting implications to practitioners from a service design perspective (Teixeira *et al.*, 2012). Thus, we recommend managers to invest in developing a service process suitable for each customer journey. Through service design tools, companies can further improve and adapt their service process and, thus, properly support their customer during critical moments.

Last but not least, given the proliferation of customer-firm touchpoints, providers nowadays have at their disposal increasingly more valuable data con customer behavior, given mainly by interactions through new technologies (Bacile, 2020). On this basis, a recommendation for managers would be to employ customer relationship management (CRM) systems and big data analytics (Hallikainen, Savimäki and Laukkanen, 2020), so as to successfully harness these data and encounter new opportunities for mitigating critical moments.

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MIGRATING FROM OCCASIONAL DONOR TO REGULAR MEMBER: GAINING CONSENT MARKETING AS A KEY FACTOR IN LONG-TERM RELATIONSHIPS

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ABSTRACT

Relationship marketing has been key to developing stronger relationships and promoting donor continuity in nonprofit organizations. Taking a relationship orientation approach, this study investigates the effect of consenting to direct marketing on occasional donors' decision to become regular members, as well as the moderating role of past donation behavior (i.e., frequency and amount). Donors who give consent to direct marketing are more likely to develop a long-term relationship as regular members. This effect is reinforced when donors have contributed greater amounts in the past. Moreover, through their membership, donors who consent to direct marketing provide greater financial support on an ongoing basis.

INTRODUCTION

Over the past few years, a managerial approach that considers member relationships as key organizational assets has become increasingly dominant in the priorities and practices of many nonprofit organizations (Drollinger, 2018). As a result, nonprofits have embraced relationship marketing and invested heavily in activities directed at satisfying donor demands and expectations, as well as in building strong relationships with donors (Bennett and Barkensjo, 2005; Camarero and Garrido, 2012). However, previous evidence shows that not every individual is willing to form close or enduring relationships with organizations, with many preferring instead to develop more functional or transactional exchanges (Dalziel, Harris, and Laing, 2011). In the case of nonprofit organizations, some reports point to individuals' increasing reluctance to engage with charities, showing that a substantial number of people tend to donate only once, or for a short period of time, to a specific charity and it is only a minority who prefer to maintain long-term relationships with these organizations (Bekkers, Gouwenberg, and Schuyt, 2020). Prior work suggests that the relationship orientation of individuals falls along a continuum, from a strong inclination to develop close and intimate relationships with firms to a desire to engage in purely functional transaction-focused exchanges (Dalziel, Harris, and Laing, 2011; Dwyer, Schurr, and Oh, 1987). While the literature has devoted a significant amount of research to demonstrating the positive impact of developing strong relationships with customers (Hennig-Thurau, Gwinner, and Gremler, 2002) and identifying the elements that lead to the formation and development of customer–firm relationships (Bolton, Lemon, and Verhoef, 2004), little is known about the differences between consumers who want to form relationships with organizations and those who are reluctant to do so. With nonprofit organizations making major investments in relationship marketing initiatives, it is essential for them to get a better understanding of which individuals they are most likely to form relationships with. However, there is hardly any research on factors that indicate which individuals are more likely to become regular donors; such insights could help nonprofits develop relational or transactional marketing actions in a more meaningful way (Sargeant and Lee, 2004).

This study aims to examine whether an occasional donor may want to develop a relationship with a nonprofit organization by becoming a regular member. This work focuses on the effect of consenting to direct marketing and analyzes the extent to which individuals' willingness to share their data with the nonprofit can affect whether they will engage in an enduring relationship with it. In addition, this study considers past giving behavior as a key moderating factor that may help to better understand the circumstances under which consenting to direct marketing communications leads donors to want to establish a longer and more stable relationship with the organization. Second, this study investigates the donation amounts of the individuals who decide to become regular members of the nonprofit during the first year of their membership, as well as whether their consenting to the direct marketing played a role in driving these amounts. This study addresses overlooked research on relationship marketing in the nonprofit field and explores the effect of gaining consent

for personal communications. This study provides a useful guide for fundraisers to manage consent marketing more effectively in an attempt to form better relationships and promote more donations.

THEORETICAL FRAMEWORK

Consenting to direct marketing and its influence on long-term relationships

When deciding to consent to direct marketing, individuals know that they have to disclose personal contact information, and that they are giving permission for managers to send them marketing communications (Chang, Rizal, and Amin, 2013). Individuals who form expectations about the relationship in terms of future obligations and mutual reciprocity are also those who show a greater need to communicate with the organization by consenting to receive information from it (Bruneau, Swaen, and Zidda, 2018). Signing up for an organization's mailing list has been proposed as an element capable of capturing the individual's desire to engage in relationship marketing activities (Ashley *et al.*, 2011) and therefore, it can help identify those who might want to develop a stronger relationship with the organization. Previous research also suggests that donors who engage in relationship marketing activities are those most likely to form expectations of continuity (Ashley *et al.*, 2011), and tend to develop higher levels of commitment and the need for greater reciprocity, with which they seek a balance between "giving" and "receiving" (Fournier, Dobscha, and Mick, 1998).

Based on this discussion, we expect that consenting to direct marketing reveals a donor's desire to engage in communications, as well as in a longer-term relationship with the organization. Moreover, we expect that these donors will show a higher predisposition to committing, such as through becoming regular members. Hence,

H1. Occasional donors who consent to direct marketing communications will be more likely to become regular members.

The moderating effect of past giving behavior

In performing segmentation strategies, managers also need to consider other behaviors that will allow them to identify which individuals may want to develop stronger relationships with the organization (Lin, Boh, and Goh, 2014). Previous work has suggested donation behavior as one of the most relevant factors reflecting heterogeneous motivation for charitable giving (Zhong and Lin, 2018). Accordingly, retention strategies have been recommended for those individuals who have shown signs of loyalty in the past through a higher donation frequency and greater donation amounts. Prior evidence has shown that individuals with more activity in the organization—through higher frequency purchases or service usage—are those who are expected to stay longer in the organization (Reinartz and Kumar, 2000). Those who interact more frequently feel closer to the marketers, and therefore more receptive to the relationship marketing programs that allow them to get more value from their interactions (Ashley *et al.*, 2011). Donors who give multiple gifts to an organization may assign greater value to their relationship with it (Waters, 2008) and demonstrate a high degree of participation in activities, as well as active, regular giving behavior (Zhong and Lin, 2018). Waters (2008) also demonstrates that major gift donors (those who provide the largest donations) evaluate the relationship as being more communal – where organizations and individuals provide benefits to each other because they are concerned for the common well-being (Waters, 2008). For these donors, receiving communications from the organization could mean knowing more about it or even receiving recognition for their financial effort as donors. These communications generate greater value for the donors, increasing their satisfaction and thus their commitment to continuing the relationship (Ashley *et al.*, 2011; Bolton, Lemon and Verhoef, 2004). Hence, we propose the following hypotheses:

H2. The positive impact of giving consent to direct marketing communications on the likelihood of becoming a regular member is stronger for occasional donors who have donated more frequently in previous periods.

H3. The positive impact of giving consent to direct marketing communications on the likelihood of becoming a regular member is stronger for occasional donors who have donated higher amounts in previous periods.

Consent to direct marketing communications and its influence on the nonprofit's success

Studies recognize that the success of a nonprofit organization is based on obtaining significant financial resources from its supporters, so that it is able to execute its projects and fulfill its mission (Bennett and Barkensjo, 2005; Drollinger, 2018). When an individual identifies with the organization, a deep, committed, and meaningful relationship can exist (Bhattacharya and Sen, 2003). This leads to a stronger willingness to invest effort in maintaining the relationship, greater feelings of affiliation (Morgan and Hunt, 1994), and greater interest in personalized interactions (Ford, 2001). For members who value the organization's communication, having access to content and information is one of the most significant reasons for joining the organization (Waltham, 2008). Likewise, those who appreciate regular communications, find organizational messages useful, and assign high value to the service offered by the organization are those who show a greater willingness to share personal information and who tend to buy more frequently and spend more (Leppäniemi, Karjaluoto and Saarijärvi, 2017). Accordingly, we hypothesized:

H4. Regular members who had previously consented to direct marketing communications when they were occasional donors will contribute greater donation amounts to the organization.

METHOD

The research context is a nonprofit organization in a European country. The database contains longitudinal information for a period of seven years (2013-2019). The sample consists of 1,719 occasional donors (some of whom became regular members during the studied period). The operationalization of the focal variables of the study is:

Membership: binary variable capturing the decision of the occasional donor i to register as a regular member of the organization in year t, taking the value 1 if registered, and 0 if not; Consenting to direct marketing (CDM): binary variable that takes the value 1 if the occasional donor i provides their email to the organization for marketing communications purposes, and 0 otherwise; Donation frequency: average frequency used to donate by donor i in the previous periods (t-1 ...t-n); Donation amount: annual average (log-transformed) of all contributions made by occasional donor i in the previous periods (t-1 ...t-n); and Regular donation amount: annual amount (log-transformed) given by donor i in the first year of membership.

To derive the parameters of interest, we employed the Heckman's (1979) two-stage correction approach. In the first stage model, we used a probit regression in which the dependent variable was *Membership.* For the second stage, an ordinary least squares (OLS) model estimation was performed. In this stage, the dependent variable was *Regular donation amount*.

RESULTS

In Table 1, the results reveal that consenting to direct marketing communications significantly influences the probability that an individual will register as a regular member ($\beta = 1.083$; $p < .001$), supporting hypothesis H1.

Table 1: Estimation results of the Heckman's model (two stage correction approach)

	First stage (probit)	Second stage (OLS)
Intercept	-1.852**	-1.867*
CDM	1.083***	.764***
Past behavior		
Frequency	-.058***	.089***
Amount	-.197***	.482***
Interactions		
CDM x Frequency	.018	-.016
CDM x Amount	.034	-.099**
Controls		
Female	.056	-.034
Income	.381***	.513***
NGO's negative news	-.262***	

IMR (Inverse Mills ratio)	-.191**

Notes: ***p<.01; **p<.05; *p<.10. Number of observations = 3,395; Censored observations = 2,405; Uncensored observations = 990.

The results show that obtaining consent for direct marketing communications could be more effective, and thus could increase the probability of occasional donors becoming regular members, for donors who had donated more frequently and in greater amounts in previous periods. However, these interaction effects are not significant. In Table 1, we also report the coefficient estimates for the results from the second stage model of the truncated OLS estimation. Our data indicate a positive main effect of consenting to direct marketing on the amount donated by regular members (β = .764; p < .001).

In addition, we tested the robustness of the first stage model—the decision to become a regular member—and turned to survival analysis techniques, which enabled us to model the timing and occurrence of the event of interest, registering as a regular member (Membership). The parametric form used in this study is the complementary log log (cloglog) model. In Table 2, the findings support hypothesis H1. We also find that consenting to direct marketing communications could be more effective in those who have donated greater amounts in previous periods (β = .115; p < .10) and may lead those donors to become regular members, thus supporting hypothesis H3.

Table 2: Alternative model specification results with complementary log log model

Dependent variable: Membership	Cloglog model
Intercept	-.979
CDM	.621*
Past behavior	
Frequency	-.122***
Amount	-.233***
Interactions	
CDM x Frequency	.072
CDM x Amount	.115*
Controls	
Female	.045
Income	.371***
NGO's negative news	-.502***

Note: ***p<.01; **p<.05; *p<.10.

DISCUSSION

This study provides insights into the influence of consenting to direct marketing communications on an occasional donor's predisposition to form a closer relationship with the organization. In doing so, we contribute to existing research that points to the importance of taking a multidimensional approach to the types of relationships consumers may establish with service providers and developing segmentation strategies based on these consumers' relational expectations (Dalziel, Harris, and Laing, 2011; Palmatier *et al.*, 2006). We also heed the call for more research on the effect of receptiveness to relationship marketing on the actual behavior of individuals (Ashley *et al.*, 2011). By identifying and testing this factor, we make a significant contribution by proving that those donors who give consent to direct marketing communications—with a more relational orientation—are those more likely to develop a long-term relationship as regular members and collaborate with the organization. Our results show that a higher frequency of giving, as well as higher amounts donated, does not always lead donors to want to make a long-term commitment. This study provides a better explanation as to why some donors, despite their giving behavior, do not want to engage with the organization.

Our results reveal that donors who contributed significantly during past periods and are also receptive to receiving marketing communications are those who tend to be part of the organization's regular membership

portfolio. This study converges with previous research suggesting that donors follow different longitudinal patterns, and that those more active in giving (either by giving a greater number of gifts per year or larger sums of money) may be more responsive to marketing communications and solicitations from the nonprofit (Shen and Tsai, 2010). This result underscores the importance of taking into account factors other than giving behavior when explaining donor loyalty and commitment to nonprofit organizations. The findings reveal that regular members who consent to direct marketing communications not only show greater interest in interactions with fundraising managers (Ashley *et al.*, 2011), but also support the organization financially in a remarkable way.

The results in this study highlight the need for nonprofits to recognize that there are different reasons why their donors financially support social causes, and that not everyone wants to form strong and close relationships with the organization. Regardless of the channel donors use to donate, fundraisers should ask their donors—the first time they donate to the organization, as well as sporadically later on— if they would like to receive communications from the organization. Additionally, fundraisers can offer different types of communications (e.g., news, periodic newsletters, course offerings, volunteer activities, or event participation) and frequency with which they send these communications. By doing this, managers will be able to collect the responses from their donors in their database systems and use these responses as key criteria to profile and segment their donor groups. In this way, managers will be able to efficiently apply more transactional or relational marketing strategies. Our findings tested the moderating role of past giving behavior and suggest that donors who give larger amounts and who have simultaneously consented to receive direct marketing communications are more likely to become regular members of the organization. Managers should note these simultaneous behaviors of their donors and accordingly develop strategies that accommodate giving behaviors. Some interesting communications that fundraisers can send to promote more collaborative behavior in these donors include requests for regular financial support (i.e., registration as a regular member) and additional support for other social causes or campaigns that aim to cover emergency situations in which large sums of money need to be collected quickly. Fundraising managers can also send news about upcoming events whose purpose is to promote the organization and raise the funds needed to maintain its daily operations.

Finally, our findings provide important insights for nonprofit practitioners who seek regular member loyalty and the maintenance of good and profitable relationships. The results indicate that once regular members have decided to commit to frequent donations to the organization, the ones who share personal information in exchange for marketing communications are more profitable for the organization (they donate greater sums of money). Keeping these major donors loyal becomes one of the most important challenges for fundraisers (Drollinger, 2018; Waters, 2008), who should be able to achieve high levels of satisfaction and trust among these donors (Ashley *et al.*, 2011). To maintain or increase the level of trust, managers must turn to relationship marketing tools to provide relevant information that reflects accountability. Long-term financial supporters can demand greater transparency and up-to-date information on the organization's work and results in order to verify the effectiveness of its activities. Since maintaining regular donors also entails significant costs, it is imperative that the communications they receive include interesting and attractive content to them. By regularly updating their systems to include the type of communication their donors want to receive, nonprofits can achieve higher levels of donor satisfaction (Bolton, Lemon, and Verhoef, 2004; Ashley *et al.*, 2011) and consequently, can increase the likelihood of donor retention and achieve better financial results. Therefore, fundraising managers should strive to gain donors' consent to receive direct marketing communications and permission to access their data, so that they can provide appropriate information and thus ensure successful relationships.

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UNRAVELING THE PHYSICAL/DIGITAL DILEMMA IN HEALTHCARE SERVICE SYSTEMS IN THE LIGHT OF A STRUCTURE/SYSTEMS VIEW

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ABSTRACT

Reflecting upon lessons learnt from the COVID-19 pandemic in Italy, this study discusses the need to shift from hospital to community/home care leveraging the digital technologies. Specifically, first, the main healthcare service settings are compared in the light of the structure-systems lens to detect elements useful to characterize the physical, digital, and social realms of the service experience, as proposed in an integrated three-dimensional framework. Then, focusing on the example of telerehabilitation, the shift to digital care is reconceptualized through the VSA information variety model (IVM) highlighting how the cognitive view of service interaction contributes to unraveling the possible physical/digital dilemma.

INTRODUCTION

In the emerging post COVID-19 pandemic digitized world, digital care is becoming an imposed service innovation (Heinonen and Strandvick, 2020). In this rapidly evolving context, it is necessary to understand how the digital technologies change the traditional physical and social dimensions of service systems. In this respect, Bolton *et al.* (2018) underline the need of integrated views of the digital, physical, and social realms, so far investigated autonomously. A general necessity of integrated frameworks has long been highlighted by service science (Pakkala and Sprohrer, 2019) and by the systems views of service (Barile and Polese, 2010). The need to overcome the still dominant siloed view of actors' linkages in healthcare eco-systems is particularly underlined in the case of social health (Aksoy *et al.*, 2020). Hence, while the introduction of digital care cannot be procrastinated, a reconceptualization of the health service, hence, a rethinking of the way we frame and approach these integrated views, is necessary (Oudshoorn, 2009).

Inspired by the COVID-19 experience in Italy, which is highlighting the need to enhance community/home care, this study aims to discuss how the shift from hospital to community/home service leveraging digital care characterizes the physical, digital and social realms of service and may impact the humans' perceptions of the physical and digital dimensions of service. In Italy, the experience of the pandemic provides evidence of different approaches to the delivery of the healthcare service (Binkin *et al.*, 2020), which essentially range between two of the three main groups of essential levels of care (Livelli Essenziali di Assistenza, LEAs): hospital care and community care (in addition to preventative care) (Saviano, 2012; Saviano, Bassano and Calabrese, 2010). One of the main lessons learnt from this (still ongoing) experience is the need to shift, when appropriate, from hospital to community care. This shift, however, requires a deep rethinking of the way community care is currently delivered in many Italian regions (Evans *et al.*, 2020).

Physical distancing for delivering health services in safety, and remote presence for allowing users to be remotely present at one place while physically distant are two of the most advanced e-health innovations (Heinonen and Strandvik, 2020). These types of innovations emphasize the alternative between physical and digital delivery of service that strongly impact the interaction between the care provider and the patient. In fact, "telehealth-care cannot simply replace physical consultations without changing the nature of health care" (Oudshoorn, 2009) (p.1).

Several elements contribute to increase the complexity of telehealth implementation. Many studies have been conducted to investigate the shift toward telehealth and telemedicine both theoretically and practically. The major focus is on the technology acceptance problem showing that anxiety, computer self-efficacy, innovativeness, and trust are the most influential factors affecting the adoption of new healthcare technologies (AlQuda *et al.*, 2021). However, research gaps are highlighted as well, indicating that "theoretical perspectives that capture the dense and intricate relationships and structures required to enact sustainable change are less well represented in the eHealth literature"; and adding that, given the growing

complexity of eHealth implementation, research is needed to "develop and test models that recognize and reflect the multidimensional, dynamic, and relational nature of this process." (Heinsch *et al.*, 2021, p. 1). In fact, digital technologies, such as telemedicine, will dramatically impact many realms of our life, with "large-scale systemic shifts, and changes in how governments, corporations, the scientific community and the public interact" (Zimmerling and Chen, 2021) (p. 1).

To contribute to addressing these gaps, this study provides conceptual insights about the implications of the digital shift from hospital to community care, using the three-dimensional conceptual framework developed by Bolton *et al.* (2018) as an analytical tool for understanding how the physical, digital, and social realms currently differentiate hospital and community care, and what occurs in these realms when digital care is introduced. Accordingly, the study develops a three-step interpretative pathway through which the hospital and community/home services are: 1) compared through the lens of the *VSA* (Viable Systems Approach) using the structure-systems paradigm; 2) interpreted through the Bolton *et al.* (2018) three-dimensional framework; 3) reconceptualized through the Barile's VSA information variety model (IVM) (Barile, 2009; Barile, Polese and Saviano, 2014). The discussion is conducted having as a reference example telerehabilitation as a solution for shifting from hospital to community/home service. Making possible physical distancing and remote presence, telerehabilitation changes the physical realm of well-established approaches to deliver healthcare service impacting the way professionals and patients perceive the service interaction.

THE MOTIVATION OF THE STUDY: EVIDENCE FROM THE COVID-19 EXPERIENCE IN ITALY AND THE NEED OF ENHANCED COMMUNITY AND DIGITAL CARE

The early evidence from COVID-19 pandemic showed the necessity to adapt existing models to a local context (Evans *et al.*, 2020) and to enhance both community service and telemedicine (Cobelli *et al.*, 2021). The Italian National Healthcare Service (NHS) is regionally based, and local authorities have the control and responsibility for the management of health services, while the national authorities have weak governance power. With differing regional responses, the pandemic accelerated the transition from hospital-centered models toward models centered on the patients and their capacity to co-create value, involving both medical and non-medical practitioners (Cepiku *et al.*, 2021). In this context, telemedicine would have played a relevant role, especially as a solution for addressing the elderly population's poor accessibility to primary health services (Guida and Carpentieri, 2021). However, the facts showed that Italy was not ready for the digital shift in healthcare, despite the embracement of telemedicine since 2018 (Webster, 2020). Italy has shown herself "to be unprepared to manage lockdown patients with chronic diseases, due to limited availability and diffusion of large-scale telemedicine solutions" (Omboni, 2020) (p. 973). This shift, indeed, is nothing but easy as it implies radical transformations of the service delivery systems that cannot be addressed using traditional approaches and under a condition of emergency. Relevant structural and systems changes are required, and service scholars must give a contribution. Accordingly, in the following sections, the shift under focus is discussed.

METHODOLOGY

To understand how the digital shift from hospital to community/home care impacts the multiple realms of healthcare service, this conceptual study incorporates the three-dimensional conceptual framework, developed by Bolton *et al.* (2018) and used as an analytical tool, within a three-step interpretative pathway as follows:

a) *First level analysis*: based on essential literature and having as a reference example the main evidence of the current COVID-19 pandemic in Italy, the two main alternatives of hospitalization and community/home care are compared through the lens of the *VSA* (Viable Systems Approach) (Barile, 2009, 2013; Barile *et al.*, 2012; Golinelli, 2010) using the structure-systems paradigm (Barile and Saviano, 2011). The goal is to identify issues to address when shifting from hospital to community/home care and elements useful to detect the digital, physical, and social dimensions of service.

b) *Second level analysis*: the results of the first level analysis are used to interpret the hospitalization and community/home care services through the Bolton *et al.* (2018) three-dimensional conceptual framework. Subsequently, a focus on telerehabilitation as an example of digital shift from hospital

to community/home care is discussed to highlight the main issues to address in the progress toward digital service.

c) *Third level analysis*: the final step of the proposed interpretative pathway reconceptualizes the shift from the physical to the digital in the delivery of the service through the lens of the Information Variety Model (IVM) (Barile 2009; Barile, Polese and Saviano, 2014) proposing new insights useful to understand how the evolution may impact the subjective humans' perceptions of the physical and digital realms of service.

MATERIALS

In this section the main interpretative materials used in the study are briefly illustrated.

The VSA structure-systems view

The VSA is an interpretative and governance methodology rooted in systems thinking and developed, in the field of the managerial studies, from the Stafford Beer's viable system model (VSM) (Beer, 1989; Espejo and Harnden, 1990) to account for the management of any business or social organization as systemic entities aiming at surviving in their environment (Barile, 2008; Barile *et al.*, 2012; Golinelli, 2010). The key proposal of the VSA is the structure-systems view that, essentially, interprets systems as dynamic entities that emerge from structures depending on the goals subjectively pursued by the involved actors. The system's structure is only a static representation useful to objectively describe how the system is constructed; to understand how the system functions and the possible outcomes of the emerging dynamics, it is necessary to read how the structural components interact based on the goals pursued by the actors involved in the system's functioning. The interpretative framework derived from the VSA *structure-systems* view is used to investigate the phenomenon under focus from a dual structural and systems perspective.

The three-dimensional conceptual framework

The three-dimensional conceptual framework developed by Bolton *et al.* (2018) is used "for analyzing the formation of customer experiences that incorporates the digital, physical and social realms and explicitly considers new technology-enabled services" (Bolton *et al.*, 2018) (p. 778). The three-dimensional space is defined by *low to high digital density*, *low to high physical complexity* and *low to high social presence* forming eight octants. With reference to healthcare, the model highlights opportunities and emerging issues related to the transition from traditional to digital care (Bolton *et al.*, 2018). The increasing use of digital technologies in healthcare (e.g., artificial intelligence AI, Big Data, 3D printing, virtual reality VR, etc.) will make the physical realm and its constraints less relevant. However, humans, both healthcare professionals and patients, must recognize the value of the new technologies to concretely benefit from the progress (Aquino *et al.*, 2018). The point is that "people and organizations must shape the role that technology plays in the design and delivery of the customer experience. Interconnections between devices and platforms have the potential to create complex service systems that – if they fail – could have far-reaching consequences that could be very destructive" (Bolton *et al.*, 2018) (p. 785).

The Information Variety Model

The Information Variety Model is a three-dimensional representation theorized by Barile (2009) that allows to represent any systemic entity in terms of its information variety, i.e., its 'knowledge' identity made up of *information units*, *interpretation schemes* and *values categories*. The information units are the data held and processed by the system. The interpretation schemes (general or of synthesis) represent the cognitive patterns through which information is organized within the viable system's whole variety. The values categories represent the most relevant dimension that characterizes the system's strong beliefs defining the system's unique personality/identity. It is important to note that these three dimensions are not structural but 'systemic', as their meaning depends on the subjective perspective of the observer (Barile *et al.*, 2012). The viable system's cognitive involvement in the service encounter, i.e., in interaction, can be read through the IVM in terms of *information exchange*, *reciprocal understanding* and *values alignment* (Barile 2009; Barile,

Saviano and Polese, 2014). The IVM offers a generalizable way to represent the behaviors of systems considering the subjective views of interacting actors (Barile and Saviano, 2013).

FINDINGS AND DISCUSSION

First level analysis: comparing hospital and community/home care

The main different approaches to the COVID-19 pandemic above mentioned can be traced to the reference cases of the Veneto and Lombardy regions, which were the two most affected regions during the first wave of the pandemic (Binkin *et al.*, 2021). Lombardy pursued a patient-centered approach, relying more on primary care physicians and hospital care. In Veneto, instead, a community-based approach was pursued. Both the regions implemented the full intensive care unit (ICU) capacity (Timelli and Girardi, 2021); however, while the Lombardy approach led to the saturation of patients' beds availability, the Veneto region didn't face such saturation (Binkin *et al.*, 2020). Both the regions started pursuing a division between COVID-19 facilities and non-COVID ones. While the Lombardy region failed to pursue this strategy, due to the saturation of beds, in Veneto the provision of services was guaranteed to both COVID and non-COVID patients, demonstrating that the approach adopted was more effective. In fact, thanks to the community care approach, relying upon a network of healthcare practitioners (Binkin *et al.*, 2020), and on the moving of diagnosis activities to outside healthcare facilities, the Veneto region was able to reduce the spreading of the virus also inside the healthcare facilities. The use of technology was different as well: in Veneto informatics systems for rapid communication on case diagnosis and management and for monitoring bed availability proved to be crucial in pursuing an effective strategy to face the crisis.

Essentially, the main differences between the two regions' approaches, based on the Binkin *et al.* (2020) study, show that the Lombardy region, due to the saturation and subsequent failure in the attempt to manage both COVID and non-COVIV patients, was less effective in the collective management of COVID and non-COVIV patients; moreover, due to a weak organization of community healthcare, Lombardy showed to be less efficient and subsequently also less effective in the collective management of patients. Overall, despite the high reputation of the Lombardy region's hospitals, the management of the pandemic was less effective and sustainable (Bertolo *et al.*, 2020). Clearly, the community care approach shows higher potential in terms of effectiveness, efficiency, safety, and sustainability both at individual and collective level; on the other hand, the community care approach presents a higher level of complexity to manage. Using the structure-systems lens, we summarize the main aspects of the two care settings highlighting elements useful to detect the current relevance of the digital, physical, and social realms and to formulate possible research propositions (Tab. 1).

Table 1: Comparing hospital and community/home care in the light of the structure/systems view

Realms	Hospital care	Community/home care
Physical	Inpatient service settings. Structures more 'visible' physically and systems emerging from the internal structure.	Outpatient service settings. Structures less 'visible' physically and systems emerging from a wide extended structure.
	More defined and 'visible' structural boundaries	Less defined structural boundaries vanishing at the systemic level
	The resources are integrated internally to the service system	The resources are integrated in service eco-systems
	Visible health technology investment	Less visible health technology investment
Social	More formally defined functions, roles, control mechanisms and responsibilities (protocols)	Less formally defined functions, roles, control mechanisms and responsibilities
	Social presence and involvement of the patients' families are low	Social presence and involvement of the patients' families are high
Digital	Low use of digital technologies	Low use of digital technologies
	Infra-structural problems	Infra-structural problems
	Management and capabilities issues	Management and capabilities issues
	Fragmentation	Fragmentation
Complexity	Lower internal structural complexity	Higher external eco-systemic complexity

Source: Authors' elaboration.

As summarized in Table 1, while current settings for hospital and community care substantially differ in the physical and social realms, with different possible problems, they both are currently characterized by very low digital density, showing large margins for reconceiving the integration of the three realms of service.

Second level analysis: shifting from hospital to community/home care leveraging the digital realm of service

The above comparison highlights elements useful to position the two service settings in the three-dimensional conceptual framework, as indicated in Figure 1; and then showing how telerehabilitation can change both the positions of the hospital and the community care settings.

Considering how the various octants are defined in the three-dimensional framework and the way we interpret the three dimensions in the light of the VSA, our view is that, given the current state of the art:

- Hospital care is characterized by service settings in which the physical realm shows low complexity, the social realm low social presence, and the digital realm low density.
- Community care is characterized by service settings in which the physical realm shows high complexity, the social realm high social presence, and the digital realm low density.

Figure 1: Hospital and community care in the three-dimensional conceptual framework
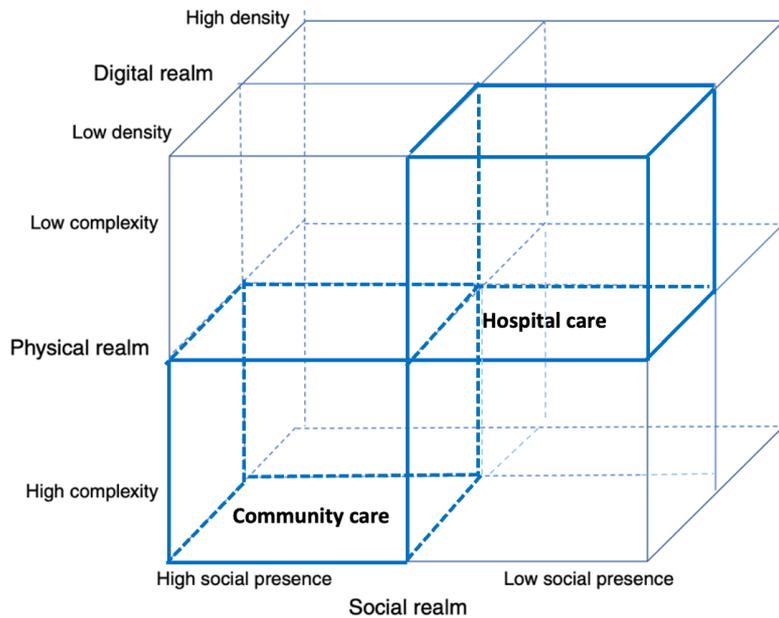
Focus on the telerehabilitation service

Rehabilitative care is the third pillar of the Italian NHS, together with preventative and curative care. It aims to maximize functions and minimize limitations of activity resulting from a disease (Bachman *et al.* 2010). The rehabilitation service can be delivered both in hospital and community settings, depending on the patient's conditions (Italian Health Ministry, 2019) (Cook *et al.*, 2013). Hence, it belongs to both the octants highlighted in Fig. 1. However, there is an effort of providers addressed to integrate rehabilitative care along a continuum from hospital to home, so that patients can experience a system of care (McMurray *et al.*, 2016). By introducing telerehabilitation, when appropriate, this continuum care approach would be not only possible but also more efficient, effective, and sustainable.

Tele-rehabilitation can be considered a branch of telemedicine (Peretti *et al.*, 2017) in which the physical dimension of the treatment meets the digital one. The arising relevance of new rehabilitative protocols is due to both demographic changes and the increased budget allocation in public health (Rogante *et al.*, 2010) leading to the use of telecommunication-based practices during the last years. These protocols also allow to

achieve a cost reduction, compared with hospitalization (Dinesen *et al.*, 2012). Due to the pandemic caused by Covid-19, the awareness and effort to provide care from distance increased (Da Mata *et al.*, 2021). During the pandemic, where implemented, telerehabilitation proved to be an effective way to assure the provision of the treatment, allowing a constant relation between patients and doctors, and ensuring high level of adherence, clinical improvements, and good perceived satisfaction (La Rosa *et al.*, 2021).

Based on its potential, telerehabilitation can make possible a shift from hospital to community/home settings leveraging the high digital density that allows integration of the three realms. Through the three-dimensional framework, it can be noted that the digital dimension of the telerehabilitation service would allow a passage to the octant defined by *high digital density*, *low physical complexity,* and *high social presence* (Fig. 1). Hence, three possible trajectories of change could be observed:

- *From high to low physical complexity (compared to community settings)*: which is due to the possibility to provide rehabilitation services not in presence, enhancing remote service at the same time allowing 24/7 access to telerehabilitation services.
- *From low to high social presence (compared to hospital settings)*: through the digital technologies the higher social presence could increase the value co-created and reduce to organizational risk.
- *From low to high digital intensity (compared to both hospital and community settings)*: due to more intense use of digital technologies that support the delivery of service.

Figure 2: Telerehabilitation as a shift from hospital to enhanced community/home care
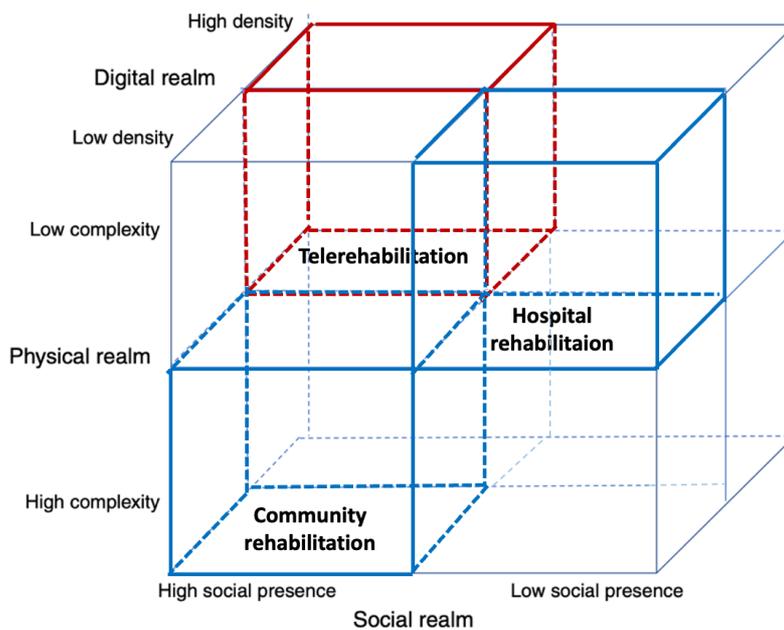
Source: Authors' elaboration from Bolton *et al.*, 2020 (© Emerald Publishing Ltd. Figure used with the permission of the publisher).

The digital shift can be very impactful as it should allow a reduction of the physical complexity at the same time making more effective the management of the higher variety of social actors. This is, however, a challenge of the digital technology because its positive effect is currently only potential and must be made effective addressing all the typical problems associated with the introduction of new technologies starting from the traditional technology acceptance problem (AlQudah *et al.*, 2021). Telerehabilitation can substitute digital and social resources for physical resources; however, "very little is known about automated social presence – such as robots, avatars, augmented and virtual reality – as opposed to humans." (Bolton *et al.*, 2020) (p. 786). In fact, the shift from in-person treatment to telemedicine because of the pandemic (Hilty, 2013) generated several issues, despite technological progress and the various benefits recognized in terms of reduction of isolation, improved motivation and compliance during the service encounter, and the reduction of barriers to access consultations and treatments for frail and less independent persons (Milani *et al.*, 2021). Indeed, professionals believe that "telemonitoring will never replace the in-person encounter between the patient and the professional who cares and provides a biopsychosocial holistic, helpful, in-person encounter"

(Milani, 2021) (p. 2). Moreover, to reduce the physical complexity, it is necessary to integrate the digital and physical realms through technology (Bolton *et al.*, 2018).

Therefore, it is necessary to balance pros and cons with reference to the specificity of cases. In the era of personalized medicine (Lella *et al.*, 2019), easy generalizations could compromise the potential benefits of the digital care. As for telehealth in general, and despite the acceleration due to the pandemic, several concerns, not only related to objective and technical aspects (Jafni *et al.*, 2019; Negrini *et al.*, 2020), but rather related to subjective views of the problems (Milani *et al.*, 2021), still obstruct progress: if the healthcare providers' acceptance of technology is fundamental for the success of telerehabilitation protocols (Brewster *et al.*, 2014) as well as the existence of the structural conditions for effective access to technology, many further concerns emerge from the patients' subjective views and perceptions. Much more than many other types of services, healthcare generally implies a higher involvement of all the physical, affective, emotional spheres of humans' life. In fact, the key element of telerehabilitation is a humanized technological framework thanks to which patients and caregivers can embrace and activate the protocol (Tan *et al.*, 2017). The success of such protocols, indeed, is due to the level of usability for medical doctors (MDs), health practitioners, caregivers, and patients (Caprì *et al.*, 2020). According to Tan *et al.* (2017), a high level of cognition is crucial and depends on the design of technology, the user interface, the integration into rehabilitation protocols, and the integration with human factors in system designing and implementation. Thus, there is a relevant complexity to manage in the shift from the physical/digital to an integrated view of the two realms where humans and technological elements must effectively interact as teams (Simeoni *et al.*, 2021). In fact, it is important to note that the 'shift' does not imply a *physical or digital* choice; rather, it implies a *physical and digital* integration and indicates that it is important the way actors look at this change because their subjective views can be a further source of complexity. This complexity could be deciphered as we propose in the next level of analysis.

Third level analysis: unraveling the physical/digital dilemma in the shift towards digital care

The final step of the proposed interpretative pathway analyzes the shift from the physical to the digital allowed by telerehabilitation through the lens of the Information Variety Model (IVM) (Barile 2009; Barile, Polese and Saviano, 2014) suggesting new insights useful to address the potential problems emerging from the integration of the physical and the digital realms. The integrated view of the multiple dimensions of the service encounters provided by the Bolton *et al.*'s framework allows considering the physical and digital dimensions not separately but rather as integrated. The Barile's VSA IVM provides a further framework useful for recognizing the relevance of the cognitive dimension of service interaction.

According to the VSA IVM, both the physical and digital settings of interaction represent structures adequate for the emersion of the appropriate service system. However, the systemic aspects can significantly impact the effectiveness of the process as they are subjectively perceived through the information varieties of the various actors involved. Accordingly, interpreting the shift to the digital as an alternative to the physical *tout court* means losing an important aspect: an effective service system can emerge from many different structures in which the physical, digital, and social realms can be variously integrated. Although structures are the necessary conditions for the emersion of the system, the effectiveness of the process depends on the systems functioning, i.e., on the way the components dynamically interact; this, in turn, depends on the finalities pursued by the actors involved that should be harmonic (i.e., complementary, or at least compatible) (Barile *et al.*, 2012). Hence, the physicality of interaction only partially impacts the outcome. What mainly impacts the outcome is the cognitive alignment of the interacting actors.

The viable system's cognitive involvement in the service encounter, read through the IVM in terms of information exchange, reciprocal understanding, and values alignment, indicates that they are the values categories the most important factors to interaction effectiveness. In fact, while information sharing is important for communication, and the interpretation schemes are important for reciprocal understanding, they are always the values categories that, in the end, 'approve' or 'refuse' interaction making it successful or otherwise. This is true to the point that, even in absence of information sharing and in a context in which the interpretation schemes do not allow reciprocal understanding, interaction may be brilliantly successful. This is possible because of the alignment of the values categories that overcome any communication problem (Barile and Saviano, 2013).

One of the most effective examples of this information varieties' dynamics is provided precisely by healthcare, where the well-known information asymmetry problem remains irreducible despite formal information sharing (e.g., the informed consent process), due to the wide distance between the interpretation schemes capabilities of the healthcare providers and clients, which would be fundamental for reciprocal understanding. Hence, the values categories act generating the trust necessary for effective interaction.

Both the physical or the digital realms of the different healthcare settings impact interaction not only and not so much for their objective physical or non-physical nature; rather, for the way they are subjectively, hence, cognitively, perceived by the interacting actors. If all actors are cognitively aligned, interaction can be successful independently from physical distancing and remote presence. Accordingly, the distinction between physical and digital realms in terms of physical/non-physical settings appears, when the shift to the digital is appropriate, less relevant itself.

Therefore, in the light of the IVM, the possible physical/digital dilemma can be reinterpreted putting the focus on the *cognitive* dimension of the process. Each dynamic of the system is cognitively processed by the interacting actors through their information varieties significantly determining its outcome. With reference to the example about telerehabilitation under focus, it goes without saying that the remote presence and the physical treatment mediated, for example, by robots obviously impact interaction between the therapist and the patients (Simeoni *et al.*, 2021). The digital shift, in fact, cannot be generalized, as everything in healthcare, which is now going towards an increasing personalization of treatments. However, the point is that in most of the cases, especially of long-term treatments for older patients, delivering the care at home using advanced technologies, like Virtual Reality (VR), for example, could very positively impact the effectiveness of the service. Patients as well as employees should be aware that the professional control of the treatment is a cognitive knowledge-based process even in physical encounters and that the remote presence allows always to be cognitively 'present', if well and responsibly managed. Yet, generalizations are not possible; however, uncertainty in favoring the progress towards digital care would not be beneficial.

CONCLUSIONS, LIMITATIONS AND MAIN IMPLICATIONS

Although it cannot be denied that telemedicine will "never be the same as a physical examination with all of its human qualities of judgment and communication" (Webster, 2020) (p. 1180), progress cannot be stopped and being ready is important. In fact, the complexity to manage will overwhelm us if we do not prepare ourselves for the new reality. Accordingly, despite the limitations of a conceptual study, this paper draws the service scholars' attention to the opportunity of adopting an integrated systems view to reframe the physical, digital, and social integration in the design and management of healthcare service systems abandoning the humans/machine replacement dilemma and opening the minds to the new.

This work provides insight for healthcare ecosystems' actors oriented to innovation (Edvardsson *et al.*, 2018; Kandampully, 2002; Koskela-Huotari *et al.*, 2016) but with concerns about how addressing and really benefitting from the unstoppable digital revolution of healthcare that calls for radical changes and new views in the overall health technology assessment. Hence, the study sheds new light on how interpreting the integration of the physical, digital, and social realms of healthcare service at the same time warning from the real risks of the digitalization process by making clear that they are not the digital technologies that objectively generate risks, but the way humans subjectively use them.

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QUESTIONING THE SUSTAINABILITY OF SHARING SERVICE: WHO WINS AND WHO LOSES

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ABSTRACT

In this study, we question the sustainability of sharing services for individuals, businesses and society from a financial, environmental and social perspective. While previous research has highlighted the positive aspects of the sharing economy, this study takes a critical perspective on the sustainability of sharing services. Based on existing knowledge, we develop a conceptual model for sustainability of sharing services. This research offers several insights for businesses and managers interested in analyzing the sustainability of their sharing services from the perspective of different actors and dimensions of sustainability.

INTRODUCTION

The sharing economy is projected to grow from $15 billion in 2014 to $335 billion in 2025 (Forbes, 2019), and although the covid-19 pandemic might have adjusted the growth curve, the largest sharing economy brands are outgrowing their industry incumbents competitors. Gerwe and Silva (2020) argue that the key feature of the sharing economy is to facilitate sharing of physical objects or human assets with people who do not belong to the same social networks of family, friends, or neighbours. This provides a better use of resources and enables people to share equipment, cars, bikes and provide access to equipment that an individual might not be able to afford. This should have positive effects on the financial, environmental and social dimensions of sustainability, and the sustainability potential of sharing services might lead to reduction in C02 and have additional positive effects on the environment (European commission, 2016).

However, despite its potential, there is a risk that sharing services are not sustainable at all, instead they can turn out to be just the same market exchange practices as before, i.e. used as "share washing" by companies (Curtis and Lehner, 2019). Voices are being raised by societies, firms and individuals that the sharing economy might not be based on a sustainable business model. In Swedish newspapers, it was highlighted that the CEO of Foodora got a raise of 13000% in financial outcome, while their drivers still made about 3 euros an hour and had to pay for their bike and mobile phone (Aftonbladet, 2021). In the UK, Deliveroo has been involved in a legal case on how to view their drivers, as employed or self-employed. In a ruling, the court of Appeal came to the conclusion that Deliveroo riders should be regarded as being self-employed (ICAEV, 2021). The positive reaction of the financial market shows that investors do not want the gig-economy to be governed by more traditional labour legislation. It has also been suggested that car sharing services are used by new customers that now can afford to use a car, instead of existing customers. This means that the number of trips actually increases - and some cities report increased CO2 emissions after introducing car sharing services. Based on the popular press, can we expect the sharing economy to be sustainable in any of the dimensions? Does it lead to better use of resources - or just more use of resources? It is almost a paradox - the more businesses adopt and embrace sustainability, the more the environment continues to decline (Landrum, 2018).

Literature reviews show a clear majority of research on sharing economy stems from management and marketing (Laurenti *et al.*, 2019), with research questions such as why people share (motives) and the role of ratings in sharing services - while its effect on sustainability often is based on the assumption that the sharing economy is positive *per se* for all the different aspects of sustainability. In addition to the risk of unsustainable business models in the sharing economy, there is also a risk that sharing service becomes an empty communication tool, with problematic risks of so called rebound effects (Skjelvik *et al.*, 2017). As an example, the income gained or costs saved by using sharing services (e.g., a cheap taxi trip) could be spent

on consumption of new/additional goods. Then the outcome of the sharing service rebound the total sustainability effect of the sharing service (backfire effect) (Warmington-Lundström and Laurenti, 2020).

In this study, we question the sustainability of sharing services for individuals, businesses and society. Much of previous research has studied the positive aspects of the sharing economy, for example by emphasizing its better use of resources. This study takes a critical perspective on sharing services and identifies the effects of sharing services on the financial, environmental and social dimensions of sustainability. The purpose of this paper is thus to critically discuss and analyse the relationship between sharing services and sustainability and the effect they have on the different actors in the service ecosystem.

SUSTAINABILITY

A first question to be addressed before moving on to sharing services is what is meant by sustainability in general. In general terms, the concept of sustainability has its origin in United Nations (UN) and concerns the long-term ability of society to use and process natural resources and still be able to leave a prospering planet to future generations (Benson and Craig, 2014). Sustainability is built on the three pillars of social sustainability, environmental sustainability, and economic sustainability (Purvis et al., 2018). Arriving from a broad range of schools of thoughts across disciplines, sustainability is not surprisingly vaguely defined. However, at a general level, environmental principles designate environmental performance in terms of reducing resource usage and energy consumption. Economic principles are denominated by terms such as environmental accounting, eco-efficiency, ethical investments and transparency. Last, social principles are guided by responsibility for social issues, human development and equality. (See for example Glavic and Lukman, 2002; Purvis, Mao and Robinson, 2019).

These pillars have emerged over time to cover different aspects of building a society that does not erode its natural ecosystems and that proactively work towards eliminating unjust social differences (see Purvis et al., 2018). The three pillars are interrelated and often an improvement in one of the pillars goes hand in hand with an improvement in the other pillars, such as social inclusiveness, equal distribution of economic welfare, and ecological awareness. As a consequence, improvements in one pillar, such as economical sustainability, might have negative effects on the other pillars in the system. For example, economic welfare might improve at the expense of a healthy natural ecosystem.

In general, the idea behind sharing economy in general and sharing service in particular is connotated with positive aspects of sustainability such as better use of resources, and an alternative mode of consumption (collaborative, sharing, access-based). Through sharing services, idling resources can be more efficiently used and hence reduce the overall consumption. You can argue for sustainability to be a major driver for sharing services; for example, car-sharing services offer new ways of organizing transports that can contribute to sustainability through better and more efficient ways of connecting people. Thus, a transport service is not only a matter of mobility but can also address environmental challenges. While some argue for a "natural greenness" of services based on the immateriality characteristics (Djellal and Gallouj, 2016) with less resource exploitation, other show how services can create re-bound effects and actually have a negative impact on overall environmental footprint (Agrawal and Bellos, 2017). Sharing services cannot be taken for granted to be sustainable per se, instead they need to carefully be evaluated in relation to the effect in all dimensions of sustainability: social inequality, ecological footprints and planetary economical effect.

A DUAL-PROCESS MODEL OF SHARING SERVICE SUSTAINABILITY

Belk (2014) argues that are two commonalities of sharing services, that they build on temporary access and non-ownership models to utilize consumer services and that they rely on the internet to bring this about. The focus of research on sharing services has often been on investigating what a sharing service is (e.g., Acquier et al., 2017; Belk, 2014; Benoit, 2017), the promise with these types of services (e.g., Jiang and Tian 2018). and the drivers behind usage (e.g., Hamari et al. 2016; Minami et al., 2021; Möhlmann, 2015). However, as the field has progressed, several studies have started to address the more ambivalent and contested nature of the sharing services. Among the things that have been brought forward are potential positive aspects of sharing services is that they are recourse efficient, both for businesses and consumers (Leismann et al., 2013) and thus address some environmental concerns. It has also been suggested that sharing services provide attractive features such as flexibility, convenience, access, and economic gains for consumers

(Hamari *et al.* 2016). In addition, sharing services can have pro-social benefits (Guyader, 2018). On the other side, while there are potential with their services, there are scares evidence of these potential benefits. Instead, a number of arguments questioning the sustainability of sharing services has been brought forward.

Based on previous knowledge it becomes clear that sharing services have both positive and negative potential effects on sustainability. We have developed a dual-process model that suggests two competing processes that contribute to the sustainability of sharing services. The overall logic of the dual-process model is that there is a bright and a dark side of sharing services that determine their sustainability. A set of moderators influence to what extent the bright and dark side come to play, i.e. the strength of the positive and negative influences on sustainability. In the next step, the effects on sustainability from the bright and dark side of the sharing service are added and contribute to sustainability of value co-creation. Again, a set of moderators determine how the bright and dark side of sharing services influence the (un)sustainability of value co-creation. Finally, the outcome of the model is the level of sustainability of the sharing service. In the following, we will introduce and discuss the key parts of the dual-process model.

Research has brought forward a number of compelling arguments for the bright side of sharing services. For businesses, sharing services has been suggested as a way to grow the competitive advantage by increasing the attractiveness towards customers and improving the profit margin. At the same time, a number of studies (Heinrichs, 2013) have suggested that there are environmental benefits of sharing services by using resources more efficiently, reducing waste and eliminating unnecessary ownership. For customers, the attractiveness of sharing services lies in their availability, the ease of use and to aid with tasks that previously have taken up a lot of time and effort. In addition, sharing products such as cars and apartments are suggested to free up, time, money and effort for the individual customers as well as increasing their flexibility). At the same time, research has emphasized positive social aspects of sharing services, where customers are more connected to each other. When it comes to multisided platforms such as UBER or AirBnb, it is suggested that sharing services are beneficial for suppliers/workers that can have a more flexible work schedule and only work when they feel they have time and need money. In addition, to be able to rent out your unused property, car or competence has been suggested as attractive features for suppliers.

While research tend to focus on the bright side of sharing services, also dark side aspects need to be recognized. In the "dual process framework" (See Figure 1) four major characteristics on the dark side have been identified. First, new customers use service, implying higher degree of resource exploitation. Second, these types of services can be used for different types of washing behavior among firms (e.g., green washing, woke washing), where the firm hides an unsustainable business model behind a thin layer of greenness or social awareness. Discrimination is also a major concern as this many times is a fundamental for many business models (cheap labor, low wages,). The fourth aspects relate to Loss of control as many sharing services imply a shift and disclaiming of control and competence. Outsourcing knowledge and ownership, might erode the control and agency in the long run.

A key in the dual-process model of the sustainability of sharing services is the moderators, since they decide to what extent the bright and dark side come in to play. Based on the literature review, we introduce (1) one/two sided sharing services and (2) Motives as moderators. We argue that one-sided sharing services (such as M; Volvo) increase the dark side of sharing services, since they introduce these services to new customers, so that the sharing services do replace the use of a car but introduce the service to new customers. However, two-sided sharing services increase discrimination, since some suppliers do not want to share their resources with all customers. This shows the complexity of the introduced moderation effects since these seem to be different for the different dimensions of sustainability. We also argue that there are moderators related to the characteristics of resources that influence the sustainability of value co-creation, see Figure 1.

Figure 1: A dual-process model of the sustainability of sharing services
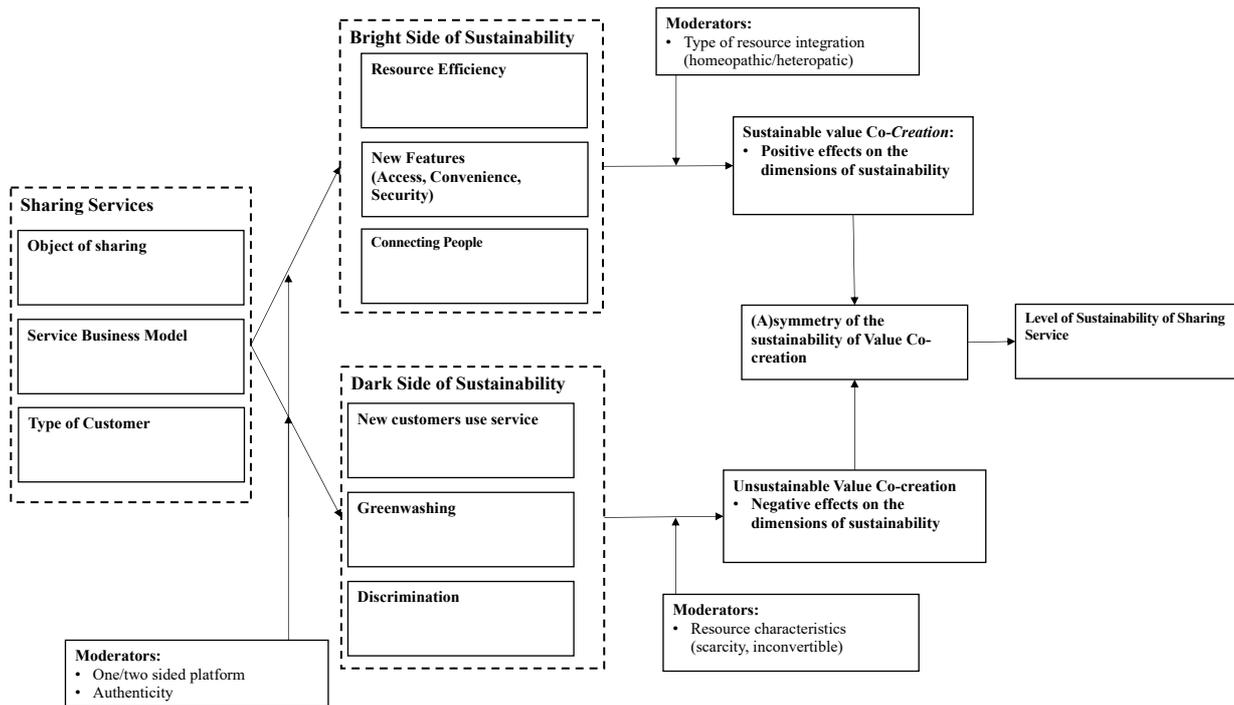
CONCLUSIONS

The present manuscript took a critical perspective to the sustainability of sharing services and developed a dual-process model suggesting that sharing services are not a sustainable alternative to traditional services. Instead, it suggests that there are both positive and negative effects on sustainability and it details what the effects are in the different dimensions of sustainability and how they contribute to the overall level of sustainability of sharing services. Theoretically, sharing services have only positive effects on sustainability such as better resource efficiency, reduced CO_2 emissions and strengthening of the social bonds between consumers. But in practice, sharing services often result in an increased resource use, negative effects on the environment and discrimination. The increased practice of green washing and woke washing can even result in a total negative effect on sustainability, especially for 1-sided sharing platforms driven by financial motives for sharing. The conceptual model needs further development and empirical studies where it can be tested at both the individual customer level or the firm level.

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PLATFORM AUTHENTICITY, SHARING ORIENTATION, AND GRASSROOTS ENGAGEMENT IN THE SHARING ECONOMY

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ABSTRACT

This study explains sharing economy platform usage intention. The results of PLS-SEM estimations based on survey data (N=655) in the context of non-profit carpooling indicate that sharing orientation (i.e. sharing usage instead of owning/buying), grassroots engagement (i.e. non-profit organization driven by volunteers), and platform authenticity (i.e. loyalty to the original carpooling practice) are strong determinants of people's attitudes towards the carpooling platform while trend orientation (e.g., the "sharing economy" paradigm) is not significant. While digitalization can optimize older practices (e.g., hitchhiking), online platforms facilitating contemporary practices (e.g., carpooling) need to be embedded in the original sharing ethos and values to raise usage intention.

INTRODUCTION

The sharing economy is rooted in the ever-changing digital environment, which creates both new opportunities for value creation between market actors in a diversity of sectors and challenges for businesses facing technological adaptation. This paradigm has been defined by marketing scholars as "a scalable socioeconomic system that employs technology-enabled platforms to provide users with temporary access to tangible and intangible resources that may be crowdsourced" (Eckhardt *et al.*, 2019, p. 7). Online platforms have made it easier to organize consumer practices based on peer-to-peer (P2P) exchanges. Similarly to that second-hand markets existed before the Internet, another practice that which has gained popularity with the advent of the sharing economy among consumers and researchers is long-distance carpooling, often used as the archetypical case for collaborative consumption platforms (e.g., Belk, 2014; Eckhardt *et al.*, 2019; Guillemot and Privat, 2019; Guyader, 2018; Hawlitschek *et al.*, 2018a, 2018b). In this paper using the North American terminology, carpooling refers to the practice of drivers and passengers sharing trips by car and splitting the travel costs (which is called ridesharing in Europe, or lift-sharing in the UK). As such, the practice of carpooling is fundamentally different from both ride-hailing services (as offered by Uber) and taxi services, in that no monetary gain is made by carpooling drivers.

Although the sharing economy unicorns have already celebrated their 10th anniversaries, it is estimated that only 4 percent of the European population participate in the sharing economy on a regular basis (European Commission, 2018). More research insights would be beneficial to understand what factors matter most when it comes to increasing intention to participate. First and foremost, there are obvious tensions between the economic and social aspects of sharing economy practices, similar to financial transactions between friends which can get awkward. The particularity of the sharing economy is that it resides in a continuum between two opposite behaviors: i.e. "true sharing" and traditional commodity exchange (Belk *et al.*, 2019; Eckhardt *et al.*, 2019; Habibi *et al.*, 2016). On the one hand, sharing is a pro-social behavior, non-market mediated, and based on shared ownership, while on the other, commodity exchange is an economic behavior, mediated by market relationships between buyers and sellers trading in rights of ownership to possessions. As such, sharing economy platforms blur the lines between the social (communal sharing norms) and economic (market exchange norms) logics of society.

For long, people had been dropping friends off at the airport, taking the dogs out while they are away, or borrowing them their car if necessary — Uber, DogVacay, and Drivy are firms that have digitalized and monetized such P2P practices, respectively. Airbnb too, "is an old idea, being replicated and made relevant again through P2P networks and new technologies. [...] Online exchanges mimic the close ties once formed through face-to-face exchanges in villages, but on a much larger and unconfined scale" (Botsman and

Rogers, 2010, p. xiv). In light of the so-called commodification (Rifkin, 2000) or "transactionalization of life" (Iaconesi, 2017) and the sharewashing debate (Belk, 2014; Bucher *et al.*, 2018; Eckhardt and Bardhi, 2015; Hawlitschek *et al.*, 2018a; Scholz, 2016), more research is needed on how consumers perceive these aspects of commercialization of genuine sharing practices and grassroots movements.

This study contributes to the body of research on the sharing economy in several ways. A refined model of sharing economy beliefs and attitudes is empirically tested. It emphasizes the tensions between the pro-social and economic tensions evoked earlier, considering the influence of a "true sharing" orientation on the part of participants rather than a modern platform in line with the current sharing economy trend. This unique contribution highlighting the importance of sharing orientation, grassroots engagement, and platform authenticity was made possible as a non-profit carpooling service with a well-developed platform was approached. Managerial guidelines are provided regarding the involvement of participants and the authenticity of online platforms — two key factors when it comes to increasing favorable attitudes to participation. Finally, lessons learned from this study are discussed such as how it can benefit commercial carpooling services and other sharing economy platforms, since participants in non-monetary sharing and alternative markets like online swapping, timebanks, toy or clothing libraries, continue to buy and consume from traditional market offerings (Albinsson and Perera, 2012; Guillemot and Privat, 2019; Lang and Joyner Armstrong, 2018; Martin *et al.*, 2015; Martin and Upham, 2016; Ozanne and Ballantine, 2010).

THEORETICAL FAMEWORK AND HYPOTHESIS DEVELOPMENT

Theory of Planned Behavior

According to Ajzen's (1991) Theory of Planned Behavior (TPB) a favorable attitude towards a behavior constitutes the motivation necessary (i.e. the behavioral intention) to actually perform the behavior if an individual also has the ability and believes in its efficacy to do so (i.e. the perceived behavioral control), and when the behavior is considered acceptable or recommendable in society (i.e. norms). The TPB is a widely-accepted framework in service research for investigating whether a particular behavior will be adopted, particularly when it comes to new technologies and services. Other studies in the P2P context based on the TPB aimed to explain platform usage intentions (Abbes *et al.*, 2020; Barnes and Mattsson, 2017; Becker-Leifhold, 2018; Bucher *et al.*, 2016; Ek Styven and Mariani, 2020; Hamari *et al.*, 2016) or self-reported (non-objective measure of) behavior (Hawlitschek *et al.*, 2018b; Huang *et al.*, 2021; Ni, 2021; Roos and Hahn, 2017). However, previous research did not systematically consider social influence (i.e. norms) nor perceived behavioral control in the empirical tests of TPB models (Alonso-Almeida *et al.*, 2020; Ek Styvén and Mariani ,2020; Hamari *et al.*, 2016; Lindblom *et al.*, 2018; Nadeem and Al-Imany, 2020; Ni, 2021). The more complete model that we propose (see Figure 1) aims to explain people's behavioral intention to use a sharing economy platform, which is dependent on their attitude towards the platform, as well as norms and their perceived behavioral control, while controlling for the relevant variables in the context of long-distance carpooling. Therefore, the right-hand side of our model is based on the TPB using the following hypotheses:
H_a *A favorable attitude towards the sharing economy platform has a positive influence on the behavioral intention to use it.*
H_b *Norms have a positive influence on the behavioral intention to use the sharing economy platform.*
H_c *Perceived behavioral control has a positive influence on the behavioral intention to use the sharing economy platform.*

Balancing Pro-Social and Economic Tensions

Bardhi and Eckhardt were the first to point out that "'sharing' is just a fancy word for 'rental'" (Fournier *et al.*, 2013, p. 2702) and that "the Sharing Economy isn't about sharing at all" (Eckhardt and Bardhi, 2015). While academics argued about the definitional issues and boundaries of the phenomenon (cf. Eckhardt *et al.*, 2019), several voices were raised in the popular debate against the "we-washing", "co-washing", or "share-washing" communication practices of access-based service firms and platform businesses (e.g., Zipcar, Uber); hence, it was argued that the "renting economy" or "gig economy" might be better terms for carsharing and ride-

Figure 1: Theoretical Framework.
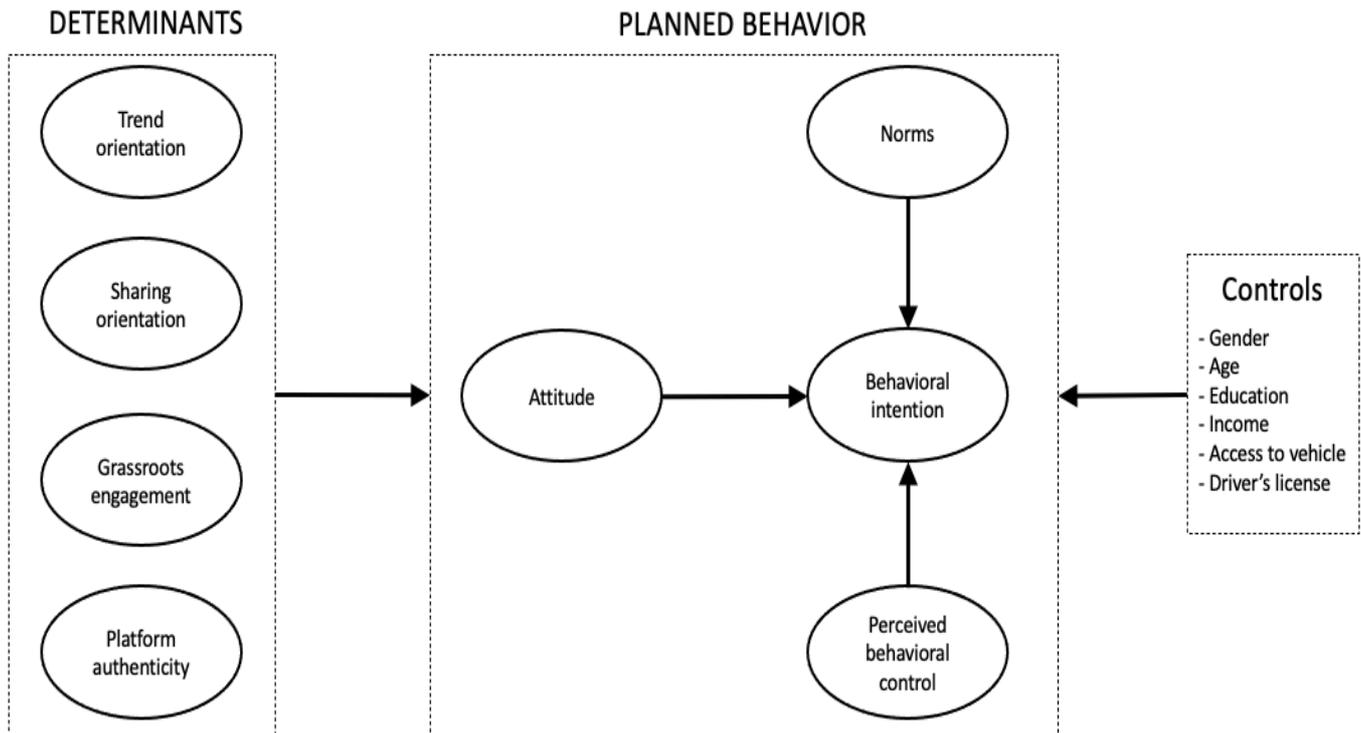
hailing practices (Belk, 2014; Eckhardt and Bardhi, 2015; Scholz, 2016). The proponents of "true sharing" argued that the sharing economy is born out of communitarian, non-monetary, and non-reciprocal acts and processes (Belk, 2010; Ozanne and Balantine, 2010). In opposition to the commercial nature of the contemporary phenomenon, based on rental exchanges between private people, participants in genuine sharing initiatives (e.g., borrowing, swapping, donating practices) were motivated by anti-capitalistic and anti-consumerist ideologies (Albinsson and Perera, 2012; Guillemot and Privat, 2019; Martin and Upham, 2016; Ozanne and Balantine, 2010). In line with previous research, we argue that people who are oriented towards sharing, which we define as the belief that an essential part of life is sharing things with others, are more likely to participate in P2P exchanges. Consequently, we also hypothesize that:

H₁ Sharing orientation has a positive influence on norms, perceived behavioral control about carpooling, and attitude towards the platform, which in turn influence the behavioral intention to use it.

Sharing economy businesses want to be associated with the positive connotations of the word community (i.e. social belonging, collective wellbeing, solidarity, support networks), which describes an existing set of (warm) relationships whereby members (a collective body of people) express a sense of common identity and characteristics. Indeed, consumers are putting an increased emphasis on the authenticity of the sharing experience and platform (Bucher *et al.*, 2018; Hawlitschek *et al.*, 2018a; Lalicic and Weismayer, 2018). Moreover, consumer beliefs about the contradiction between the sharing ethos and the market ethos are likely to influence consumers' platform usage intentions. Hawlitschek *et al.* (2018a) define sharewashing as "a platform operator's efforts of misleading consumers by purposely portraying an image of social and ecological principles while the platform's business model is actually centered around delivering utilitarian value" (p. 2). In other words, a business that indulges in sharewashing is not loyal to the genuine sharing ethos. The perceived sharing authenticity of diverse online platforms, and the definitional issues of the sharing economy phenomenon, are the subjects of many debates. Hawlitschek *et al.* (2018a) found that sharewashing perceptions negatively influence trust in a sharing economy platform (due to an increase in consumer confusion and the perceived risks of using a platform). Meanwhile, hospitality research on P2P accommodation (e.g., Airbnb) showed that the authenticity of the narrative of sharing economy platforms impacts guests' expectations (Bucher *et al.*, 2018), and that one of the drivers of loyalty is the perceived authenticity of the experience (Lalicic and Weismayer, 2018). In business research, consumer-based brand authenticity that is founded on perceptions of heritage and sincerity has long been considered an asset (Napoli *et al.*, 2013). Consequently, we hypothesize that:

H₂ Perceived platform sharing authenticity has a positive influence on norms, perceived behavioral control about carpooling, and attitude towards the platform, which in turn influence the behavioral intention to use it.

Fehrer *et al.* (2018) and Breidbach and Brodie (2017) highlighted the trend of increasing actor engagement in value co-creation processes underpinning sharing economy platforms. That is to say, peer providers and consumers find technical support in using online platforms facilitating their exchanges, in the sense that each side of the platform is dependent on the other and both value mutual engagement. Moreover, the sharing economy phenomenon may have been born out of the digitalization revolution, but it is deeply rooted in grassroots social innovation and the non-profit sector, relying on volunteers work and communities, in the sense that these pro-social values contrast with a commercial orientation (Guillemot and Privat, 2019; Martin *et al.*, 2015; Martin and Upham, 2016). How platform users perceive the engagement of others is likely to influence their attitude towards using a platform. Finally, the platform actors' engagement is also the key to increasing customer loyalty (Kumar *et al.*, 2018). In their study of P2P rental platforms and their interviews with users, Philip *et al.* (2015) denote the "high-involvement" (i.e. great efforts) that these exchanges require. While they consider this high level of involvement in the context of renting goods to be a practical barrier due to the inconvenience, and due to people's attachment to their possessions, we argue that the perception that a platform is both engaged with and supported by its grassroots community (e.g., volunteers) is an advantage rather than a deterrent. Consequently, we also hypothesize that:

H₃ Grassroots engagement has a positive influence on norms, perceived behavioral control about carpooling, and attitude towards the platform, which in turn influence the behavioral intention to use it.

In one of the first sharing economy studies, Moeller and Wittkowski (2010) found that a "belief in a modern lifestyle" was a motive for participating in the P2P rental of clothes. Moreover, Akbar *et al.* (2016) also argued that commercial sharing systems like Zipcar can satisfy people's "desire for unique consumer products" while Lang and Joyner Armstrong (2018) found that a "need for uniqueness" was among the personality traits of consumers renting or swapping clothing. Lastly, one can argue that the digitalization engine of the sharing economy makes it something cool to try out, being representative of contemporary modes of consumption and enabling people to live an access lifestyle (cf. Rifkin, 2000), where owning and accumulating things is not fashionable anymore, while minimalism still is. Consequently, we also hypothesize that:

H₄ Trend orientation has a positive influence on norms, perceived behavioral control about carpooling, and attitude towards the platform, which in turn influence the behavioral intention to use it.

METHOD

To test the hypotheses, we conducted a survey (administered online) of carpooling participants in Sweden: 655 members of the Carpooling Group's (CG) participated in December 2019. The theoretical constructs of our conceptual model were operationalized with measures adapted from previous studies in the sharing economy context, or from marketing research on online communities or brand authenticity (see Table 1). Socio-demographic information was also collected and used as control variables: i.e. income, age, gender, education, how often survey respondents have access to a car, and whether they hold a driver's license.

Table 1: Measurement Items.

Item	N	M	SD	λ
Sharing orientation (based on Akbar et al., 2016)				
I would try to share rides even if the CG* did not exist.	524	5.39	1.80	0.44
I think that it is important to share.	634	5.92	1.27	0.93
I plan to buy less and to share with others instead.	564	5.13	1.74	0.83
Trend orientation (based on Moeller and Wittkowski, 2010)				
Carpooling is a new and unique phenomenon for me.	603	3.63	2.13	0,59
It is important that a carpooling platform looks modern.	583	4.84	1.83	0.67
It is important to follow the latest lifestyle trends.	607	3.00	1.89	0.87
Platform authenticity (based on Napoli et al., 2013)				
The CG represents an authentic sharing culture.	500	5.51	1.43	0.90
The CG is loyal to its original values.	249	5.62	1.33	0.95
Grassroots engagement (own measures)				
It is important to me that the CG is a participatory movement.	573	5.40	1.72	0.73

Item	N	M	SD	λ
It is important to me as a participant to get involved in the CG movement.	563	3.21	1.88	0.91
It is important to me as a participant to get involved in the non-profit association the CG.	563	2.79	1.81	0.88
Attitude towards the CG platform (based on Ajzen 1991, 2019; Hawlitschek et al., 2018b)				
Participating in the CG is a good idea.	606	6.16	1.21	0.83
I like to participate in the CG.	479	5.36	1.60	0.87
Participating in the CG is nice.	425	5.34	1.54	0.90
Norms regarding the CG platform (based on Ajzen 1991, 2019; Hawlitschek et al., 2018b)				
Those who care about me think I should join the CG.	253	3.70	2.15	0.98
Those who care about me prefer me to participate in the CG.	240	3.45	2.17	0.98
I feel an obligation to share rides.	593	3.41	2.03	0.63
Perceived behavioral control of using the CG platform (based on Ajzen 1991, 2019; Hawlitschek et al., 2018b)				
I think it is easy to participate in the CG.	474	4.03	1.87	0.85
Participating in the CG is within my control.	482	4.74	1.89	0.89
I have the resources, knowledge and abilities to participate in the CG.	535	5.20	1.78	0.82
Behavioral intention to use the CG platform (based on Ajzen 1991, 2019; Hawlitschek et al., 2018b)				
I intend to participate in the CG in the future.	522	5.44	1.49	0.90
I will always try to participate in the CG.	458	4.76	1.88	0.89
I plan to participate in the CG as often as I can.	519	4.58	1.90	0.86

Note: Likert scales ranging from 1 to 7. *CG = Carpool Group.

The study sample is based on the actual sharing economy population (i.e. members of the CG), contrary to the majority of studies of sharing economy platforms which are based on student pools or consumer panels. The average age of survey respondents is 42 years, as the sample is not only composed of students (i.e. 11.9 percent) usually asking for rides as passengers (i.e. the role of consumer in the sharing economy), but also of older individuals such as employees (59.2 percent), entrepreneurs (9 percent), or even pensioners (7 percent), who are more likely to offer rides as drivers (i.e. the role of the peer provider in the sharing economy). The sample is well distributed in terms of other socio-demographic variables (e.g., 56 percent women, 48 percent living in urban settings).

ANALYSIS AND RESULTS

We used PLS-SEM to assess the model (Hair *et al.*, 2012). First, the reliability and validity of the constructs were assessed as valid and reliable (see Table 2): composite reliability (CR) measures are all above 0.77, average variance extracted (AVE) measures are all above 0.53, and HTMT ratios are all below 0.61. Second, estimates for the path coefficients, their effect sizes, and their statistical significance were assessed (see Table 3).

Table 2: Measurement Model.

Construct (No. of indicators)	N	M	SD	CA	CR	AVE
Sharing orientation (3)	465	5.457	1.013	0.575	0.781	0.563
Platform authenticity (2)	247	5.638	0.997	0.858	0.929	0.867
Trend orientation (3)	533	3.878	1.004	0.557	0.766	0.530
Grassroots engagement (3)	504	3.831	1.001	0.786	0.879	0.709
Attitude towards the CG (3)	408	5.700	0.996	0.844	0.904	0.759
Norms regarding the CG (3)	226	3.578	1.010	0.813	0.900	0.756
Perceived behavioral control of using the CG (3)	431	4.688	0.995	0.825	0.892	0.734
Behavioral intention to use the CG (3)	419	5.031	0.993	0.878	0.920	0.794

Note: Constructs assessed using: CA = standardized Cronbach's Alpha (reliability measure limited by the assumption that all indicators are equally reliable — included here for comparative purposes); CR = Composite Reliability (measure prioritizing indicators according to their individual reliability and most-suited to PLS-SEM); and AVE = Average Variance Extracted (convergent validity).

The percentage of explained variance (i.e. R^2) can be considered substantial for Behavioral intention to use the CG (51.91 percent), moderate for Attitude towards the CG (35.85 percent) and Norms (48 percent), and very weak for Perceived behavioral control (23.39 percent). Concerning the effects of the Theory of Planned Behavior (i.e., right-hand side of the model), Norms regarding the CG have a significant medium positive influence on Behavioral intention to use the platform, (supporting H$_b$), Attitude towards the CG has a

significant small positive influence on Behavioral intention to use the platform (supporting H_a), similar to Perceived behavioral control of using the platform (supporting H_c). Concerning the effects of the determinants (i.e., left-hand side of the model), Sharing orientation has a significant small positive direct effect on Attitude towards the CG and Norms but not on Perceived behavioral control. Platform authenticity has a significant medium positive direct effect on Attitude towards the CG and Perceived behavioral control but not on Norms. Grassroots engagement has a significant small positive direct effect on Attitude towards the CG and Perceived behavioral control, and a medium positive effect on Norms. Trend orientation has a significant medium direct influence on Norms, but none on Attitude towards the CG and Perceived behavioral control. None of these four determinants have a direct influence on Behavioral intention to use the CG, as Attitude towards the CG, Perceived behavioral control and Norms are full mediators. The total effects of Sharing orientation, and Trend orientation are considered small, while the total effects of Platform authenticity and Grassroots engagement are medium. Altogether, it can be said that H_1, H_2, and H_3 are supported but not H_4.

Table 3: Structural Model (Path Analysis).

Direct Effects	β	f^2	t	p
Sharing Orientation -> Attitude **	0.238	0.070	3.088	0.002
Sharing Orientation -> Norms *	0.192	0.055	2.165	0.030
Sharing Orientation -> Perceived Behavioral Control	0.000	0.000	0.002	0.999
Sharing Orientation -> Behavioral Intention	-0.088	0.012	1.116	0.265
Platform Authenticity -> Attitude ***	0.336	0.120	3.600	0.000
Platform Authenticity -> Norms	0.023	0.001	0.217	0.829
Platform Authenticity -> Perceived Behavioral Control ***	0.352	0.111	3.446	0.001
Platform Authenticity -> Behavioral Intention	0.105	0.013	0.878	0.380
Trend Orientation -> Attitude	-0.022	0.001	0.422	0.673
Trend Orientation -> Norms ***	0.301	0.146	4.442	0.000
Trend Orientation -> Perceived Behavioral Control	0.081	0.007	1.398	0.162
Trend Orientation -> Behavioral Intention	-0.071	0.008	0.800	0.423
Grassroots engagement -> Attitude ***	0.211	0.059	4.340	0.000
Grassroots engagement -> Norms ***	0.368	0.213	5.282	0.000
Grassroots engagement -> Perceived Behavioral Control **	0.165	0.030	3.045	0.002
Grassroots engagement -> Behavioral Intention	0.012	0.000	0.137	0.891
Attitude -> Behavioral Intention *	0.228	0.060	2.450	0.014
Subjective norms -> Behavioral Intention **	0.455	0.206	2.736	0.006
Perceived Behavioral Control -> Behavioral Intention **	0.237	0.081	3.043	0.002
Control: Income -> Perceived Behavioral Control *	0.137	0.021	2.538	0.011
Control: Age -> Attitude *	-0.121	0.020	2.407	0.016
Control: Gender -> Perceived Behavioral Control **	-0.111	0.014	2.059	0.040

Note: β = standardized path coefficient estimates. f^2 = effect sizes. *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$ (two-tailed). Confidence intervals not reported due to space limitations.

Among the control variables, age has a significant, small positive influence on Attitude towards the CG, and income and gender have a significant, small positive influence on Perceived behavioral control of using the CG platform. No other relationships between the model's constructs and control variables are significant.

DISCUSSION

This research considered the tensions between the historical sharing practices and the new trend of sharing economy platforms, through four influential determinants of behavioral intention to use a carpooling platform: perceived sharing authenticity (for example, whether or not the platform represents the authentic sharing practice that it facilitates; i.e. loyal to the original carpooling practice aimed at sharing travel costs and reducing the environmental impact of car trips), grassroots engagement (i.e. the importance of being a non-profit organization driven by volunteers, whose members feel involved), sharing orientation (i.e. inclination toward sharing usage instead of buying/owning), and lifestyle trend orientation (i.e. the belief that carpooling is trendy and the importance of a platform looking modern). Our study contributes threefold to the body of research on the sharing economy, including theoretical implications and managerial recommendations. First, we extend current knowledge of beliefs and attitudes for using a sharing economy platform. Second, the paradoxical tensions existing between pro-social and economic tensions of the sharing economy phenomena

are revealed in the theoretical model. Third, we provide guidelines to help platform managers increase people's favorable attitudes to participating in the sharing economy.

While the relevance of the TPB for gaining insights into sharing economy participation is well-established, several published studies do not include measures of perceived behavioral control, or norms (Alonso-Almeida *et al.*, 2020; Barnes and Mattsson, 2017; Becker-Leifhold, 2018; Bucher *et al.*, 2016; Hamari *et al.*, 2016; Hawlitschek *et al.*, 2018b; Nadeem and Al-Imamy, 2020; Ni, 2021). As such, this study contributes toward providing a more complete model than previous research does. In particular, we find that attitudes to the platform, norms and perceived behavioral control all influence the behavioral intention to participate (H_{a-b-c} supported).

The other critical parts of our model explaining attitude towards a sharing economy platform emanate from the inherent paradox of practices at the intersection between "true sharing" and market transactions (Belk *et al.*, 2019; Eckhardt *et al.*, 2019; Habibi *et al.*, 2016). On the one hand, the pro-social sharing ethos is operationalized using measures of grassroots engagement and sharing orientation, while on the other, the market ethos is operationalized using measures of lifestyle trend orientation and reverse sharewashing (i.e. perceived sharing authenticity). The platform's grassroots engagement, its sharing authenticity, and people's sharing orientation are strong determinants of people's attitude towards the platform (H_1, H_2, H_3 supported). However, the trendiness of the sharing economy phenomenon and lifestyle is not an important characteristic (H_4 not supported). This can make sense, considering that sharing economy practices keep on becoming more popular; the personal trait of trend orientation is likely to matter even less as trend-followers look for even newer and trendier consumption experiences to try.

Taken together, these results are in line with previous research and confirm that sharing economy platforms should not commit to the sin of sharewashing but should put their efforts into staying true to the sharing ethos. Digitalization can optimize older sharing practices such as hitchhiking, but online platforms facilitating the contemporary practice of organized carpooling need to be embedded in the original sharing values in order to raise usage intention. For behavioral intentions to use a sharing economy platform, our PLS-SEM results show that it is the perceived authenticity of the platform and impressions of grassroots engagement that matter the most. However, while sharing orientation is the 2nd best performant construct after the platform authenticity, it is not as important. Eventually, trend orientation is the least important construct. These results indicate that sharing economy managers should not target people who are inclined to follow the latest consumption trends but more those who are into the authentic sharing culture and ethos and who are likely to engage in the community surrounding the practice. In particular, managers should put more effort into involving platform users so they perceive a higher level of engagement; they should also focus on staying true to the original practice facilitated by the platform, bearing in mind that this is something they can directly act upon.

In the future, online platforms facilitating collaboration and P2P exchanges will increase in number and gain new sectors, showing the importance of social factors (e.g., community belonging, perceived authenticity) for the future development of the sharing economy on the one hand, while on the other, peer providers are getting more professional in their practice (e.g., Airbnb Super Hosts) and the number of market players will reduce to the *Big Sharing* (sharing economy unicorns like Airbnb or Uber that disrupt traditional incumbents) through the diversification of platform business models (Fehrer *et al.,* 2018; Fraanje and Spaargaren, 2019; Frenken, 2017). Considering the COVID-19 pandemic, these forecasts may be altered. Indeed, due to the risk of spreading the coronavirus in Sweden (as facemasks were neither widely available yet, nor recommended by the government) and to respect a minimum physical distance between strangers, the CG Facebook group was "put on pause" from March 2020 until July 2021; hence, it could not be used to facilitate carpooling among its 55,000 members. In other words, the COVID-19 pandemic has tremendously impacted the shared mobility sector, and not just in Sweden. For example, BlaBlaCar's recovery in France as travel restrictions were lifted, indicates that carpooling organizations can benefit from the solidarity arising within society and the increase in local neighborhood support more than they can lose out over contagion concerns and the fear of strangers.

This study shows that having a sharing orientation and caring for grassroots engagement were significant determinants of a positive attitude towards participating in the sharing economy. That is why we can hold on to hopeful growth scenarios for the shared mobility sector in the post-COVID-19 world. We foresee increased

participation in carpooling, among other contemporary P2P practices facilitated by online platforms operated by organizations with a sharing ethos, and which symbolize an authentic evolution out of original sharing practices (e.g., local ecosystems for grassroots sharing projects like timebanking, community gardens, tool libraries, maker spaces, community currencies, which are all far from being new). In short, this study emphasizes the importance of the social logic in the future.

CONCLUSION

This empirical study answers the call for research to investigate the sharing economy and clarify our understanding of its paradoxical tensions (cf. Eckhardt *et al.*, 2019). This is also the first consumer service research focused on the specific tensions between pro-social and economic factors influencing participation in the sharing economy, which is fundamentally different from the context of access-based services offered by rental firms where customers do not meet (e.g., Akbar *et al.*, 2016), and different from recirculation and second-hand platforms where goods' ownership change (e.g., Abbes *et al.*, 2020; Ek Styvén and Mariani, 2020; Lindblom *et al.*, 2018). However, as can be expected with any paradox, the tensions between communal and market norms at play in sharing economy practices are here to stay, indefinitely unresolved.

More research on the paradoxes of sharing economy is still necessary. Our findings can be nuanced by future studies in other contexts (e.g., P2P car rentals, accommodation rentals), by testing a more complete TPB model (e.g., including behavioral measures), and by conducing additional analyses (e.g., including new relevant constructs, investigate boundary conditions with mediation and moderation effects). For example, it may then be possible to answer: (i) whether sharing orientation could be ignored or if this is a necessary but insufficient condition of explaining participation; (ii) whether there are several different configurations of variables that can lead to the same outcome of a strong intention to use a sharing economy platform; (iii) whether perceived authenticity is present in all configurations of the variables leading to more positive attitudes towards a platform; and (iv) how the findings observed in our empirical material relate to different segments of people. Future research needs also to continue to assess the social benefits and positive externalities brought by shared mobility and to make social benefits of various mobility systems visible.

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CONSUMER AND SHARING MOBILITY IN ITALY: AN EMPIRICAL INVESTIGATION BASED ON LIFE CYCLE APPROACH

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ABSTRACT

The study aims to propose a theoretical framework by adopting the Life Cycle Thinking for assessing sustainability in the sharing mobility industry. The methodological approach follows the main phases of the Life Cycle Approach (Production activities, use phase and the end of life) of car-sharing and shared micro-mobility services. In particular, our research focuses on the Usage stage and proposes integration with service management tools into the life cycle evaluations by including the consumer perspective. A theoretical model is proposed adopting the Theory of Planned Behavior and the triple bottom line lens, incorporating social, environmental, economic and technological motivations.

INTRODUCTION

Several cities highlighted high rates of exploitation of terrestrial resources, pollution and road congestion, generated by the dependence on their private car that created environmental, economic and social consequences on urban life (Haghshenas and Vaziri 2012; Florida 2010). In recent years, most policymakers to reduce environmental pollution have promoted sustainable behaviors (Birkin and Polesie 2012) through innovative business models such as sharing mobility services.

This business model is applied in several contexts such as tourism, household services, mobility, in order to enhance and promote sustainability, resource efficiency and community well-being (Cheng *et al.* 2020).

In the last years, there is exponential growth and diffusion of sharing mobility services that connect the three dimensions of sustainability (environmental, social and economic) (Shaheen 2015; Lane *et al.* 2015).

According to several authors, car sharing has a positive impact on environmental issues (Nijland and Van Meerkerk 2017) since it reduces vehicle ownership (Millard-Ball *et al.* 2006), air pollution and traffic congestion and increases the available parking slots (Martin *et al.* 2010).

The literature review highlighted that most of the articles focus on the Life Cycle Assessments (LCA) to analyze the impact of these new modes of transport in reducing greenhouse gas (GHG) emissions. In particular, most research takes an empirical research approach by applying LCA. However, few studies have emerged that analyzed the shared mobility services through LCA integrating how changing consumer behavior.

To incentivise these sustainable means, service providers and policymakers have to reduce the carbon emissions from the production process, for instance, using steel and aluminium instead of magnesium (Ding *et al.* 2021).Other solutions to reduce polluting emissions and improve the sustainability of shared mobility are to improve the maintenance and rebalance process and to increase the lifetime of the e-scooters/bike, change the charging system and to use electricity with a low GWP for production and charging (de Bortoli, 2021; Ding *et al.* 2021; Chen *et al.* 2021; Severengiz *et al.* 2020; Kazmaie *et al.* 2020; Zheng *et al.* 2019).

Governments must continue to promote these forms of shared mobility by offering intermodality with existing mobility services (public transport, metro ..). Furthermore, to increase the lifetime of bike / e-scooters it is necessary to reduce vandalism that damages vehicles (Severengiz *et al.* 2020).

In particular, through empirical research, it is necessary to analyse and delve the potential impact of the sharing economy on the environment, investigate the shared users' travelling behaviors and other aspects (for instance, social implications) (Kaspar, Mohnke and Vielhaber 2021; Zheng *et al.* 2019).

There is a need to focus on the green design of shared products considering the LCA technology and investigating how to improve resource sharing and waste reduction (Chen *et al.* 2021).

The existing literature has mainly focused only on the environmental performance of shared services. In order to provide an overview of the phenomenon, our research integrates the consumer perspective through the Theory of Planned Behavior, and adopt the LCA theory lens considering the economic, environmental, social and technological aspects of shared mobility.

Indeed, the study aims to propose a theoretical framework by adopting the Life Cycle Thinking for assessing sustainability in the sharing mobility industry. The research examines the lifecycle stages (production activities, use phase and the end of life) through indicators that evaluate global sustainability aspects and focus on the consumer's perspective.

METHODOLOGY

The methodological approach of this paper is presented by following the main phases of the Life Cycle Approach (based on ISO 14040-44) that were identified as critical for the shared mobility services, namely car-sharing and micro-mobility (electric bike, scooter and kick scooter): i) "Processing and Planning"; ii) "Usage"; iii) "End of life".

An Life Cycle Analysis was conducted for the different means of transportation used for sharing mobility is developed, regarding the Processing and Planning phase. In particular, this paper focuses on the Usage stage of the LCA approach and propose a methodological integration with service management tools into the life cycle evaluations by including the consumer perspective. A quantitative analysis was carried out in Italy to investigate the consumers' intention to reuse shared mobility services. A theoretical model is proposed adopting the Theory of Planned Behavior and the triple bottom line lens, incorporating social, environmental, economic and technological motivations. Thereafter, the theoretical model was analyzed through Structural Equation Modelling statistical techniques.

For the End of life phase, the authors used the secondary data for the electric components and performed a preliminary economic framework that evaluates the potential of a circular model.

The "Processing and Planning shared mobility" phase involves selecting and utilising resources (raw materials, energy, components and semi-finished goods, etc.) to produce and assemble means of transportation. Then, the shared mobility services are planned and implemented by the operators and intermediaries. Indeed, they handle the vehicles by renting or buying them from manufacturers.

Second, the "Usage" phase is strongly related to customer engagement in adopting shared mobility services. Customer behaviour is vital for defining economic (internal perspective), environmental and social impacts (external view). In this stage, the technology represents enablers that allow matching customers and shared vehicles. The technology is mainly represented by digital platforms and Apps, which guarantee the service's efficiency and effectiveness.

Lastly, the "End of life" stage concerns the treatment, collection, recycling and disposal of finished goods and components involved in the service, namely cars, battery, digital and electrical devices, etc. Today, life cycle thinking should have a key role for all manufacturing decisions, allowing the most appropriate choices for materials in each application, with the awareness of all the aspects related to the products' life, including its end-of-life (Notarnicola *et al.* 2017). European Commission launched in 2017 the European Battery Alliance (EBA), including E.U. countries, industry, and the scientific community because batteries are a strategic part

of Europe's clean and digital transition and critical enabling technology, essential to the automotive sector's competitiveness. The E.U.'s policy on Electric Vehicles focuses mainly on optimising the technological processes and development of the outlet market for these vehicles.

Our paper focuses on the Usage stage of the Life Cycle Approach methodology and adopts a customer-centric approach integrating quality management tools into life cycle evaluations.

A quantitative survey was carried out in Italy to investigate the determinants that influence consumers to reuse shared services, unveiling the role of sustainability through the triple-bottom-line lens. Considering the triple bottom line lens, the intention to reuse sharing mobility services incorporates social, environmental, and personal motivations as economic advantages (Peterson and Simkins 2019.

In addition, technology (e.i. digital platforms and application mobile) is a crucial way to guarantee services. The technological aspects are an antecedent that affects users' intention to reuse services (Zhang *et al.* 2019) influenced by perceptions of usefulness and easy to use (Davis 1989).

In this regard, we assume that:

H1a. Attitude toward sharing mobility services synthesises environmental aspects.
H1b. Attitude toward sharing mobility services synthesises economic aspects.
H1c. Attitude toward sharing mobility services synthesises social benefits.
H1d. Attitude toward sharing mobility services synthesises technological aspects.
H2. Attitude positively affects the intention to reuse sharing mobility services.

Several researchers highlighted the significant role of individual values (subjective norms) and utilitarian aspects of shared services (for instance, available vehicles, coverage) in the intention to reuse shared mobility services (Fu *et al.* 2019; Ding *et al.* 2018; Shaheen and Cohen 2013). Therefore, these research hypotheses have been proposed:

H3. Subjective norms positively influence the intention to reuse sharing mobility services.
H4. Perceived Behavioural Control has a positive effect on the intention to reuse sharing mobility services.

The questionnaire was tested through a pilot survey on a sample of 30 respondents in April 2020. The survey was administered online through social channels from May to September 2020, with 410 questionnaires completed.

The theoretically proposed hypotheses were tested through the Structural Equation Modelling (SEM) (Muthen and Muthen 1998).

FINDINGS

Planning and production phase

Findings confirmed that the circular economy model and material recoveries are crucial parts of each product's life cycle and its end of life.

A management system focused on recovery and reuse could potentially be economically viable and would likely lead to substantial cycling of resources and potentially local or regional benefits.

For a sharing mobility model to be sustainable, the elements' regenerated or potential regeneration content must be high and considerable in several respects: policies, regulations and standards; quantity and costs.

The system boundaries are shown in Figure 1. Our study includes raw and recycled materials for component production and manufacturing that consider emissions and waste generated from shared vehicles.

Figure 1: System boundary diagram for a life cycle assessment on shared mobility vehicles
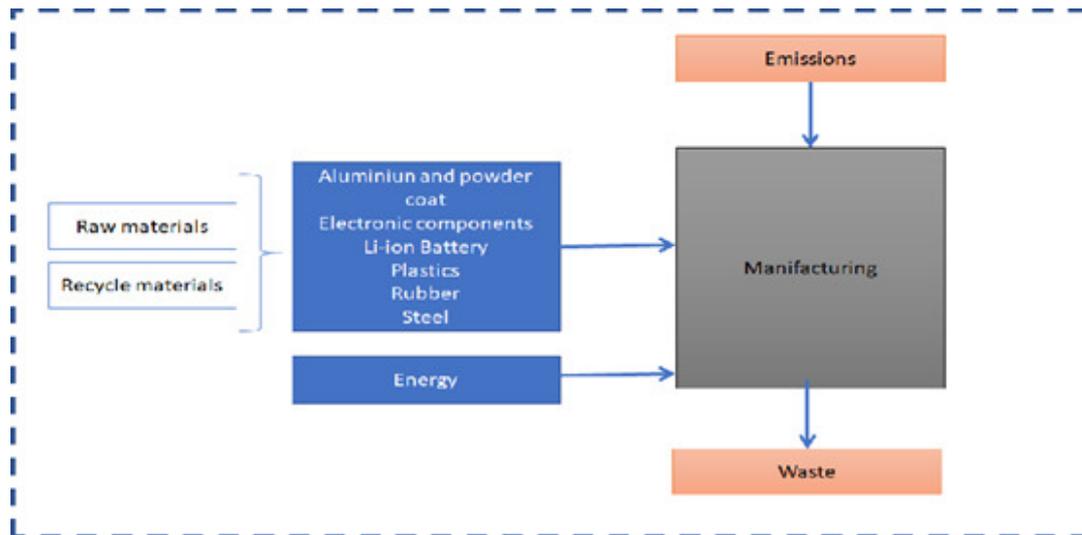
Usage phase

The sample was composed of 410 respondents: 215 car-sharing users and 195 micro-mobility (bike sharing, scooter sharing and kick scooter sharing) users.

The sample of sharing mobility services was composed of 51% males and 49% females who belonged to the 18–25 (15%), 26–35 (31%), 36–45 (26%), 46–55 (19%), >56 (9%) age ranges.

The findings of the Structural Equational Modelling suggest that the goodness-of-fit indicators are acceptable, as the values fall within the thresholds recommended by the literature ($X2=411.352$; $df=173$; p-value=0.000; SRMR=0.060; CFI=0.934; TLI=0.920; RMSEA=0.058).

The results support the hypothesis that the Attitude toward sharing mobility services synthesises environmental, economic, social and technological aspects (H1a,b,c,d), highlighting that the social ($\beta=0.952$) and ecological ($\beta=0.660$) dimensions have a more significant influence compared to other aspects. Attitude ($\beta=0.305$), Subjective norms ($\beta=0.229$), and Perceived behavioural control ($\beta=0.191$) directly influence the intention to use shared services (H2, H3, H4).

The usage phase highlighted consumers' crucial and proactive role in the shared mobility services for assessing economic, social and environmental impacts. The results showed that technology creates a linkage between resources and customers.

End of Life phase

The relevance of a circular model is widely accepted for the lifecycle management of electrical and electronic products (e-products), given the low recovery rates of valuable resources in current end-of-life practices focused on recycling. However, missing insight into the technical and business potential for alternative End of Life options (reuse, repair, and remanufacturing) holds stakeholders from implementing circular strategies. In this context, our study first mapped by means of Material Flow Analysis the life cycle stages of e-products and then performed a preliminary economic assessment that evaluates the potential of a circular model (Figure 2). Our findings suggest that a management system centred on reuse could potentially be economically viable and would likely lead to substantial cycling of resources and potentially local or regional socio-economic benefits.

Figure 2: Material Flow Analysis
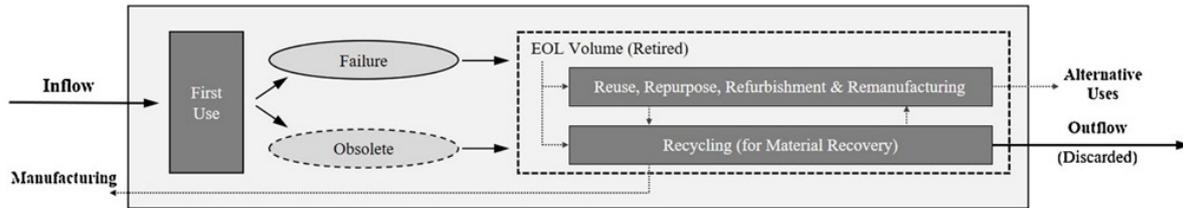
CONCLUSION

Due to a literature gap, our study represents the first attempt to apply the Life Cycle Approach framework in the sharing mobility context. The study evidence that three main phases are needed: i) Processing and Planning shared Mobility; ii) Usage; iii) End of Life, to evaluate the sharing mobility services.
For a sharing mobility model to be sustainable, the regenerated or potential regeneration content of the elements must be high and considerable in several respects: policies, regulations and standards; quantity; and cost.

The study results highlight the proactive role of users in shared mobility for defining the economic, environmental and social impacts. In particular, a crucial aspect is represented by the technology that creates a link between resources and users.

This study's main originality is identified in the integration of the adoption of service management tools in the LCA framework. The other interesting point is the analysis of the consumer behaviour viewpoint in the LCA approach by exploring it in the usage phase.

Our paper provides insights for policymakers to promote strategies that incentivize the switch from an ownership perspective to a sharing one, fostering the sustainability transition process.

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COPING STATEGIES FOR SERIAL FAILURES IN P2P SHAIRNG SERVICES

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ABSTRACT

Serial service failures, caused by customers or peer service providers (PSPs), are common in peer-to-peer (P2P) sharing services. How a PSP addresses a customer-caused service failure may affect the customer's reaction to a subsequent failure caused by the PSP. This study examines the effect of the empathic communication style by a PSP on customer reactions to a customer-caused failure and a subsequent PSP-caused failure. While an empathic communication style resulted in more likelihood of a customer forgiving PSP for a subsequent PSP-caused failure and less anger, it did not affect customer intent to write a review about the failure.

INTRODUCTION

As P2P sharing services continue to grow, there is a corresponding growth in the number of service failures (Mody, Lu and Hanks, 2020; Moon, Wei and Miao, 2019). Customers reporting their dissatisfaction with P2P sharing services are rising (Sthapit, 2018). Negative experiences with P2P sharing services lead to customer preference to traditional services (Cox, 2017). Some of these experiences are rather unique to P2P sharing services. Yet, service failures leading to these negative experiences and their recovery approaches are not fully addressed in the literature (Mody, Lu and Hanks, 2020; Suri, Huang and Sénécal, 2019). This study aims to fill this gap by exploring service failures reflecting the characteristics of P2P sharing services that are prone to experience serial service failures, some customer-caused and others caused by PSPs.

In the context of serial service failures where a customer-caused failure is followed by a PSP-caused failure, how a PSP deals with the first failure may affect customer reactions to both the initial and a subsequent failure. Extant research in the traditional services context demonstrated that when a customer is made aware of the fact that it is the customer that caused the failure, the customer's negative response to the failure was reduced (Choi and Mattila, 2008). However, if the approach used to inform customers of such a fact is not appropriate, customers might feel even more negative towards the service provider (Downs, 1990). Furthermore, customers pointed the poor communication skills of the PSPs as the cause of their negative experience (Sthapit, 2019). Inferring from the social exchange theory (Blau, 1964), showing empathy toward another's failure makes one more likely to receive empathic responses for their own later failures from the other (Macaskill, Maltby and Day, 2002). In other words, PSP's empathic communication style can attenuate negative customer reactions to a failure, even without any recovery efforts. To help platform providers (PPs) better understand customer reactions in the context of serial service failures caused by different parties and develop an effective coping strategy that can be adopted by PSPs, we address the following specific questions. First, what is the impact of making customers aware that the cause of failure lies with the customer on customers' reaction (anger)? Second, what is the impact of PSP's communication style (empathic vs. un-empathic) on customer reactions (forgiveness or anger) to the subsequent failure caused by the PSP and customer responses to the PSPs, generic (satisfaction) and unique to P2P sharing services (intention to give a good review score, intention to write a negative review).

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

The three key actors in the P2P sharing service model are the (1) PP, which provides the service platform, (2) PSPs, who offer the core service, and (3) customers, who receive the service (Benoit *et al.*, 2017). Roles of these three actors in the service production/delivery process make service failures in P2P sharing services different from those in traditional services. First, a PP simply links customers who are in need of utilizing someone else's resources with PSPs who have those resources idle (Perren and Kozinets, 2018). Second,

there is no professional employee who can help customers during service delivery (Benoit *et al.*., 2017). As a result, customer-caused service failures might occur. Lastly, unlike employees of traditional service firms, PSPs do not receive any formal training from the PP (Benoit *et al.*., 2017). Hence, PSPs are prone to mistakes, which can result in service failures caused by PSPs (Benoit *et al.*., 2017). Due to these distinctive features, service failures are more likely and it is not unusual for customers to experience more than one and serial service failures during a particular service experience, some self-caused and others caused by PSPs. Hence, effective strategies for PSPs to use to better cope with these serial failures are needed. To address this need, this study proposes four hypotheses as follows: (H1) Making customers aware that they are the cause of the service failure will reduce their anger toward the PSP; (H2) When informing customers of their having caused a service failure, PSPs' use of an empathic communication style is more likely to result in customers' forgiving PSPs for a subsequent PSP-caused failure.; (H3) Forgiveness will reduce customer anger toward the PSP for the service failure.; (H4) PSP's use of empathic communication style will positively affect customer reactions, such as satisfaction and intention to give a good review score, but will not affect customer intention to write reviews about the service failure.

Figure 1 below shows the research model including all four hypotheses.

Figure 1: Research model
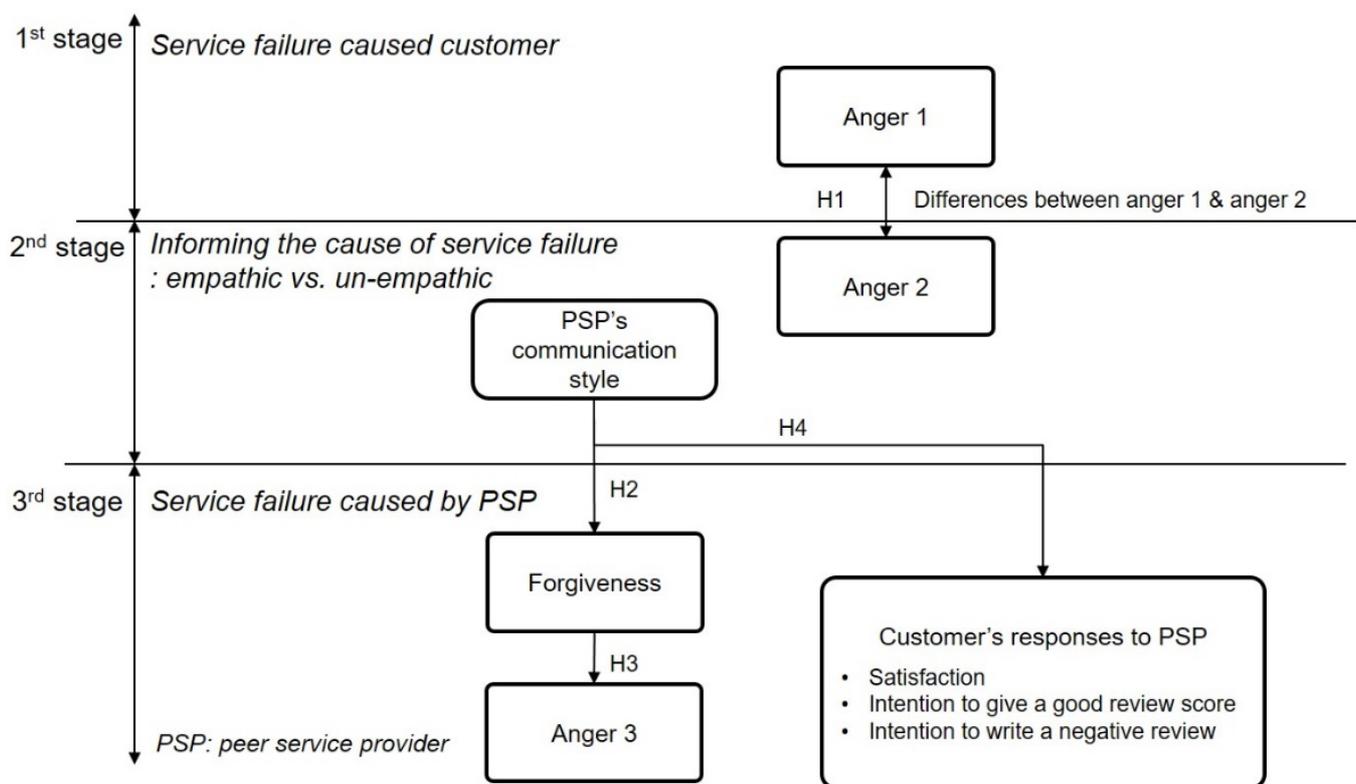
METHODS

Accommodation-sharing service was chosen as our study setting. To test proposed hypotheses, a 2 (severity of service failure caused by customer: mild vs. severe) x 2 (PSP's communication style: empathic vs. un-empathic) x 2 (severity of service failure caused by PSP: mild vs. severe) between-subject experimental design was used. Participants were randomly assigned to one of the eight experimental conditions. An online survey was administered through MTurk and 243 responses were used for analysis.

RESULTS

To test H1, we conducted a paired sample t-test. The result revealed that customer's anger at the second stage was significantly lower than customer's anger at the first stage ($M_{1st stage}$=5.92, $M_{2nd stage}$=2.66; t=-19.58, p<0.001). Therefore, H1 was supported. To test for H2 and H4, we conducted MANOVA with the PSP's communication style as an independent variable, customer's forgiveness for the failure cause by PSP and overall customer responses to PSP (satisfaction, intention to give good review score, and intention to write

negative review) as dependent variables. The effects of customer characteristics (forgiveness trait, gender, age, marital status, education level, and income) and severity of service failure (severity of customer-caused service failure and severity of PSP-caused service failure) were controlled. Results showed that the level of customer forgiveness was significantly higher when PSP used empathic communication style ($M_{empathic}$=5.12, $SD_{empathic}$=1.42; $M_{un-empathic}$=4.27, $SD_{un-empathic}$=1.43; F=21.41, p<0.05). Therefore, H2 was supported. The test result also revealed that satisfaction ($M_{empathic}$ =3.91, $SD_{empathic}$=1.36; $M_{un-empathic}$ c=3.12, $SD_{un-empathic}$=1.23; F=28.57, p<0.001), and intention to give good review score ($M_{empathic}$ =3.97, $SD_{empathic}$=1.58; $M_{un-empathic}$=2.98, $SD_{un-empathic}$=1.46; F=34.31, p<0.001) were significantly higher when PSP used empathic communication style. As predicted, customer intention to write negative review was not affected by PSP's communication style. Therefore, H4 was supported. To test for H3, we conducted a simple regression analysis with the customer's forgiveness as an independent variable and customer's anger at the third stage as a dependent variable. The result revealed that customer's forgiveness for PSP significantly influenced customer's anger (t=-10.01, p<0.001). Therefore, H3 was supported.

DISCUSSION

Despite the importance of better understanding customer reactions to service failures and devising successful coping strategies in P2P sharing services (Benoit *et al.*, 2017; Field *et al.*, 2018), this topic did not receive enough academic attention (Suri, Huang and Sénécal, 2019). Thus, this study aims to fill this gap. Specifically, this study investigated (1) the effect of customer awareness of their being the cause of a service failure on their emotional reaction to the PSP (anger); (2) the effect of the how the PSP informed customers of their fault (communication style) on customer forgiveness for a service failure cause by the PSP; (3) the effect of forgiveness on customer anger toward a PSP who caused a subsequent service failure; and (4) the effect of the PSP's communication style (empathic or un-empathic) on customers' satisfaction, intent to give good review scores, and intent to write negative review. The results showed that informing customers of their being the cause of a service failure reduced their anger with the PSP (H1). This result confirmed findings from extant studies in traditional service context that customer responses to service failures were less negative when they felt at least partly responsible for the failure (Choi and Mattila, 2008). However, if the approach used to inform customers of such a fact is not appropriate, customers might feel even more negative about the failure (Downs, 1990). Hence, we examined the impact of PSP's empathic communication style to inform customers of their responsibility for the failure. We found that customers were more forgiving for a subsequent service failure caused by the PSP (H2) and were less angry (H3) when the PSP used an empathic communication style. These results are consistent with social exchange theory (Collier, 2018; Macaskill, Maltby and Day, 2002; Konstam, Chernoff and Deveney, 2001). However, PSPs' empathic communication style did not affect customer intent to write reviews about the failure (H4). This result distinguishes customer responses to service failure and coping strategies in the P2P sharing services context compared to the traditional service context. P2P sharing service customers make decisions based on other customers' reviews (Mudambi and Schuff, 2010). Thus, even though customers might have been satisfied with a PSP's service, they still tend to share negative experiences with other customers.

IMPLICATIONS

This study makes several theoretical contributions to the literature. First, this study extends the literature on service failure/recovery by investigating a coping strategy in a service failure situation that reflects the unique characteristics of P2P sharing services. Second, this study proposes and empirically examines the effect of a specific approach of an empathic communication style as a PSP coping strategy for a service failure. Third, this study contributes to the body of knowledge on customer forgiveness, a topic that has been largely overlooked in the service literature (Tsarenko and Tojib, 2011). Finally, this study proposes and empirically investigates the effect of a PSP coping strategy that may depend on the type of customer response, in the P2P sharing service context. Specifically, this study shows that customers still intended to write reviews about failure incidents even though they were overall satisfied with the services provided by PSPs. This study also makes several managerial contributions. Specifically, this study offers a communication strategy for dealing with service failures. First, when a customer causes a failure, it is important to let them know the fact because it can reduce negative customer emotion. Second, we found that an empathic communication style by the PSP can induce customer forgiveness, which reduces negative customer emotions and improves overall evaluations of the service. However, such communication will not reduce customer intention to write reviews about failures. Past studies showed that apologies alone are not enough to reduce negative intention following a service failure and therefore a combination of apology and compensation is essential to effectively

drive customer forgiveness and lower negative word of mouth intention (Casidy and Shin, 2015). Thus, managers of P2P sharing services could consider recommending that PSPs employ other coping strategies, such as compensation, to reduce customer intent to write reviews about failures.

LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

The findings of this study need to be interpreted with a caution due to following limitations. First, this study focused on PSP's, compared to PP's, coping strategy. Previous studies have mainly focused on processes such as the ways that providers handle problems and outcomes such as satisfaction (Weun, Beatty and Jones, 2004) rather than on which party performs the recovery. Due to the triadic nature of the P2P sharing-service model, research could examine customer expectations about which party (PP vs. PSP) is expected to recover from failures (Benoit *et al.*., 2017). Second, this study focused only on the impact of PSP's empathic communication on customers' responses to failures caused by a PSP. Future studies could explore the impacts of various strategies for recovering from failure, such as type of compensation, on customer responses to a PSP. Third, future studies should examine the impact of customer characteristics such as the reason for using the sharing-service or the number of companions. Customers are less dissatisfied with a service failure when they are with a large number of companions (Huang and Wang, 2014) and when they have hedonic purposes (Park and Ha, 2016). In this study, respondents were asked to imagine traveling alone for leisure. Future studies could test scenarios that include companions and for utilitarian purposes. Finally, the sample was limited to subjects in the U.S. The way that customers attribute the responsibility for service failure and their reactions to service recovery strategies may vary widely by culture (Mattila and Patterson, 2004; Patterson, Cowley and Prasongsukarn, 2006). Future studies could examine respondents from a wider range of countries and examine potential cross-cultural differences.

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RELATIONSHIP BETWEEN PUBLIC SERVICE MOTIVATION AND PSYCHOLOGICAL SAFETY FROM PROJECT MANAGEMENT-TYPE PERSPECTIVE

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ABSTRACT

People expect public servants to be motivated and have good teamwork to serve society. To meet this expectation, we examined the relationship between public service motivation (PSM) held by public servants and psychological safety (PS) in their teamwork. We propose a framework to determine the relationship between PSM and PS from the project management (PM)-type perspective (agile PM and waterfall PM) at a national research-and-development organization in Thailand and investigated its effectiveness using a structural equation model. The results indicate that PSM positively affects PS, although PM types do not strongly affect it.

INTRODUCTION

In the era of rapid technology transformation, national research and development (R&D) organizations require their employees to continuously adapt to improve their performance. For instance, employees who are highly educated, e.g., programmers, engineers, researchers, and white-collar workers, need to gain an understanding of new knowledge on a continuous basis to improve their work processes and organizational performance. However, national R&D organizations are facing several motivational issues with their employees towards continuous improvement.

There are two main issues that have emerged at national R&D organizations. The first issue is that employees who work in a national R&D organization have significantly less enthusiasm and excitement to gain new knowledge at their workplace because they often lose their motivation to serve the public. However, the mission of a national R&D organization, a government agency, is to foster development of that country. National R&D organizations are complex entities that must adapt to current environmental pressures generated by political changes, turbulent markets, and low public funding. They are committed to supporting the strategic change within the national system of innovation, which is a major difference from other research institutes. Therefore, general motivation is inadequate for driving the strategy of a national R&D organization to succeed. Public service motivation (PSM) is necessary for employees of a national R&D organization. PSM is considered a practical tool to drive employee motivation to increase their passion towards continuously improving and maintaining consistency by implementing the strategy of the national R&D organization.

The second issue is that national R&D organizations are being run as project management (PM) organizations where the type of PM can affect the motivation of project members. A project team is usually composed of diverse members having various academic backgrounds, expertise, seniority, or private relationships. Such differences hinder role empowerment. For example, project members may be uncomfortable while expressing their ideas because they are not ready to accept feedback from several members. Sometimes they feel insecure when they make mistakes because they are reluctant to take risks. These are believed obstacles towards attaining PSM among employees.

Therefore, we focused on the relationship between PSM and psychological safety (PS) from the PM-type perspective of the R&D teams in a national R&D organization because the effect of each variable associated with individuals varies significantly with each PM type. We selected the National Electronics and Computer Technology Center (NECTEC) of Thailand as the target of our investigation. NECTEC is a statutory

government organization under the National Science and Technology Development Agency (NSTDA). Therefore, it was considered an ideal research case for this study.

We propose a framework to determine the relationship between PS and PSM from the PM-type perspective. The remainder of this article is as follows. We first discuss the problem and objective of this study. We then review the literature on PSM, PS, and PM types. We next briefly describe the national R&D organization NECTEC. We then present the proposed framework and hypotheses and present the research methodology. Finally, we present the results of evaluating our framework and conclusion as well as mention future work.

LITERATURE REVIEW

Public Service Motivation

PSM is a key indicator for public administration. The definition of PSM is the understanding of the motivation of an individual to perform actions that benefit society. It is considered an essential core concept of public administration and is related to the numerous outcomes that are considered beneficial for public-sector organizations (Perry and Hondeghem, 2008). Most PSM researchers agree that the goal of public-service-motivated individuals is to benefit society as a whole by providing public services and serving the abstract concept of the public interest.

Perry (1996) proposed four dimensions of PSM: "attraction to politics and policy making", "public interest", "compassion", and "self-sacrifice". Kim (2009) revised Perry's PSM dimensions, reducing the measurement items from 24 to 12, 18 of which relate to the five dimensions of PSM devised by Vandenabeele (Vandenabeele, 2011)

Several topics have come about from PSM research such as job satisfaction, choice of occupation or employment sector, individual and organizational performance, and organizational and job commitment. These topics are positively related to PSM. Studies examining the relationship between PSM and turnover found it to be a negative relationship. Many studies showed the potential negative aspects of too much PSM, e.g., stress, burnout, and job dissatisfaction as well as involuntary or long-term absenteeism and negatively affecting physical well-being (Schott and Ritz, 2018).

Psychological safety

PS was first mentioned by Schein and Bennis in 1965 as the level to which individuals feel secure and believe in their ability to manage change. In 1990, Kahn defined PS as an individual's perceptions as to whether they are comfortable showing their behavior without fear of negating their self-image, self-esteem, or career path. Trusting and supportive interpersonal relationships with co-workers help people achieve PS (Newman, Donohue and Eva, 2017). However, the most referenced definition of PS is Edmondson's, which is slightly different from Kahn's. Edmondson's definition is from the group work or team perspective. She defines PS as the belief and confidence among team or group members to take risks together (Edmondson, 1999).

Edmondson established and validated a seven-point scale to measure team PS. It covers the measurements from the feelings that occurs when working together within a team to the reactions from others. Google Rework studied work-performance improvement under the project of Aristotle (Website: https://rework.withgoogle.com/guides/understanding-team-effectiveness/steps/introduction/). They adopted Edmondson's scale to evaluate the PS of their members. People can currently evaluate their PS at https://fearlessorganization.com/.

Edmondson focused mainly on learning and performance outcomes (Edmondson, 1999), and other researchers extended it to cover several dimensions. For example, they examined the relationship between PS and its outcomes, e.g., innovation, creativity, employee attitudes, communication, knowledge sharing, and voice behavior. Perspectives from social learning theory, social information processing theory, social identification theory, and social exchange theory have begun to be integrated into research examining this relationship (Liu *et al.*, 2014; Newman, Donohue and Eva, 2017).

Several studies have confirmed that PS promotes knowledge sharing. PS also enables the establishment of a good relationship within a team, which leads to an improvement in voice behavior at the individual level or

for each member, i.e., they feel comfortable saying what they are thinking without fear of being judged. Speaking out is an example voice behavior. PS has been found to indirectly influence employee performance by facilitating learning behavior at the individual and team levels. At the organizational level, Baer and Frese (2003) found that employees' collective perceptions of PS were strongly and positively related to organizational performance, as measured by return on assets and goal achievement (Baer and Frese, 2003).

PS also serves as a mechanism for improving employee attitudes. It has a strong relationship with organizational commitment, work engagement, and positive attitudes toward teamwork. Employees who work in a PS environment tend to easily adopt new technology or continuously lean in new things, and be flexible when they confront a problem.

However, PS can be too high. This is referred to as the too-much-of-a-good-thing effect. (Pierce and Aguinis, 2013) found that too much PS within a team could lead to adverse outcomes such as unethical behavior. It can happen that team members collude with each other to pursue their own interests instead of pursuing the team's goals. Teams high in PS were more likely to experience this problem. There has not been much more research on the negative effect of PS; however, such negative outcomes can be assumed (Newman, Donohue and Eva, 2017).

Project management

PM type refers to the way in which teamwork is managed. Agile PM (APM) is commonly used in software development projects, and waterfall PM (WPM) is an easy type to use and understand and is commonly used to manage a project in the government sector. We focused on APM and WPM because they are PM types used in advanced-technology R&D organizations such as NECTEC. NECTEC is a national R&D organization in Thailand and is working on frontier and advanced technology such as quantum computing, artificial intelligent (AI), blockchain, and Internet of Things.

There are three main aspects of APM: (1) fast delivering functionalities, (2) testing before a team can decide what approach to adopt (testing a method on a small scale before applying it to the whole project), and (3) discussing issues with a customer and team members to obtain feedback.

WPM was first applied to software development. The starting point of WPM is to obtain the requirements of a customer or clarify the problem, followed by design and planning the operation. Coding-testing and full operations are the final steps. It is assumed that users need to clear any uncertainties to reduce obstacles when a project starts. However, this is not consistent with the real world in which customers' attitudes toward various features may change.

Comparing APM and WPM shows that

- WPM is strictly step-by-step compared with APM, i.e., it is easy to use.
- APM supports real-world situations compared with WPM.
- APM meets customer satisfaction compared with WPM.

Therefore, APM and WPM are entirely different PM types with the sole goal of producing a high-quality product in common (Andrei, Gheorghe and Boiangiu, 2019).

NATIONAL R&D ORGANIZATION IN THAILAND: A CASE STUDY

NECTEC (Website: https://www.nectec.or.th/en/) is a member of the NSTDA, Ministry of Higher Education, Science, Research and Innovation of Thailand. The core responsibility of NECTEC is conducting, supporting, and promoting the R&D of electronics and computer technologies. It also provides linkages between research communities and industries through the established industrial clusters and programs. The vision of NECTEC is to be the foundation for advanced electronics and information technology development in Thailand and focuses on eight target output profiles and one frontier technology. The technology and target output are strategic big data, precision farming, smart factory, strategic sensor processes and devices, AI services, smart city, science education, digital wellness, and quantum computing. The mission of NECTEC is to build a technology foundation for the country. Hence, it is strongly expected that NECTEC employees have PSM.

NECTEC's R&D project is operated under several PM types. Each project team is free to select the PM type appropriate to team members. The total number of NECTEC staff members is 582. More than 70 percent work in the R&D department and all graduated with a higher than bachelor's degree since they must conduct advanced-technology research that requires highly skilled human resources.

RESEARCH FRAMEWORK AND HYPOTHESIS

Our framework involves two PM styles, i.e., APM and WPM. As shown in Figure. 1, we identified the relationship between PSM and PS with the following two hypotheses.

Figure 1: Proposed research framework
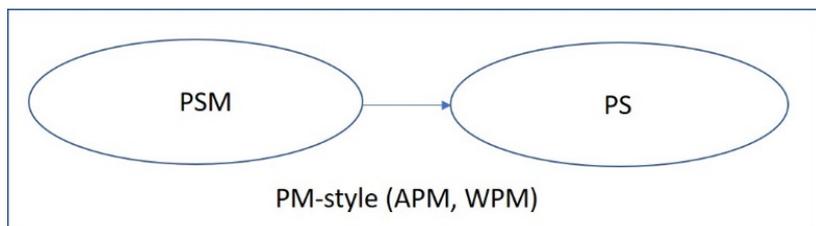
Hypothesis 1 (H1): PSM positively affects PS

Hypothesis 2 (H2): The difference between APM and WPM affects the relationship between PSM and PS

These hypotheses were analyzed with the partial least square – structural equation model (PLS-SEM)

METHODOLOGY

We examined the relationship between PSM and PS from the perspective of the two different PM styles of APM and WPM. We tested the hypotheses using PLS-SEM and multiple group analysis (MGA) with SmartPLS v.3. (Sarstedt, Henseler and Ringle, 2011)

Data collection and survey structure

An online survey was conducted on the data with researchers at NECTEC's R&D department. The total number of respondents was 165. After data cleaning, this number was 160 (45.67 percent of the total number of population case). We first determined the relationship between PSM and PS then selected the collected data from the two PM types. The number of respondents was 81 for APM and 16 for WPM. Our framework includes the following two measurement models and one structure model as Figure 1. We conducted the Vandenabeele' PSM questionnaire for PSM, which has seven items. We selected a combination of Edmondson's PS scale and Aristotle's Google project indicator to conduct the PS questionnaire containing eight question items. Variables were measured on a five-point scale: 1: Strongly disagree, 2: Disagree, 3: Neither agree nor disagree, 4: Agree and 5: Strongly agree. The suffix "R" of certain PS constructs in Figure. 2 and 3 signifies the reverse scored item when we analyzed the data. The reflective indicator variable was measured with the PSM and PS parameters and was represented in the latent variables of the model.

RESULTS AND CONCLUSION

Reliability and validity test

Since our framework involves reflective latent variables that tend to be highly correlated and compatible, their reliability and validity should be thoroughly investigated (Hair *et al.*, 2013). We evaluated three indexes for testing the reliability and validity of PSM and PS constructs in our framework, i.e., Cronbach's alpha (CA), composite reliability (CR), and average variance extracted (AVE).

Table 1: Testing of reliability and validity

	PSM	PS
CA	0.720	0.862
CR	0.796	0.893
AVE	0.545	0.357 (<0.5)

Internal consistency reliability

We applied CA and CR to test the internal consistency reliability of the construct. CA is a traditional index and CR can be its replacement. The standard CR should be 0.7 or higher, which is considered a good scale of the standard. However, a value of 0.6 or higher is acceptable (Bagozzi, 1988). Our results indicate that the CA for PSM was 0.720 and that for PS was 0.862. The CR for PSM was 0.796 and that for PS was 0.893. All the indicators were good scale of the standard.

Convergent validity and discriminant validity

We used AVE to evaluate the convergent validity and discriminant validity for the reflective measurement model of latent variable. AVE should be greater than 0.5 to confirm convergent validity (Bagozzi, 1988). The AVE for PSM was 0.545, which is acceptable. However, that for PS was 0.357, meaning that the error variance exceeded the explained variance. Thus, convergent validity remains unconfirmed.

For discriminant validity, we used the Fornell-Larcker criterion analysis technique, suggesting that the square root of AVE in each latent variable can be used to determine discriminant validity. This value is larger than other correlation values among the latent variables (Fornell and Larcker 1981).

Table 2: Results of Fornell-Larcker criterion analysis

	PS	PSM
PS	0.597	
PSM	0.427	0.738

As shown in Table 2, the AVE of PS was 0.357; hence its square root became 0.597. This number is larger than the correlation value of PSM (0.427), which suggests that discriminant validity is well defined.

Results of hypotheses validation

We now present the results of validating our two hypotheses.

H1: PSM positively affects PS

After the computation with the PLS algorithm of the SmartPLS software (Figure 2), the path coefficient of the structure model showed that the level of the relationship between PSM and PS was 0.427. The coefficient of determination, R-square, was 0.182 for the PS endogenous latent variable. This means that PSM moderately explains 18.2 percent of the variance in PS. The hypothesized path relationship between PSM and PS is statistically significant since its standardized path coefficient (0.427) is higher than 0.1.

We re-examined these data with bootstrapping techniques (Figure 3.). Bootstrapping can generate t-statistics for significant testing of both the inner and outer models. The results indicate the value of "t-statistics". When there a two-tailed t-test with a significance level of 5 percent, the path coefficient will be significant if the t-statistics is larger than 1.96. In this study, the t-value was 7.441 and p-value was 0.000. This means this bootstrapping model is significant at a significance level of 0.05. Therefore, this hypothesis is acceptable, i.e., PSM has a relationship with PS.

Figure 2: Results of using PLS Algorithm
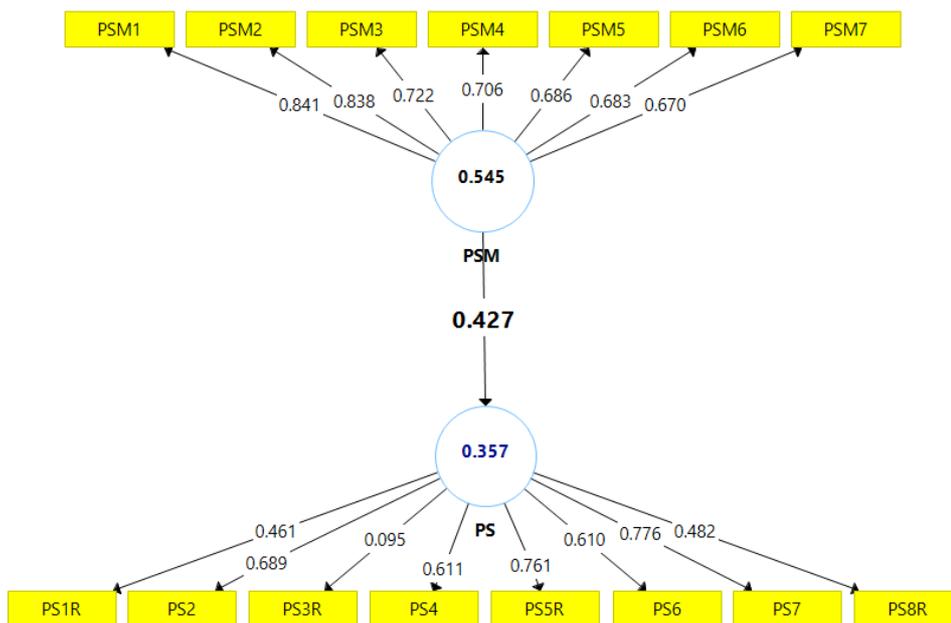
Figure 3: Bootstrapping
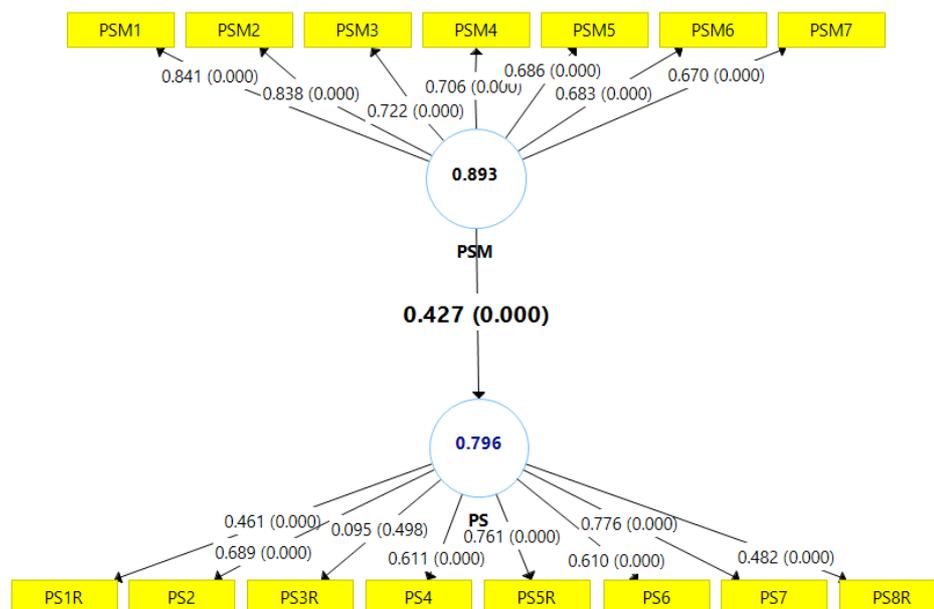
H2: The difference between APM and WPM affects the relationship between PSM and PS

We applied MGA of PLS-SEM to examine if there were differences between the APM and WPM groups in this study. Table 3 shows that the differentiation in the path coefficient of APM is lower than that of WPM; a difference of 0.355 (APM path coefficient = 0.494, WPM path coefficient = 0.849). The p-value of the comparison between APM and WPM is 0.054, which means insignificant with little difference.

Table 3: MGA results

Relationship	Comparison	Diff (APM-WPM)	t parametric	t Welch-Satterthwaite	p-value
PSM to PS	APM vs. WPM	- 0.355	0.999	1.118	0.054 (Not sig.)

The relationship between PSM to PS showed that the motivation of public servants for working toward benefiting society, such as PSM, had positive effects on PS when they worked in a team. From the WPM perspective, there was a high PS regarding PSM because they felt comfortable in performing tasks with the planned schedule. Solving the project problem was not their responsibility; it was the team leader's. However, the working style in APM is very different because the employee needs to be open, think critically, give feedback, and constantly exchange learning. This behavior affects to the employee's need to take more initiative than that in the WPM. This made them feel less comfortable. This result is consistent with the Thai culture in which most employees are more reserved and quieter when dealing with seniority and hierarchy in the workplace. WPM is the traditional PM they used to work under before transitioning to APM. Thus, the PS in WPM is higher than in APM.

This result does not indicate which PM type is better to improve work performance. It indicates only the relationship between PSM and PS from the APM and WPM perspectives.

CONCLUSION

We investigated the relationship between PSM and PS from the perspective of different PM types of a national R&D organization. We identified this relationship as a structure model and found that APM and WPM has a certain effect on the structure. Our findings can be summarized as follows.

- PSM positively affects PS by a path coefficient of 0.427, and the R-square is equal to 0.182. This means PSM moderately explains 18.2 percent of the variance in PS.
- PSM positively affects PS, although the difference between PM types did not show a strong effect in our investigation.

FUTURE RESEARCH

The relationship between PSM and PS had not been extensively studied. Our study showed that this relationship is statistically significant. However, the effect of PM type was not statistically significant at the 95 percent confidence level, possibly due to the sample size being too small. Therefore, the relationship between PSM and PS could be amplified in a future study. Our framework can be used to determine the attitude of a researcher at a national R&D organization and be applied to other sectors. As well as conducting an in-depth study of factors affecting the above relationship, we did not delve deeper into the factors of this relationship. An example of an interesting factor is the differentiation of socio-demographic factors, such as work-role, work experience, and education, and other variables.

ACKNOWLEDGMENTS

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REIMAGINING SERVICE-DOMINANT LOGIC THROUGH CONSUMER CULTURE THEORY'S PERSPECTIVE: THE DIFFERENT MEANINGS IN CONSUMING ISLAMIC LIFE INSURANCE

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ABSTRACT

This paper aims to provide an alternative view on the potential nexus between Consumer Culture Theory and Service Dominant-Logic in understanding service consumption and its landscape. Following the evolving notion of SD-logic, where one of its axioms is that 'value is always uniquely and phenomenologically determined by the beneficiary', this paper argues that service consumption could be understood by looking into consumers' meaning in consuming a particular service. These meanings are peculiar to each consumer, and together, it forms a pattern of collective or shared meanings – synonym to CCT's typical research. This form of thinking may lead to several concepts of value meanings in consumption.

INTRODUCTION

"The conventional one [financial service], some people may not feel anything because it is service, maybe in a long period of time… there is no effect on our body whatsoever. But in term of our prayers, deeds, what will happen? Because we are contributing to all those riba'. For sure, we are afraid our deeds will be wasted. Our prayers are contaminated. Our ibadah is contaminated as we are involved in riba'. That's where we need to be careful." (T4)

The world's population is expected to increase by 32% accounted to 9.6 billion in 2060 (Pew Research Center, 2017). The Muslim population is projected to grow by 70% in 2060 compared to other religions such as Christianity (34%), Hindus (27%) and Jews (15%), making it the fastest-growing demographic. By 2060, Muslims are estimated to represent the second largest population in the world at 3.0 billion, after Christians at 3.1 billion (Pew Research Center, 2017). The Islamic economy market size comprised of USD 2,107 billion in 2017, and this is estimated to increase to USD 3,007 billion by 2023 (Thomson Reuters, 2018). The needs of this specific market go beyond the obvious necessities such as food and clothing. It has spread across other segments of consumption. For instance, tourism, media, health, pharmaceutical including cosmetics and Islamic finance (Thomson Reuters, 2018). In October 2014, the United Kingdom was officially appointed as an Islamic finance hub for Western countries (UK Trade and Investment, 2014). This reflects the growing interest from Western countries in accommodating Muslim consumers' financial needs.

Muslim consumers are becoming more aware of the need to apply their faith into their lifestyle. As such, they have begun to assimilate their local cultural values and material consumption into their faith (Jafari and Suerdem, 2012). It is apparent that Muslims, as consumers, are a unique market because of their faith-based consumption practices that have their own peculiarities. For instance, Muslims consume not only on the basis of Islamic principles such as halalness (permissible) or haramness (impermissible), but also continuously interpret and re-interpret their religious beliefs according to their lifestyle and social-cultural context. In the excerpt provided above, the consumption of life insurance is no longer revolves around its utilitarian reasons per se but beyond the obvious functional reasonings.

LITERATURE REVIEW

The introduction of a new dominant logic for marketing research, also known as '*Service-Dominant Logic or SD-Logic*' (Vargo and Lusch, 2004a), has shifted the direction of service marketing scholarship towards a new conundrum. Since its introduction in 2004, there has been substantial concurrence and debates towards this new emerging and evolving theory. SD-Logic has taken several significant theoretical turns,

has had its foundational premises modified, added, and consolidated into a smaller set of core axioms (Vargo and Lusch, 2017). Nevertheless, this new transcending perspective has *"Increasingly, and inevitably, all of the marketing will come to resemble to a greater degree the formerly specialized area of service marketing..."* (Rust and Huang, 2014, p. 206). According to Vargo and Lusch (2004a), service is the appropriate logic for marketing. Service becomes an interactive process of *"doing something for someone"* that is valued (Ballantyne and Varey, 2008). Rather than viewing services as (i) something that is not tangible, (ii) value-added services or (iii) something that belongs to a classified sector such as healthcare or education, SD-Logic views that every transaction including traditionally known as goods or products are the results of service proposition and value-in-use (Vargo and Lusch, 2004a; Ballantyne and Varey, 2008). In this vein, service becomes *"the unifying purpose of any business relationship"* (Ballantyne and Varey, 2008, p. 11).

One particular premise that will be used in this study is FP10 which posits that *"value is always uniquely and phenomenologically determined by the beneficiary"* (Vargo and Lusch, 2008, p. 7). This premise serves as one of the conceptual linkages between SD-Logic and CCT to be explored further in this study. Extending from the elaboration on the 'natural ally' between SD-Logic and CCT by Arnould (2007) and the need for a better definition, conceptualisation and understanding of 'market' within the SD-Logic scholarship as pinpointed by Penaloza and Venkatesh (2006), this paper argues that service consumption could well be understood by looking into consumers' meaning in consuming a particular service. These meanings are peculiar to each consumer, and together, it forms a pattern of collective or shared meanings. This notion of searching meanings in consumption is a synonym to CCT's typical research. By exploring the different meanings assigned or derived, marketers are able to understand the 'value' that consumers uphold in any services consumption.

Consumer Culture Theory (CCT) is not a unified theory rather, it is a continuously evolving perspectives of consumer society and its market that help to shape(d) cultural life. CCT allows researchers to explore consumption of to name a few; objects, place, person, time, and even service from the perspective of particular socio-cultural systems and actors from within its broader sociohistorical and cultural context (Joy and Li, 2012; Arnould and Thompson, 2018). CCT explores the '*web of meanings*' (Grace, 2021) which is vital in marketing as it provides a direction that drives both firm and consumer behaviour in a marketplace exchange (Kadirov and Varey, 2011). As a result, the theoretical and methodological perspectives employed through CCT enable researchers to demonstrate how meaning is constructed, and importantly, how these collective meanings in consumption help to shape a subculture or a market in modern societies. This study therefore aims to provide an alternative perspective and evidence on the potential nexus between SD-Logic and CCT through the consumption of services, in particular Islamic life insurance.

METHODOLOGY AND CONTEXT

This research employed two phases of in-depth interviews with the existing Islamic and conventional life insurance consumers, those who consumed both types of life insurance, non-insured consumers as well as agents. The agents play an essential key in introducing their customers and colleagues as participants in this study. The participants derived are from different educational and occupational backgrounds within Putrajaya, Selangor and Kuala Lumpur. Thus, provide a heterogeneous set of perspectives towards the consumption of Islamic life insurance. One-on-one in-depth interviews were employed to reach deeper into consumers' experiences and stories. In-depth interviews with elements of phenomenology were used throughout the data collection process. In-depth interviews were argued to be a suitable method of gaining a deeper understanding of people's experiences (Kvale and Brinkman, 2015) and exploring sensitive topics (Ger and Sandikci, 2006; Jafari *et al.*, 2013). Forty-four in-depth interviews resulted in over 2,000 minutes of audio recordings were obtained. The audio data were then transcribed and analysed through six steps of thematic analysis by Braun and Clarke (2006, 2013). The analysis was assisted using NVivo and spreadsheets.

Malaysia is chosen as the context in exploring the different meanings in service consumption given its complex intersection between the sacred, the profane, religious and service consumption. This is due to its unique proportion between multi-ethnic communities (Malay, Chinese, Indian and other ethnicities) and diverse religious practices (Islam, Christian, Buddha, Hindu, and others). Islam is the most widely professed religion in Malaysia (61.3 per cent). However, there are also other religions freely professed, namely Buddhism (19.8 per cent), Christianity (9.2 per cent), Hinduism (6.3 per cent) and other religions

(3.4 per cent) (Department of Statistics Malaysia, 2010). Malaysian Malays referring to the participants involved in this study are typically associated with Islam. There are two major groups of Muslims globally, namely the Sunnis and the Shias (Pew Research Center, 2009, 2017). Malaysian Malay is generally known to follow the Shafii school of thought, which falls under the Sunnis.

Given Malaysia's multi-ethnic and multireligious environment, it is unrealistic to say that there are no arguments concerning these diversities. Islam in Malaysia is increasingly subject to not only political but also cultural and ethnic contestation, individually and collectively. Nevertheless, this discursive tradition is even more evident in the way the Malays consume things. The contestation and debates around consumption resulted in different ontologies of '*a proper Islamic consumption*' related to their desires, moral, social and familial anxieties (Fischer, 2008). Muslims hold on to the most fundamental decisions of halal and haram. Halal includes anything that is permitted, and haram is that which is prohibited by Allah (Azimabadi, 1994). This basic notion that applies dominantly in food and drinks consumption is filtered into all aspects of daily life. Malaysian Muslim consumers are becoming more concerned with this binary conception of halal and haram in various parts of life – touching dogs (Campbell, 2014); ensuring cleanliness (Kew, 2017); halal industries and fashion (Rodzi, 2018); and other innumerable areas including services consumption. In this case, Islamic life insurance consumption.

FINDINGS

The findings shed light on the different meanings associated with the consumption of financial services — Islamic life insurance. As expected, the findings suggested that Malaysian Muslims relate their choice of life insurance to functional meanings, i.e., for financial protection, comfort hospitalisation, and wealth management. However, upon probing deeper, their responses became interesting. The consumption of this service goes beyond mere functional motives. It was evident that different layers of reasoning or *symbolic meanings* help shape Malaysian Muslims' choices in consuming life insurance. These symbolic meanings include religious meaning, the sacred and the profane meaning, familial meaning, and societal meaning.

The first symbolic meaning that emerged from the interview is religious meaning. Religious meanings refer to the association of participants' consumption decisions to their religion, in this case, Islam. Most participants in their interviews attached religious meanings to their consumption of Islamic life insurance, which included the quest for halalness as an obligation and consumption for the hereafter.

> "We feel that [Takaful] is better than conventional. Although it is a bit expensive. It is more secure for us. Secure, in term of seeking for halalness [laugh]. Yeah, Responsibility. It is a responsibility." (N5)

The term '*halal*', typically used in food consumption among Muslims, was utilised interchangeably among participants to refer to Syariah compliance in financial services. In understanding what was considered permissible in financial services, most participants agreed that this referred to money originating from a Syariah-compliant source. A Syariah- compliant source of money refers to two points first, how the money is invested. Second, the absence of riba' (usury), gharar (uncertainty) or maisir (gambling) elements. To these Muslim consumers, seeking and consuming from halal sources has become an obligation for Muslims.

Additionally, the interviews also revealed that participants related their consumption decisions to consequences in the afterlife. Muslims believe in eternal life after death, where an individual deed will be judged and weighed by God (Allah). This belief is expressed in their daily activities and consumption practices; they would associate their choosing Islamic life insurance to the consequences they may face in the afterlife. For instance, B1, who is currently using conventional life insurance, is contemplating choosing an Islamic one for her kids and herself. The thought of contemplation itself brought guilt to her.

> "Recently my agent talked to me, he said 'okay, take this one [Takaful]'. Because I'm still contemplating and thinking… He said it's better to take Takaful because we know that the invested money is Syariah compliant. That made me feel [pause] He's right. Now, I feel guilty. I feel guilty because [pause] because we have this belief. Muslims have this belief on this, the afterlife. Yeah, because for us [pause] it's like we are contributing as well when we pay monthly (to the conventional life insurance], it's not much, but these payments will be asked in the afterlife." (B1)

The second symbolic meanings are the sacred and the profane meaning. It was evident throughout the interviews that participants would relate the consumption of life insurance with money. Money, on its own, can invoke various meanings and emotions (Zelizer, 1989; Belk and Wallendorf, 1990; Levav and McGraw, 2009; Humayun and Belk, 2017). The source of the money they acquired from their insurance policies has become crucial to the participants; it should be an untainted source. Upon the researcher's deeper probing into what was considered as sacred money, the participants explained that the origin of the money and where it was invested should conform to Syariah regulations; free from any riba' (usury), gambling or elements of uncertainty.

Participants were devoted to ensuring that they consumed only money from untainted sources, which was invested in Syariah-compliant businesses. Such devotion applied to choosing a life insurance provider and to other financial services they consumed. The acts of devotion were emphasised when T9 changed her current bank account into an Islamic one when she resigned from her job. She had previously conformed with her employer, who used conventional banking for their salary payments.

"Aah. For salary, they open up a new conventional account…So, I have to. But after [pause] I resigned, I [pause]. Ahh, I [pause] I went back to Islamic… So, I directly terminated that account and changed into Islamic." (T9)

Sacrifice, another element within the sacred and the profane properties are evident throughout the interviews. Participants associated their consumption with the element of sacrifice in order to gain blessings and acceptance from Allah. Sacrifice in religion is generally related to the slaughtering of animals or surrendering valuable possessions for the Divine. However, with this particular consumption, the element of sacrifice is concerned with giving up material wealth or profit for the sake of others.

"It's okay as long as it is halal. Allah provides sustenance. Even if we get Haram things, it will bring us nowhere. Allah will take back here and there. Even when we get a lot, but we may not realise that we get a lot of money, our car broke down, our child falls sick." (T2)

The third symbolic meanings that emerged is familial meaning. For most of the participants, choosing a particular type of life insurance was seen as continuing their family's norm or tradition. Consuming specific life insurance had become an accepted practice among the participants and their family members; they shared how it was common in their families to consume life insurance as recommended by their parents or siblings.

"The first insurance that I took was during my first job in 2009, yeah, at that time I was just started working, I can't remember which month, it's all because of my mom. My mom encouraged me to take the insurance…at that time our salary wasn't much, how can we pay for this? But then, my mom just asked us to take it, ha [laugh] so it went on. We just took it. Of course, all of my siblings took it, beginning with my sister. We all took it." (B1)

Finally, consuming Islamic life insurance is associated with the need to conform to societal values. Society had a strongly influence on participants' decision to consume either Islamic or conventional life insurance. B5 and T14 highlighted that Malaysian Muslims were becoming more sensitive towards halal and haram issues not only in food consumption but also in financial services. Living in Malaysia, consuming Islamic financial services, or in this case, Islamic life insurance was considered by society as a normal and acceptable practice.

"So, you know why [pause] because err Muslim nowadays are very concern. You know [pause] no doubt you want to take the Islamic policy as you also want to comply with Islamic values. Islamic ways." (B5)

"I follow because everybody says like that. The source of money is important actually because we are living in a society where if there is an obvious separation between halal and haram, we have to choose halal" (T14)

Figure 1: The different layers of meanings
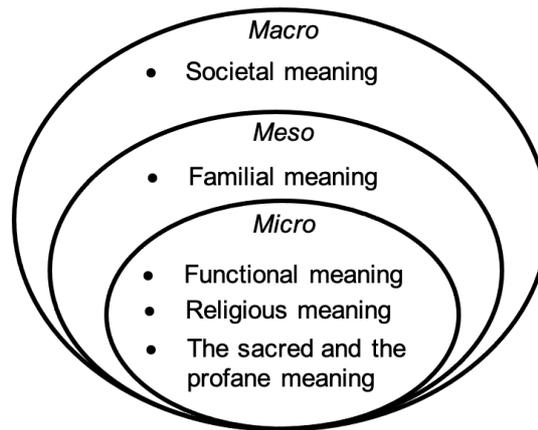
CONCLUSION AND FUTURE RESEARCH

Exploring the symbolic meanings attributed to services consumption allows the marketers and researchers to view service consumption from different viewpoints. The findings of this study are two-fold, which contribute directly towards (i) providing an alternative perspective in viewing the consumption of a mundane financial service such as life insurance which is imbued with different meanings logic (Vargo and Lusch, 2004b; Lusch and Vargo, 2006; Lusch, Vargo and O'Brien, 2007; Stephen L. Vargo and Lusch, 2008); (ii) providing evidence on the proposed linkages between S-D logic and CCT in understanding service consumption suggested by Arnould (2007). This study, therefore, proposes other service scholars to broaden their view to other perspectives that carry different meanings to consuming services altogether. These different meanings to services consumption combined as a '*shared meanings*' (Vargo, 2011) can help to shape a different landscape and understanding of service consumption as well as its marketplace formation.

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POLITICAL BEHAVIOR IN SERVICE INNOVATION: EMPIRICAL EXAMINATIONS AND RECOMMENDATIONS ON RESOURCE ALLOCATION

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ABSTRACT

Innovation often requires employees to influence social processes to help new ideas gain legitimacy, making new service development (NSD) a very political activity. However, there is little empirical evidence about the impact of political behavior in the context of NSD. Against this backdrop, our empirical results show that political behavior influences NSD, but in different ways. We find that social cohesion necessary for successful NSD strengthens when younger employees engage in office politics - whereas for employees with long tenure, no such positive effects were found. The present research makes suggestions about resource allocation that can leverage political behavior's functional effects while controlling for its dysfunctions.

INTRODUCTION

Employees engaging in innovation often try to influence colleagues to legitimize innovation driven reallocation efforts. Typical ends often include "to justify high innovation budgets" or "to promote potential cannibalizing innovations". Political behavior in general is regarded as "the management of influence to obtain ends not sanctioned by the organization or to obtain sanctioned ends through non-sanctioned means" (Mayes and Allen, 1977, p. 675). Political behavior in the context of NSD refers to the firm internal social changes that occur when new services are introduced.

Evidence suggests that when firms become more political, their internal efficiency (Dean and Sharfman, 1996; Elbanna and Child, 2007) and organizational performance (Eisenhardt and Bourgeois, 1988) suffers. Despite political behavior's bad reputation, research has also found that political behavior can improve customer satisfaction (Yagil, 2001), employee relationship quality (Wayne and Green, 1993), and firm innovativeness (Bunduchi, 2017).

Although literature has contributed to further explain the relationship between political behavior and product innovation (Roeth et al., 2019), there is little empirical evidence about the impact of political behavior in the context of NSD. Thus, the present research attempts to analyze the impact of political behavior on employee-relationship quality and employee-brand-relationship, both being critical social factors for NSD success.

Since we do not want to blur different units of analysis, we only focus on individuals' political behavior in the context of NSD. Furthermore, we only focus on NSD in customer relationships, which refers to the service innovation process where service employees closely interact with the customer (Jaakkola and Hallin, 2018).

The present research is novel in that it specifically analyses the impact of political behavior on NSD by demarcating between employees with different levels of job experience. Taken together, our research helps service providers to understand the nature and impact of political behavior on NSD and therefore allows to better allocate resources to leverage the functional effects of political behavior while controlling for its dysfunctions.

HYPOTHESES

Scholars have shown that job satisfaction is shaped by co-workers' exchange quality (Menguc et al., 2016). Besides, prior studies argue that active communication between employees are pivotal for organizational learning (Yuan et al., 2018). Similarly, studies have shown that high quality exchange between employees is characterized by mutual social support (Rosenbaum and Massiah, 2007) and therefore helps employees to

develop high identification with the company (Zhang *et al.*, 2011). In summary, we argue that when employees maintain a good relationship with their colleagues, employees' trust in the company's brand improves.

Hypothesis 1: High employee-co-worker relationship quality has a positive impact on employee-brand relationship.

Prior research has found that service employees' trust in the firm's brand impact their performance (Heskett, 2014). For employees to develop a genuine relationship with the customer (Taylor *et al.*, 2020), scholars also point out that extra-role behavior can be more important than in-role behavior (Zhao *et al.*, 2018). Since customer delight is mainly determined by service employees' altruism, establishing a strong employee-brand relationship is central to enhance the customer experience. We argue that extra-role service innovation performance, which refers to service employees' willingness "to go beyond formal job requirements by trying to sell (new) service solutions to existing customers" (Schepers *et al.* 2011, p. 376) is determined by employees' relationship with the company's brand. If service employees trust in their brand, we assume that they are likely to invest more effort into existing client relationships and establish long-term bonds with clients.

Hypothesis 2: Employee-brand relationship has a positive impact on employee extra-role service innovation performance.

Furthermore, we argue that political behavior moderates the impact of employee-co-worker relationship quality on employee-brand relationship. Additionally, we suggest that political behavior is itself influenced by employees' job experience because building high quality relationships is a time intensive process and employees with higher job experience had more time to build trustworthy relationships that are potentially affected differently by political behavior. Since the quality of relationships (between employees and between employees and the brand) within an organization is mainly build on trust (Spencer and Steers, 1980), we argue that when employees have high job experience, their firm-internal relationships require higher levels of trust than the relationships of younger employees. Since engaging in political behavior can promote distrust (Dayan *et al.*, 2012), the relationship between employee-co-worker relationship quality and employee-brand relationship can weaken. We therefore argue that when employees with high job experience do not engage in political behavior, trust increases, and therefore the impact of employee-co-worker relationship quality on employee-brand relationship improves.

Hypothesis 3a: When job experience is high, the relationship between employee-co-worker relationship quality and employee-brand relationship is moderated by political behavior, such that there will be a stronger, more positive relationship between employee-co-worker relationship quality and employee-brand relationship for those employees who demonstrate low levels of political behavior.

On the contrary, we suggest that high levels of political behavior have positive effects on the relationship between employee-co-worker relationship quality and employee-brand relationship for employees with lower job experience. We suggest that when employees have low work experience, they can use political behavior to position themselves better within the company without risking that the employee-co-worker relationship quality's impact on the brand-relationship suffers since high levels of trust are not required because social relationships still need to develop. We therefore argue that for employees with low job experience, political behavior can be functional to build new strategic networks for early career development. We argue that such coalition building can positively moderate the relationship between employee-co-worker relationship quality and employee-brand relationship because it creates a more diverse environment that breeds creativity by introducing new expertise into existing structures.

Hypothesis 3b: When job experience is low, the relationship between employee-co-worker relationship quality and employee-brand relationship is moderated by political behavior, such that there will be a stronger, more positive relationship between employee-co-worker relationship quality and employee-brand relationship for those employees who demonstrate high levels of political behavior.

METHOD

To obtain a more complete view, we study the phenomenon from a multi-country perspective to ensure that our model is not biased by within-country culture (Dayan *et al.*, 2012). Therefore, we recruited 101 participants from the prolific.co participant pool (Prolific, 2021) because service research has found that participant pools represent a reliable source for representative data (Dong *et al.*, 2015).

We searched the literature to set up the measurement items for each construct. We used five-point Likert-type formats (i.e., strongly disagree = 1 to strongly agree = 5) to score each item. Job experience was separated into 8 groups with: below 4 years = 1, four between nine years = 2, 10 to 14 years = 3, 15 to 19 years = 4, 20 to 24 years = 5, 25 to 29 years = 6, 30 to 34 years = 7 and above 35 years = 8. Political behavior was operationalized through six items adopted from Treadway *et al.* (2005). Extra-role innovative service performance was operationalized through five items based on Schepers *et al.* (2011). Employee-co-worker relationship quality was operationalized through seven items based on Menguc *et al.* (2016). Three items from Michel *et al.* (2015) were used to measure employee-brand relationship. Finally, we also included three control variables. Role ambiguity was measured through four items and role conflict was measured through three items, each item following Harris and Fleming (2017).

We assessed the reliability of our measures by conducting an exploratory factor analysis and all variables showed satisfactory properties (see Table 1, Table 2, and Table 3). To test the first and second Hypothesis, we applied a covariance based structural equation modelling approach where we attained satisfactory fit measures (confirmatory fit index: 0.904, root mean square error of approximation: 0.067). Please see Table 4 for the standardized parameter estimates. To test the moderation effects stated in Hypothesis 3, we ran a regression analysis with employee-brand relationship quality as dependent variable where we integrated political behavior, job experience, and employee-co-worker relationship quality as independent variables.

RESULTS

Table 1 illustrates the Pearson correlation coefficients (below the diagonal) and p-values (above the diagonal) of the variables. Table 2 shows the means, standard deviations, reliabilities, and average variances extracted (AVE) of those variables. The composite reliability values were all greater than the commonly suggested threshold of .70.

Table 1: Correlations and p-values among variables

	1	2	3	4	5	6	7
1. Political behavior	1.00	0.00	0.44	0.27	0.41	0.00	0.21
2. Extra-role innovative service performance	0.30	1.00	0.07	0.35	0.20	0.02	0.21
3. Employee-co-worker relationship quality	0.08	0.18	1.00	0.00	0.00	0.10	0.19
4. Employee-brand relationship quality	0.11	0.09	0.33	1.00	0.07	0.02	0.28
5. Role ambiguity	-0.08	-0.13	0.30	0.18	1.00	0.00	0.18
6. Role conflict	0.34	0.23	-0.17	-0.23	-0.30	1.00	0.15
7. Job experience	0.13	0.12	-0.13	-0.11	-0.14	0.14	1.00

Table 2: Means, standard deviations (S.D.), reliabilities (alpha) and average variance extracted (AVE) of variables

	Mean	S.D.	Alpha	AVE
1. Political behavior	3.18	0.70	0.79	0.44
2. Extra-role innovative service performance	3.83	0.70	0.85	0.56
3. Employee-co-worker relationship quality	3.69	0.67	0.87	0.50
4. Employee-brand relationship quality	3.57	1.0	0.89	0.73
5. Role ambiguity	3.93	0.87	0.89	0.70
6. Role conflict	2.82	0.91	0.71	0.50
7. Job experience	2.64	1.4		

First, we find a direct and positive relationship between employee-co-worker relationship quality and employee-brand relationship quality (See Table 3, p=0.001). Thus, the first Hypothesis is supported.

However, we do not find a direct positive relationship between employee-brand relationship and employee extra-role innovative service performance. Therefore, the second Hypothesis is not supported (see Table 3).

Table 3: Standardized parameter estimates

Path from	Path to	
	Employee-brand relationship quality	Employee extra-role innovative service performance
Employee-co-worker relationship quality	0.598	
Z-value/ P-value	3.28/ 0.001	
Employee-brand relationship		0.108
Z-value/ P-value		1.21/ 0.228

Regarding Hypothesis 3a, the results shown in Figure 1, as well as the of the significant three-way interaction term in Table 5, suggest that when employees have high job experience (Line 1 and 3), low political behavior (Line 3) leads to a stronger, more positive relationship between employee-co-worker relationship quality and employee-brand relationship. Therefore, Hypothesis 3a is supported. In contrast, when employees have low job experience (Line 2 and 4), high political behavior (Line 2) leads to a stronger, more positive relationship between employee-co-worker relationship quality and employee-brand relationship, than for those employees who demonstrate low levels of political behavior (Line 4). Consequently, Hypothesis 3b is also supported.

In sum, the results suggest that engaging in political behavior is not functional for employees with high job experience, but functional for employees with low job experience to strengthen the relationship between employee-co-worker relationship quality and employee-brand relationship.

Figure 1: Three-way interaction effects
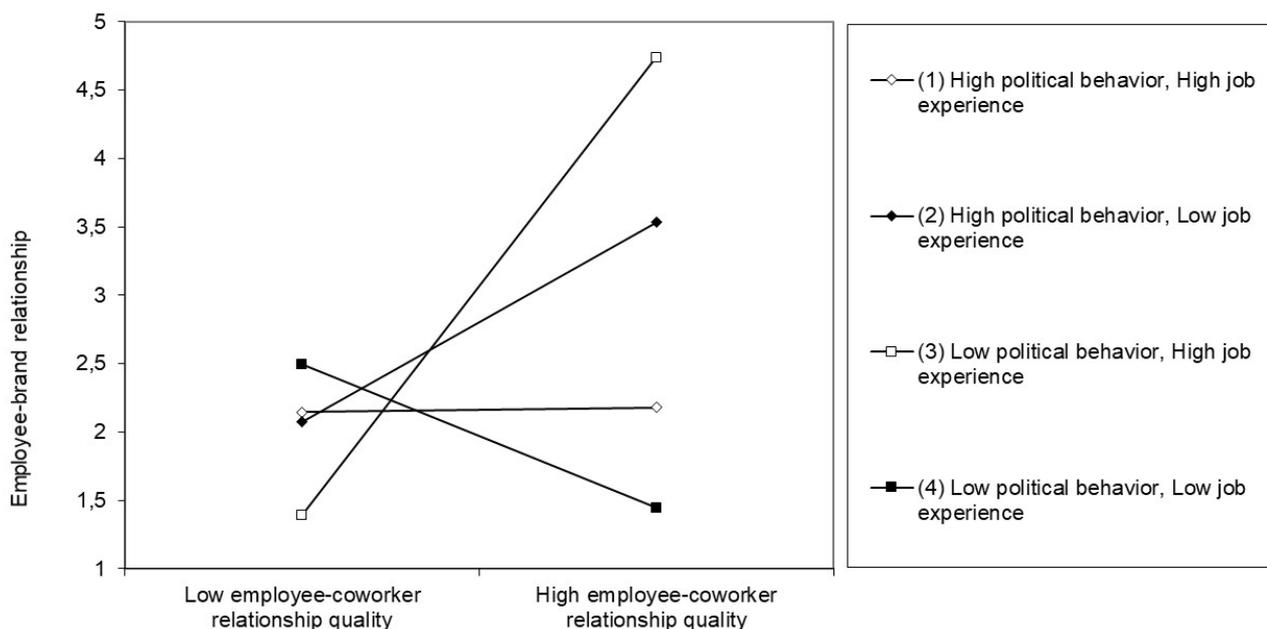
Table 5 Excerpt of regression statistics with employee-brand relationship as dependent variable

Coefficients	Estimate	T value	Pr (> | t |)
Employee-co-worker relationship quality	0.47429	2.365	0.02084
Political behavior	-0.03446	-0.174	0.86267
Job experience	0.08034	0.723	0.47197

| Employee-co-worker relationship quality*Political behavior*Job experience | -1.03634 | -3.217 | 0.00197 |

DISCUSSION

Our findings are threefold. Frist, we find a positive and significant relationship between employee-co-worker relationship quality and employee-brand relationship quality. This finding implies that improving social cohesion among employees improves how they perceive the company's brand and value proposition. From a theoretical perspective, this finding adds to literature that advocates relationship quality to improve culture, communication, and human capital (Shaner *et al.*, 2016).

Second, we do not find a direct positive relationship between employee-brand relationship and employee extra-role innovative service performance, which is surprising given the fact that research has found that service employees' trust in the firm's brand (Heskett, 2014) and their intrinsic motivation (Chan and Wan, 2012) impact their performance, especially because their close customer contact often requires them to go beyond specified job requirements (Menguc *et al.*, 2020) to achieve high customer satisfaction. Thus, our results regarding the second Hypothesis calls for further research.

Third, we find that impact of employee-co-worker relationship quality on employee-brand relationship is moderated by political behavior and job experience. For employees with low job experience, engaging in political behavior is functional to positively moderate the effect of employee-co-worker relationship quality on employee-brand relationship, whereas for employees with high job experience, engaging in political behavior is not functional.

We discussed our results with several human resource managers from German service companies to further clarify how firms can balance the different effects of political behavior for employees with high and low job experience. The managers suggested that innovation decisions should be co-sponsored by employees with lower job experience to get an early insight on decision making to leverage political behavior's functional aspects. Additionally, by forming tandems in the company, employees with high job experience can engage with employees with low job experience and explain the latter how they can communicate effectively during NSD.

To control political behavior of employees with high job experience in the context of NSD, the managers suggested that clear role descriptions and a transparent organisational structure are necessary. Furthermore, important decision should be put in writing, so that political behaviour can be minimised when multiple decision-makers are involved during innovation.

In sum, the discussions suggest that it is easier for human resource managers to leverage the functional effect of political behavior for employees with low job experience through networking events and employee development programs. On the other hand, controlling for political behavior's dysfunctions for employees with high job experience is more difficult.

To conclude, we suggest that reward systems should motivate young employees to engage in teamwork and cooperation for successful innovation. Additionally, we propose that significant resources should be invested in human resources managers' training to interpret political behavior correctly in order to distinguish between its dysfunctional and functional effects.

LIMITATIONS

Like any other study, this study is not without limitations. The variables identified in the model can be influenced by unobserved factors. Thus, the variables may be endogenous to other variables that were not considered and therefore bias the results. To reduce endogeneity, we integrated role ambiguity and role conflict as control variables. We also used role conflict and role ambiguity to account for the possibility that employees are overly optimistic or pessimistic about their performance, or about their relationship quality with their peers, and therefore bias their answers. Furthermore, our sample size is small, and data might be influenced by several social biases such as the social desirability bias because respondents do not want to admit that they act politically. Additionally, NSD processes are multi-layered (Carbonell *et al.*, 2009), whereas we only refer to the individual social processes for NSD in customer relationships. Finally, we chose a covariance based structural equation modelling approach and therefore can only evaluate how approximate

our model can reproduce our sample data. Thus, additional research should also explain the variance of our model's dependent variables using a partial least squared approach (Chin *et al.*, 2020).

FUTURE RESEARCH

Since currently no single theoretical concept can capture political behavior's complexity, political behavior provides a rich set of future research. We suggest that further research would benefit from understanding how trainable political skills (Treadway *et al.*, 2005) or inherent personality traits influence our model. Furthermore, measuring political behavior is difficult and researchers would benefit from assessing existing measurement constructs using different structural equation modelling techniques (such as partial least squared structural equation modelling).

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NECESSITY IS THE MOTHER OF INNOVATION:
A SYSTEMTATIC REVIEW OF RESTAURANT INNOVATIONS IN HOSPITALITY AND TOURISM

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ABSTRACT

This paper aims to synthesize the state of research on Restaurant Innovation in hospitality and tourism. It is the first systematic literature review within the field dealing with restaurant innovations. Consisting of a systematic literature review of peer-reviewed articles indexed on the Web of Science databases, a total of 69 studies were identified and analysed based on the following features: location of the study, methodology, authorship, and specific themes addressed. Findings indicate that the number of Restaurant Innovation publications increased significantly at times of chaos and adversity. Three research foci were identified, including product/service innovations, process innovations and institutional innovations.

INTRODUCTION

2020 has been a very challenging year for firms, societies and governments worldwide (Clark *et al.*, 2020). The appearance of 2019-nCoV, most commonly referred to as COVID-19, has compelled the governments to impose strict social interaction restrictions. Being an industry that relies heavily on mobilisation, hospitality has been acutely affected by this pandemic (Niedstadt, 2020); some firms even almost closed for months (Baum and Hai, 2020). Moreover, looking at the restaurant sector alone, epidemic infectious disease outbreaks negatively influence financial performance (J. Kim *et al.*, 2020). As a result, restaurant operators are obligated to become innovative in thinking about different ways and approaches to revenue creation and value maximisation (Miglietta, Battisti and Campanella, 2017; Deloitte, 2021). Therefore, perhaps now more than ever before, research on restaurant innovations is worthy of scholarly engagement.

As agreed by many scholars, innovation is one of the most critical factors empowering companies to face multifaceted changes in the industry (Rama, 2008; Sarkar and Costa, 2008; Capitanio, Coppola and Pascucci, 2009; Saguy and Sirotinskaya, 2016). It can improve competitiveness (Sarkar and Costa, 2008), advance profit (Chesbrough, 2011), and strengthen organisations' competitive advantage (Rohrbeck, Hölzle and Gemünden, 2009; Reed, Storrud-Barnes and Jessup, 2012). The recent lockdown certainly has changed how future hospitality business will be conducted, with reference to the new laws governing social distancing and hygiene. O'Dwyer, Gilmore and Carson (2009) further elaborated that continuous innovation is the key to small and medium-sized enterprises' growth and survival, especially in this ever-changing business environment. Therefore, it is worthy of attention to taking a look at how restaurant innovations have evolved, as it is paramount to achieve long-term success in the hospitality and tourism industry (Ottenbacher and Gnoth, 2005). However, research trends on restaurant innovations in leading hospitality and tourism journals have not been reviewed and evaluated. Taken into account this gap, this paper intends to reveal and assess the research trends on restaurant innovations in hospitality and tourism journals from 1970-2020. Since this is the first systematic research study on restaurant innovations in the hospitality and tourism field; therefore, the findings should yield invaluable implications for the hospitality and tourism field, both theoretically and practically.

LITERATURE REVIEW

With studies limited to providing an overview of how restaurant innovations have evolved (Ottenbacher and Harrington, 2007, 2009b, 2009a; Palmer and Griswold, 2011), the topic of restaurant innovations remains under-researched. Previous restaurant innovations literature only focused on the innovation process development by exploring quick-service restaurant chains (Ottenbacher and Harrington, 2009b) or fine-dining establishments (Ottenbacher and Harrington, 2007, 2009a). Therefore, further aspects of restaurant innovations need to be studied from a broader perspective of the restaurant sector.

This study utilises Hjalager's (2010) framework when reviewing the selected articles as the framework specified the types of innovations concerning the hospitality and tourism sector (Trunfio and Campana, 2019). In addition, the typology of innovations proposed by Hjalager (2010) has also combined the work from J. A. Schumpeter, one of the main innovations "knowledge producers" (Ferreira, Reis and Pinto, 2017).

In times of crisis and adversities, the restaurant sector becomes even more critical than other productive sectors (Chan, Ng and Leung, 2019). As of the end of 2020, COVID-19 had resulted in more than 100 million infections and more than two million deaths (Worldometer, 2021). Alongside its impact on public health and safety, the pandemic has also affected many other industries significantly, such as tourism and hospitality. Added to this, the marketplace is also made volatile due to the accelerated rate of the evolutions of these megatrends like globalisation, technological advancement, and sustainability (Lee and Trimi, 2021) and some other external forces like inflation, consumption behavioural change and an increase in food prices (Lee, Hallak and Sardeshmukh, 2016). As a result, once being considered as a "nice to have", restaurant innovations have become a "critical to have" in order to survive this business turmoil brought by the pandemic (Akpan, Soopramanien and Kwak, 2021). Some may argue that innovations are at risk of coming to a halt in times of crisis due to a reduction in budgetary allocations (Huhtala *et al.*, 2014; Kuckertz *et al.*, 2020). It is still apparent that innovation is crucial for businesses in a harsh environment (Chakravorti, 2010; N.K. Saunders, E. Gray and Goregaokar, 2013; Bar Am *et al.*, 2020). Like other industries, the restaurant industry is now greatly jeopardised by the influence of the COVID-19 pandemic, which has caused substantial financial losses; therefore, innovation in this industry is "more important than ever" (Hamilton, 2020). However, the progress and volume of research on restaurant innovations in hospitality and tourism have not been systematically explored.

METHODOLOGY

This paper has adopted a systematic review modified from work by Hossain et al. (2016). An initial search for literature about restaurant innovations research was conducted in late January 2021 using three separate electronic databases: Web of Science (WoS), Scopus, and Google Scholar. In order to systematically extract journals that deal with restaurant innovations in the hospitality and tourism field, five criteria were set out. These included: (1) the work being peer-reviewed in hospitality and tourism journals, which is critical for evaluating research output (Yoo and Weber, 2005); (2) the article involving the main themes (innovation and restaurants) in a relevant context; (3) the study being written in the English language; (4) the work being listed in the category of Hospitality Leisure Sport Tourism, which can better the review process (Tranfield, Denyer and Smart, 2003), prevent general biases and provide an all-encompassed summary of relevant literature (Schmitz *et al.*, 2017); and (5) the publication being written between 1970 and 2020 which is by default in WoS.

To find as much literature as possible within the above criteria, several attempts were made with different search words and phrases. The final search terms that generate the highest number of results concerning restaurant innovations were [restaurant*] and [innovat*]. The use of an asterisk in the search term [restaurant*] is to make sure both singular and plural form of the word "restaurant" will appear in the article's title, keywords or abstract; while the asterisk is used in the search term [innovat*] as it helps identify work with keywords such as "innovation," "innovative," and "innovativeness".

The gross number of 95 relevant articles were identified. However, several unexpected results were generated from the search strings, such as articles about what civilians and soldiers consumed during the Great War, an article about the black travel experience, and articles about smart tourism. Through a systematic review of the titles, abstracts and keywords of these 95 articles, 11 articles were eliminated, which reduced the number of possible relevant papers to only 84. Subsequently, the abstracts of these 84 articles were reviewed individually by applying the selection criteria mentioned above. For some of the articles, the full papers were analysed instead since the abstracts did not yield enough information. Finally, 15 journals were removed as they were either irrelevant to the main theme of this research or found not to be peer-reviewed articles. Altogether, 69 relevant works were selected for this study.

RESULTS

Publications by geographic distribution (by country)

Figure 1: Geographic distribution of research on restaurant innovations (by country)
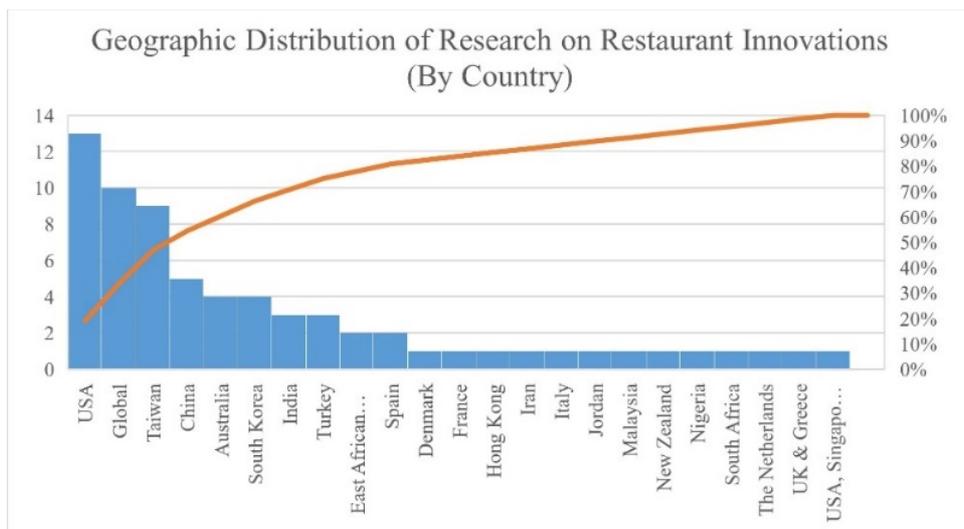
Figure 1 is a Pareto distribution showing the locations of the research conducted by country. Five countries, including the USA, Taiwan, China, Australia, and South Korea, account for slightly over fifty per cent of the researches on restaurant innovations. The USA is the most frequently researched country (13 papers, 18.8 per cent), followed by Asian countries: Taiwan (nine papers), China (five papers), and South Korea (four papers).

Publications by geographic distribution (by region)

Figure 2: Geographical distribution of research on restaurant innovations (by region)
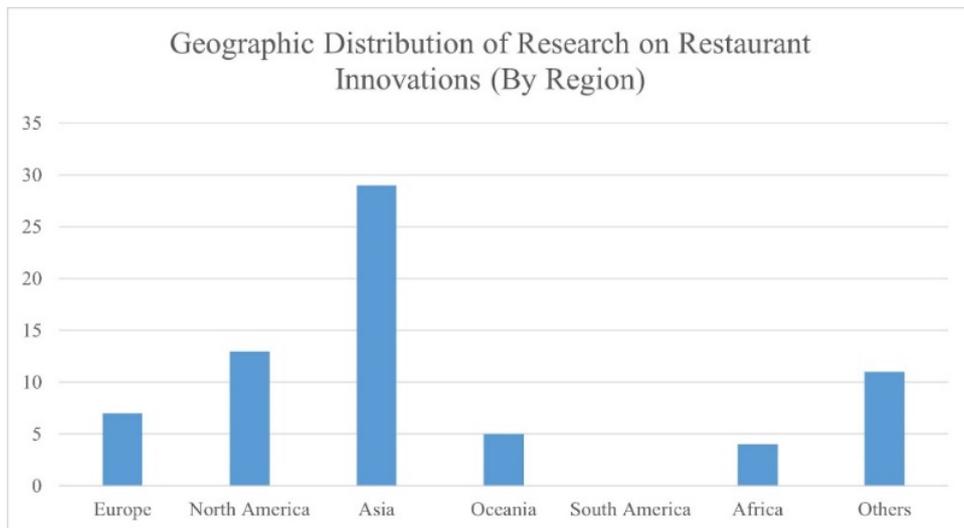
In Figure 2, the study area on restaurant innovations has been grouped into six geographical regions, including Europe, North America, Asia, Oceania, South America, and Africa. With the highest number of works from Taiwan, the number of Asian-centric research is exceptional (29 articles, 42 per cent). North American-based studies have also occupied a significant proportion (13 articles, 18.8 per cent). Researches from Europe represent slightly over ten per cent of the total. This analysis also indicated that there are no restaurant innovation studies based in South America.

Publications by author

Table 1: List of authors with two or more articles on restaurant innovations

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Rank	Name of the First Author	Number of Articles Published	Institution of the Author
1	Horng, Jeou-Shyan	4	JinWen University of Science & Technology, Taiwan
2	Lee, Craig	4	University of Otago, New Zealand
3	Chou, Sheng-Fang	3	Ming Chuan University, Taiwan
4	Jin, Naehyun (Paul)	3	George Mason University, USA
5	Erkuş-Öztürk, Hilal	2	Akdeniz University, Turkey
6	Fang, Chin-Yi	2	National Taiwan Normal University, Taiwan
7	Hyun, Sunghyup Sean	2	Pusan National University, South Korea
8	Kim, Eojina	2	Virginia Polytechnic Institute and State University, USA
9	Li, Minglong	2	Zhongnan University of Economics and Law, China
10	Okumus, Bendegul	2	University of Central Florida, USA
11	Otengei, Samson Omuudu	2	Makerere University Business School, Uganda

Table 1 illustrates the names of the authors who have appeared as first authors in two or more publications. Amongst the 156 authors who have contributed to the 69 publications selected in this study, two individuals stand out: Jeou-Shyan Horng and Craig Lee, both with four articles. The other nine authors listed in Table 1 have written two to three papers each. Of the 11 authors, three are from the USA, and three are from Taiwan.

Publications by journal

Table 2: List of journal names with two or more articles on restaurant innovations

Rank	Name of the Journal	SCIMago Journal Rank (2019)	Country of Publication	Number of Articles Published	Share of Articles (%)
1	International Journal of Contemporary Hospitality Management (IJCHM)	2.203 (Q1)	UK	16	23.1
2	International Journal of Hospitality Management (IJHM)	2.217 (Q1)	UK	10	14.5
3	Journal of Hospitality and Tourism Research (JHTR)	1.618 (Q1)	USA	5	7.2
4	Journal of Hospitality and Tourism Management (JHTM)	0.970 (Q1)	UK	4	5.8
5	Asia Pacific Journal of Tourism Research (APJTR)	0.719 (Q2)	UK	3	4.3
6	Journal of Hospitality Marketing and Management (JHMM)	1.517 (Q1)	USA	3	4.3
7	Tourism Management (TM)	3.068 (Q1)	UK	3	4.3
8	Tourism Management Perspectives (TMP)	1.186 (Q1)	USA	3	4.3
9	Worldwide Hospitality and Tourism Themes (WHTT)	0.374 (Q3)	UK	3	4.3
10	International Journal of Hospitality & Tourism Administration	0.557 (Q2)	USA	2	2.9
11	Tourism Economics	0.611 (Q2)	USA	2	2.9
12	Tourism Geographies	1.069 (Q1)	UK	2	2.9
	Others			13	18.8

Table 2 indicates the names of the journals that have published two or more articles on restaurant innovations, together with the country of origin of the journals and their respective SCImago Journal Rank.

There are 12 such journals that account for 56 (81.1 per cent) publications in total. The remaining 13 papers have appeared in various other hospitality and tourism journals. The IJCHM is listed on the top with 16 articles, followed by the IJHM with ten articles. Other journals that have published a significant number of articles on restaurant innovations include the JHTR (five papers) and the JHTM (four papers). Five journals have issued three articles each: the APJTR, the JHMM, the TM, the TMP, and the WHTT.

Publications by methodology

Table 3: Research methods in restaurant innovations

Research Method	Number of Articles	Share of Articles (%)
Qualitative	26	37.7
Quantitative	40	58.0
Mixed Methods	3	4.3
Total	69	

An overview of the methodology used in the selected articles for this study is demonstrated in Table 3. More than fifty per cent of the papers chosen used the quantitative method (40 papers) in which, on top of literature reviews, the majority used questionnaires or in a few studies, used secondary data. On the other hand, 26 papers or 37.7 per cent of the literature search used the qualitative method in which, on top of literature reviews, the majority used semi-structured interviews, ethnographic and nethnographic studies, case studies, or more than one of these methods. The remaining three articles used the mixed-method approach in which the qualitative methods were used before the quantitative approach.

Publications by keyword

Table 4: Most frequently used keywords in the articles on restaurant innovations

Keyword	Frequency
Innovation	16
Restaurants	14
Hospitality	8
Innovativeness	6
Service Innovation	4
Tourism	4

The keywords that are most commonly used are listed in Table 4. Within expectation, "Innovation" was the most frequently used keyword, with a frequency of 16. The keyword "Restaurants" took the second position with a frequency of 14. Next, keywords like "Hospitality" and "Innovativeness" were used with the frequency of 8 and 6, respectively. The remaining keywords in Table 4 have a frequency of four. These keywords include "Service Innovation" and "Tourism."

Publications by year

Figure 3 presents the distribution of articles across the period between 1970 and 2020. It is indicated that there has been a general increase in research output since 2015, despite some year-to-year fluctuations. There are no articles published prior to 2009. The years 2009 through 2014 produced the lowest number of results, each with less than five publications fitting the search criteria. Three significant surges of research on restaurant innovations appeared in 2015 (from two papers to eight papers), in 2016 (from eight papers to 13 papers), and in 2019 (from six papers to ten papers).

Figure 3: Number of restaurant innovations publications per year

Number of Restaurant Innovations Publications per Year
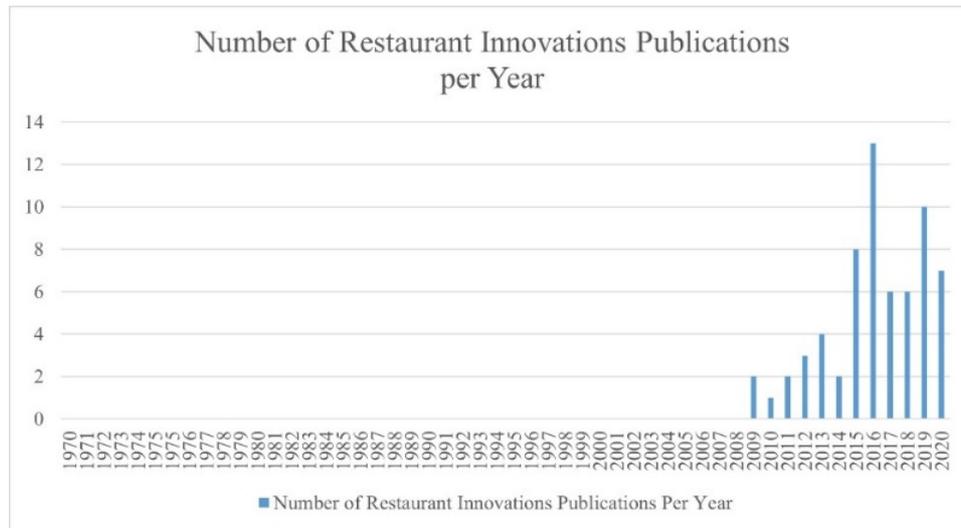
Publications by types of innovations

Table 5: Distribution of research articles by research focus

Research Focus	Number of Articles	Share of Articles (%)
Product/Service Innovations	24	34.8
Process Innovations	15	21.7
Managerial Innovations	12	17.4
Marketing Innovations	5	7.2
Institutional Innovations	13	18.8
Total	69	

In terms of research focus, the articles were categorised into five categories (see Table 5) according to Hjalager's Framework (Hjalager, 2010). Nearly one-third and the highest number of the reviewed articles had a product/service innovations focus (34.8 per cent). This was followed by another 21.7 per cent with a process innovations focus, 18.8 per cent focused on institutional innovations, and 17.4 per cent, which looked into managerial innovations. Only five articles out of 69 reviewed articles (7.2 per cent) had a marketing innovation focus.

DISCUSSIONS AND IMPLICATIONS

Discussions

This paper is a systematic review of restaurant innovations literature in hospitality and tourism journals. The descriptive analysis above highlighted the progress of existing research on restaurant innovations and revealed avenues for future studies in the hospitality and tourism industry.

First, this study reveals that despite the USA being the most researched country (13 papers, 18.8 per cent), most research on restaurant innovations is predominantly undertaken in Asia, like Taiwan (nine papers, 13 per cent) and China (five papers, 7.2 per cent). Therefore, the literature suggests that the restaurant sector in Asian countries implements more active innovation practices than practitioners in western countries. This Asian hegemony trend could be interpreted as an indication of the shift toward Asian countries prioritising restaurant innovations practices compared to their western counterparts. However, it is hard to conclude that countries like Taiwan and China are the key players in restaurant innovations studies because the number of papers represented is insignificant. Though, future studies should focus more on emerging regions such as South America and Africa. Being described as the "Innovation Paradox" (Cirera and Maloney, 2017), developing economies are not known for being innovative despite the vast potential returns to innovation (Aubert, 2004). Therefore, putting more emphasis on these countries may potentially create the right "ambience" for innovation (Srinivas and Sutz, 2008).

Second, this study helps identify the most influential authors and journals about restaurant innovations in the field of hospitality and tourism. Although the authors of restaurant innovations represent different institutions in Asia, such as China, South Korea, and Taiwan, the fact that most of the reviewed articles were published in journals from the UK creates an obstruction to authors from non-English speaking countries (Gaertner, 2020). Furthermore, strong statistical evidence has shown that the rise in Asian innovation is "everywhere" (Kulkarni, 2019), and with Asia being considered as a "global innovation driver" (Bertelsmann Stiftung, 2016); it is, therefore, imperative to increase the diversity of authors concerning their nationalities and also to widen the geographical scope of restaurant innovations studies.

Third, this study shows that the quantitative research method continues to dominate the field of restaurant innovations. This contradicts the findings from (Marasco *et al.*, 2018), in which they discovered that qualitative methodology is a preferred way to study collaborative innovations in tourism and hospitality. Similarly, the results from the study done by (Sharma, Chen and Liu, 2020) also revealed that qualitative studies with case study are the most used method in researching eco-innovation in hospitality. Yet, the results of this study can be explained by the challenges and difficulties that researchers have to face when conducting qualitative studies in restaurants (Rodgers, 2011; Arendt *et al.*, 2012). Mixed methods research (MMR), on the other hand, is seldom adopted in restaurant innovations, as indicated by this study. Many authors such as Tashakkori and Teddlie (2003), Creswell, (2015), Fetters and Molina-Azorin (2017), and Truong, Xiaoming Liu and Yu (2020) supported the idea of MMR as it is proven to be significantly valuable when researching extraordinary events and crises (Morse, 2003). Hence, it is suggested that scholars should exploit MMR in restaurant innovations researches in the future.

Fourth, this study displays the trend in restaurant innovations research in hospitality and tourism corresponding to major events worldwide. For example, the emergence of the H1N1 virus in early 2009, which has caused more than 500,00 deaths (CDC, 2019), matches the year when the earliest reviewed article in restaurant innovations was written. Furthermore, our analysis revealed a surge in restaurant innovations studies after the Zika outbreak in 2016 that put the hospitality and tourism industry in jeopardy (Ho *et al.*, 2017). And in "The Year of Protests" (Healy, 2019), which inflict significant damage in the hospitality and tourism industry (Kim et al., 2020; Girish et al., 2021), has driven a massive increase in restaurant innovations research. It is believed that most major crises inspire innovation (Schiller, 2020) as each crisis provides "a sudden and real sense of urgency" (Johnson and Murray, 2020). This urgency empowers businesses to forgo all other priorities and reallocate their resources to concentrate on solving the problem (Bar Am *et al.*, 2020). Solving problems has always been "at the heart of innovation" (Clark, 2020), and thus, times of adversity are prime for innovation.

Last, this study exposes emerging restaurant innovations topics through keyword analysis (Wen and Huang, 2012). Such topics are service innovations, consumer innovativeness, market orientation, employee innovative behaviour, customer participation, restaurants performance, and customer satisfaction. The keyword analysis also discloses information on topics that could merit more attention from scholars. These topics include restaurants design, sustainability, human resource management and customer loyalty. The categorisation of restaurant innovation papers in this study illustrates scarcity in research concerning managerial innovations and marketing innovations. It is, for that reason, studies in these areas are needed.

Implications

The theoretical significance of this study is its contribution to the organisation of the current body of knowledge on restaurant innovations in the hospitality and tourism sector by presenting a systematic review of the literature, different research methods and the key topics on restaurant innovations. It helps provide insights into the future research of restaurant innovations in hospitality and tourism. Additionally, the study also ascertains several issues that are worth investigating further.

The practical implication of this study is that the things many restaurant practitioners fear most, for example, the current COVID-19 pandemic, is also the primary source of creativity. It is, in fact, in times of chaos that organisations should be poised to seize and embrace new opportunities to address real immediate issues. Studies have also shown that innovations in the hospitality and tourism industry exert a positive influence on performance, including financial and marketing performance and service quality (Gomezelj, 2016). So to expedite the innovation process, managers should keep themselves apprised of the current trends within the

industry by following the works or keeping in touch with scholars in universities, educational institutions, and similar associations (Ivkov *et al.*, 2016). This study, therefore, has fulfilled the purpose by pursuing a general overview of the progress of restaurant innovations literature.

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INTERNATIONALIZATION AND INNOVATION IN THE HOTEL INDUSTRY: THE ROLE OF DYNAMIC CAPABILITIES

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ABSTRACT

The hotel industry is going through one of its worst moments due to the Covid-19 pandemic. Researchers must focus their efforts on the key issues that allow these companies to not only survive, but also to increase their competitiveness. In view of this, this paper focuses on internationalization and innovation as important strategies to increase the performance of hotels, and on the key role of dynamic capabilities in these relationships. From a sample of 107 international Spanish hotel chains, our results confirm the need to increase efforts in the development of dynamic capabilities in order to achieve greater productivity and improve the competitiveness of these hotels.

INTRODUCTION

The situation currently facing the hospitality industry, as a result of the devastating Covid-19 pandemic, has led researchers to focus on strategic issues that can help these companies adapt to this new international landscape. In this regard, strategies linked to internationalization or innovation are gaining prominence because they both allow hotel managers to adopt a resilience-oriented management approach (Melián-Alzola, Fernández-Monroy and Hidalgo-Peñate, 2020), contributing not only to organizational survival, but also to business competitiveness (Lee *et al.*, 2013).

Greater internationalization in the hotel sector is usually associated with a higher degree of company innovation. However, in international markets, innovations can be conditioned by both the development of existing capabilities and the creation of new capabilities gained by adapting to the foreign market. In this sense, the development of dynamic capabilities is crucial for companies seeking to capture the needs of the environment, assimilate them and deploy the necessary and appropriate resources in this new context. This leads us to a more complex model in which the dynamic capabilities of the company are incorporated as mediators between the degree of internationalization assumed by the hotel and the degree of innovation achieved. This is important since there are studies that relate greater innovation with better performance in the hotel industry (Hameed, Nisar and Wu, 2021; Hult, Hurley and Knight, 2004; Martínez-Román *et al.*, 2015; Panayides, 2006).

Different theories have been used to analyze the influence of internationalization on performance ─ FDI theories, the Uppsala Model, the resource-based view, or learning theories among others ─ (Hitt, Hoskisson and Kim, 1997). They all share the idea that to achieve differentiated performance firms should develop the ability to engage and develop learning opportunities in international markets (Ruigrok and Wagner, 2003). This is why dynamic capabilities play a central role in this research. The objective of this paper is to highlight the importance of developing dynamic capabilities for international hotel chains and their link with innovation and performance.

The arguments developed in this paper are mainly based on the dynamic capabilities perspective, which stresses the importance of manipulating resource configurations and developing/building dynamic capabilities in response to market changes to gain competitive advantage over firms with less effective capabilities (Eisenhadrt & Martin, 2000). This perspective "may be further tailored to firms' specific internationalization processes as each of them, incremental or accelerated, suggests a predefined path for differential capability building" (Prange and Verdier, 2011, p.127). Moreover, some aspects of the knowledge-based view arere incorporated (Grant, 1996; Spender, 1996), which promotes the importance of incremental

learning and knowledge accumulated during the internationalization process because they could enhance success in international markets.

This analysis is important for several reasons. First, innovation is considered a critical factor because it increases business performance and improves competitiveness in uncertain environments (Akbari *et al.*, 2020). Second, the literature focused on the relationship between internationalization and performance is not conclusive and new variables should be taken into account from a more complex perspective. In an international context, the development of dynamic capabilities allows the firm to better adjust to the new market, to engage in and develop new learning opportunities, and it will lead to differentiated performance. Third, a complex model that links internationalization and innovation through dynamic capabilities is presented, emphasizing the process of organizational learning, as it is fundamental for firms to develop innovations during international expansion. Finally, these aspects are studied in the context of the tourism industry, a driving force of the Spanish economy and one of the sectors that is currently most affected by the pandemic. At this time, studies to improve the performance of hotels are required.

The structure of this paper is as follows. After the introduction, a literature review is carried out, relating internationalization, innovation and performance, and incorporating the mediation of dynamic capabilities in these relationships. The methodology is then explained, describing the different variables included and the analysis performed. The results are then presented and discussed, ending with the main conclusions of the paper.

LITERATURE REVIEW AND HYPOTHESES

Internationalization and innovation strategies are considered as complementary because innovation theories can provide insights into the driving forces, nature, and processes of internationalization; and internationalization is a key dimension of tourism innovation, which is evident in terms of markets, knowledge transfer and production conditions (Wlilliams and Shaw, 2011).

Johanson and Vahlne (1977), with the Uppsala internationalization process model, propose the idea that firms learn through experience in an international context. Following the organizational learning theory, internationalization is a way to extend and exploit knowledge found in new markets (Úbeda-García *et al.*, 2021). As the scope of internationalization increases, the company can access new strategic knowledge and new complementary skills (Tallman and Fladmoe-Lindquist, 2002). Firms can achieve competitive advantage in the global context by establishing strategies that exploit and build unique internal capabilities.

Following Agarwal, Erramilli and Dev (2003) and Campo, Díaz and Yagüe (2014), hotel innovation is considered as an orientation toward the incorporation of new services and new processes, where marketing and organizational aspects are also contemplated, in the competitive context of its markets.

Different forms of innovation derive from internationalization in the case of hotels. First, the simplest is when the company makes small local innovations or adaptations to the target market. Second, the internationalization process is progressive and dynamic, indicating that it adapts with experience and time in the foreign market (Welch and Welch, 1996). For example, when a hotel starts its internationalization process and invests in another country it usually lacks local knowledge and contacts, requiring intermediaries for its activity. Subsequently, the experience and knowledge acquired can lead to the elimination of dependence on these intermediaries. Third, this innovation can also be reflected in the entry mode. Thus, hotels vary their entry strategy in foreign markets from less resource-intensive forms, referred to as 'asset-light' modes (management contracts and/or franchising, for example) to riskier forms when local knowledge is increased (wholly-owned subsidiaries) (Andreu *et al.*, 2000).

The proposed arguments lead us to establish the first of the hypothesis:

Hypothesis 1: Internationalization is positively related to innovation in international hotel chains.

Possessing certain advantages may not be enough in the international context. The firm needs distinctive capabilities to make better use of resources. Some studies show that firms improve their competitiveness

when they learn and apply this knowledge to foreign markets, i.e., on the basis of their dynamic capabilities (Chang and Rosenzweig, 2001; Luo, 2002; Sapienza *et al.*, 2006; Tallman and Fladmoe-Lindquist, 2002).

Teece (2007) highlights the importance of the dynamic capabilities perspective for international firms, due to the importance of exchanging or acquiring know-how in foreign markets with fast-moving environments and increased global competition. This perspective emphasizes the learning process in terms of increasing knowledge. This knowledge can be used to learn from success and failure during the expansion to new markets (Arikan *et al.*, 2020).

In the hotel industry, the dynamic capabilities perspective argues for the importance of both exploiting current capabilities (capability leverage) and building new capabilities (capability building) for the development of sustainable competitive advantages (Úbeda-García *et al.*, 2021). Current and new capabilities reflect the organization's ability to adapt to changing environments and to achieve new and innovative forms of competitive advantage (Teece, Pisano and Shuen, 1997). The lessons learned and knowledge gathered continuously change the hotel resource base to comply with future changes in the environment (Nieves, Quintana and Osorio, 2016). In this regard, learning and knowledge transfer are central to tourism innovation (Shaw and Williams, 2009; Williams and Shaw, 2011).

These ideas suggest a mediation role of dynamic capabilities. That is to say, the influence of internationalization on innovation is not direct but that innovation also increases when international hotel chains develop dynamic capabilities. International hotels sense the needs of new markets, from customers or even providers; and later seize opportunities by adopting the activities necessary to explore and select feasible opportunities for change; and finally transform the hotel through the implementation of new services. This mediation leads hotels to develop their own innovation strategy formulation and respond with new services, processes, commercial activities or organizational adjustments.

For this reason, we propose the following hypothesis:

Hypothesis 2: The development of dynamic capabilities positively mediates the internationalization-innovation relationship in international hotel chains.

Past research recognizes that innovation may be considered important for gaining competitive advantage in many international and global markets (Franko, 1989; Porter, 1990). Moreover, the long-term performance of firms operating in international markets may be based, at least partially, on their ability to develop product and process innovations (Hitt *et al.*, 1997). The benefits of innovation in the context of internationalization are diverse: the firm could spread R&D investments when it operates in several foreign markets simultaneously (Genc, Dayan and Genc, 2019; Hitt, Hoskisson and Ireland, 1994; Oviatt and McDougall, 1994); the strategy of innovation could lead to an innovative differentiation strategy for different markets (Mitroulis and Kitsios, 2017); and overcoming local disadvantages is made easier for innovating companies that are expanding internationally (Porter, 1990).

In this international context, innovations are found to impact profitability and performance (e.g., Calantone *et al.*, 2004; Hitt *et al.*, 1994; Oviatt and McDougall, 1994). Nevertheless, there are authors that find different results (Campo *et al.*, 2014; Kunttu and Torkkeli, 2015; Tsai and Ren, 2019). In addition, many papers relate internationalization to innovative performance (Tse *et al.*, 2021; Genc *et al.*, 2019; Hsu, Lien and Chen), and do not consider the company's performance at the international level.

In the tourism industry the literature highlights innovation as one of the key elements that influences firm performance (Salem, 2014). Specifically, for the hotel industry, many studies relate greater innovation with better performance (e.g., Hameed *et al.*, 2021; Hult *et al.*, 2004; Martínez-Román *et al.*, 2015; Panayides, 2006), although the literature focusing on the performance of hotels in an international context is not so extensive.

In the tourism industry, firms require innovations to develop new organizational forms to advance in culturally and institutionally distant markets (Williams and Shaw, 2011). This study proposes that the knowledge of internationalized firms is expected to be more diverse and help enhance innovative capacity (Phene and

Almeida, 2008) and, consequently, hotel performance (Hernández-Perlines, *et al.*, 2019). Accordingly, we propose our third hypothesis:

Hypothesis 3: Innovation is positively related to performance in international hotel chains.

Figure 1 shows the model proposed in this paper, which describes the direct relationships and the mediating effect of dynamic capabilities of global hotel chains.

METHODOLOGY

Sample and data collection

The research is focused on the Spanish hotel industry, with a population of 647 hotel chains included in Alimarket Hotels and Catering Yearbook 2019, a database which gathers financial and commercial data on the most important Spanish based hotel firms. Data collection was carried out through an online survey (from November 2019 to February 2020) sent to the managers of Spanish hotel chains. Different rounds and calls were necessary to obtain the final sample of 107 hotel chains, which implies a response rate of 16.54%. To test for non-response bias, a comparison between the early and late respondents to the survey was conducted. A statistical comparison of these two data sets revealed no statistically significant differences.

Figure 1: Theoretical model
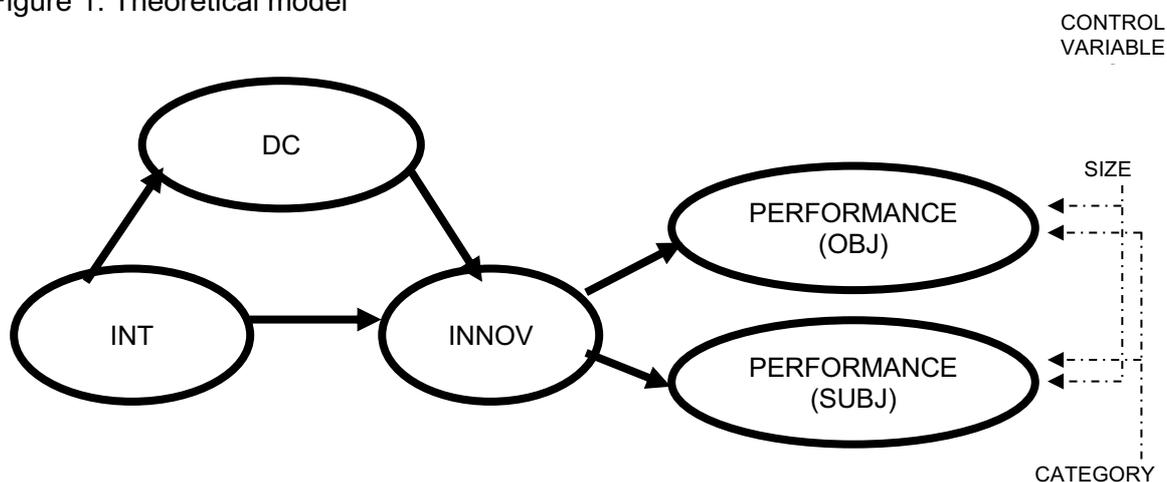
Measures and scales

Internationalization (INT)*.* The first independent variable in the model is *internationalization*. The impact of international activity was examined through three measures. First, the number or volume of international activities in the hotel industry, which is often measured by the number of rooms abroad over the total number of rooms (Brida *et al.*, 2016; Lee *et al.*, 2014). Second, internationalization was also assessed according to the scope of the geographical dispersion achieved by the firm's activities (Lu and Beamish, 2004; Rienda, Claver and Andreu, 2020). The number of foreign countries in which the chain operates is another widely used measure in hotel industry studies (Tallman and Li, 1996). Third, the number of hotels abroad is another indicator of the degree of internationalization of the hotel chain. This variable was also introduced in the model (Berbel-Pineda, Palacios-Florencio and Ramírez-Hurtado, 2017; Burgess *et al.*, 1995).

Innovation (INNOV). To operationalize the second independent variable, *innovation*, we consider four types of innovation: innovation of services, processes, marketing, and organization. We used a 15-item scale previously validated by Nieves, Quintana and Osorio (2014) and Nasution *et al.* (2011), which was adapted to the contents of the Oslo Manual (OECD, 2005). Respondents were asked to indicate their level of agreement with the questionnaire items, with response ranges from 1 (strongly disagree) to 7 (strongly agree).

Dynamic capabilities (DC). This variable was used as a mediating variable in the relationship between internationalization and innovation. Following Teece's (2007) definition, we conceptualized *dynamic*

capabilities through 12 items (Wilden *et al.*, 2013), considering the following classification of dynamic capabilities: sensing, identification of threats and opportunities; seizing, taking advantage of these opportunities; and reconfiguring, reconfiguring and transforming the internal resource base to adapt to the dynamic and changing environment.

Performance (PERF). This variable has been examined from different perspectives and contexts (Rienda *et al.*, 2020). In our case, we tested the extent to which innovation and internationalization, through the development of dynamic capabilities, influence performance. To this end, performance was measured through two methods. First, for *objective performance*, different variables, collected in the Alimarket database as well as in SABI [Iberian Balance Analysis System], were used: operating profit (through EBITDA) and income before taxes. These two variables corresponding to the last three years. Other studies focused on the tourism industry have also used these values to measure firm performance (Neves and Lourenço, 2009; Segarra-Oña *et al.*, 2012). Second, for *subjective performance*, following the indications of Fraj, Matute and Melero (2015) and Božič and Knežević Cvelbar (2016), we asked the respondents to evaluate the items related to performance in relation to their main competitors using a 7-point Likert scale. Specifically, four items were used that represent specific performance criteria of the hotel sector (average daily rate-ADR, revenue per available room-RevPAR-, customers' level of satisfaction and employees' satisfaction). These items were used previously for the hotel industry (Úbeda-García *et al.*, 2016; Wilke *et al.*, 2019).

Size. The first control variable used is *hotel size*. Different results were found in the literature on the hotel industry around the influence of size on performance and internationalization (Lee *et al.*, 2014). The average number of employees of each hotel chain in the last three years was chosen as a measure of firm size (Brida *et al.*, 2016; Ramón, 2002; Úbeda-García *et al.*, 2021).

Category. Finally, in the hotel industry, the intangibility of services should increase with the number of stars (Brown and Dev, 2000). Thus, we measured hotel chain *category* using a variable with 3 categories. Hotel chains were classified into 3 categories (3, 4 and 5 stars), depending on the highest percentage of hotels that the chain owns in each of these categories.

Statistical analysis

For the purpose of linking data and theory, the partial least squares structural equation model (PLS-SEM) was applied. This methodology represents, estimates and tests a theoretical network of linear relationships between variables that may be unobserved, i.e., latent variables. This approach has been used to estimate causal models in many situations of theoretical models and empirical data (Hair *et al.*, 2014). Different studies in the hotel industry, from a dynamic perspective, have opted for this technique in recent years (e.g., Leonidou *et al.*, 2015; Pereira-Moliner *et al.*, 2021).

The choice of this method was driven by the fact that the study is predictive explanatory, which fits the context of PLS and the sample (n =107) is not very large but suits the sample size requirements set for PLS as the minimum sample size is not demanding (Henseler, Ringle and Sarstedt, 2015). The analysis was implemented through the SmartPLS v3.3 software (Ringle, Wende and Becker, 2015).

RESULTS

To test the hypotheses, the first step consists of the assessment of the measurement model: reliability and discriminant validity (Hair *et al.*, 2016). Reliability of the individual indicators were examined, evaluating internal consistency (assessing the composite reliability), and testing convergent validity through Average Variance Extracted (AVE). The external loads for all constructs (internationalization, innovation, dynamic capabilities and performance) were considerably above the minimum value ≥0.707, which indicates that the different indicators present sufficient levels of reliability at an individual level. To assess the reliability of constructs or internal consistency Cronbach's alpha, composite reliability, and consistent reliability measure were checked. All constructs exceed the value 0.8 in the three criteria mentioned, which means that the internal consistency of these scales is satisfactory. In the assessment of convergent validity at the construct level, all values of the constructs in this study were greater than 0.50.

To conclude the assessment of the measurement model, the discriminant validity through the assessment of the heterotrait-monotrait ratio (HTMT) of correlations was examined (Henseler *et al.*, 2015). The values for all constructs are clearly below 0.85, which indicates a good level of discriminant validity in the measurement model.

In the second step, the structural model is evaluated and the hypotheses tested. Structural model collinearity was first verified to conduct a deeper analysis of the results obtained. The suggested VIF values were satisfactory for all variables because they were less than 3, and no collinearity problems arose. Then we examined the relationships proposed in the model and the coefficients of determination (R^2) obtained after bootstrapping with 5,000 subsamples, which supports the proposed conceptual model. Moreover, the blindfolding-based cross-validated redundancy measure (Q^2) of each construct was observed. All Q^2 values are higher than 0, which implies that the model shows predictive relevance. Finally, the goodness-of-fit of the saturated models was also evaluated. The SRMR was 0.074, under the recommended 0.08 (Hair *et al.*, 2019).

Hypotheses testing was based on a bootstrapping process with 5,000 subsamples (95% confidence interval). Table 2 shows the results of the analysis.

Table 2: Relationships between variables: direct, indirect and total effects

Structural path	Coef (β)	S.D.	t value	95% CI	Hypotheses
Direct effects					
INT → INNOV	0.040	0.041	0.977 ns	[-0.030; 0.102]	H1→ Not supported
INT → DC	0.268	0.058	4.655***	[0.178; 0.367]	
DC → INNOV	0.643	0.075	8.541***	[0.518; 0.762]	
INNOV → PERF (OBJ)	0.102	0.045	2.290*	[0.030; 0.175]	H3 → Supported
INNOV → PERF (SUBJ)	0.627	0.058	10.747***	[0.530; 0.725]	H3 → Supported
Size→ PERF (OBJ)	0.352	0.074	4.754***	[0.262; 0.503]	
Size→ PERF (SUBJ)	0.141	0.051	2.789**	[0.058; 0.225]	
Category→ PERF (OBJ)	-0.158	0.073	2.168*	[-0.290; -0.052]	
Category→ PERF (SUBJ)	-0.049	0.077	0.640 ns	[-0.181; 0.072]	
Indirect effects					
INT → DC → INNOV	0.173	0.040	4.330***	[0.113; 0.241]	H2 → Supported
INT → DC → INNOV → PERF (OBJ)	0.018	0.010	1.854†	[0.005; 0.035]	
INT → DC → INNOV → PERF (SUBJ)	0.108	0.028	3.918***	[0.068; 0.158]	
Total effects					
INT → PERF (OBJ)	0.022	0.013	1.726†	[0.005; 0.045]	
INT → PERF (SUBJ)	0.133	0.039	3.378***	[0.070; 0.199]	

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; † $p < 0.10$; ns not statistically significant

The first relationship tested, the influence of internationalization on the capability of innovation of hotel chains (H1: INT → INNOV) was not significant (β = 0.040 and p-value = 0.493). Therefore, Hypothesis 1 is not supported. Nevertheless, in Hypothesis 2 the development of dynamic capabilities by international hotel chains mediates the last relationship proposed (H2: INT → DC → INNOV). This hypothesis is positively significant (β = 0.173 and p-value = 0.000), which leads us to accept H2. Moreover, the mediating effect is total since only the indirect effect is significant. Therefore, the influence of internationalization on the innovation capacity of hotel chains is fully mediated by the development of dynamic capabilities. Finally, the relationship established in Hypothesis 3, the influence of innovation on performance (H3: INNOV → PERF) is also positively significant (β = 0.102 and p-value = 0.023, for objective performance; β = 0.627 and p-value = 0.000, for subjective performance), supporting the last hypothesis.

In addition, regarding control variables, hotel size significantly affects performance (β = 0.352 and p-value = 0.000, for objective performance; β = 0.141 and p-value = 0.006, for subjective performance), and hotel category only is significant for objective performance (β = -0.158 and p-value = 0.027).

DISCUSSION

In today's environment, where competition is more intense and the pace of change is accelerating, together with the uncertainty resulting from the pandemic, companies are increasingly required to sense opportunities and threats, seize recognized opportunities and reconfigure resources and capabilities (Haapanen, Hurmelinna-Laukkanen and Puumalainen, 2020; Teece, 2007). This requirement is even greater when the firm is internationalized (Prange and Verdier, 2011), and the hotel industry is no exception to these new challenges.

In order to overcome this situation, and to increase business performance, companies should develop dynamic capabilities to find, manage and implement strategies that allow them to explore new ideas or processes and develop new products or services for the domestic and international market (Prange and Verdier, 2011). The results obtained indicate that there is no direct relationship between internationalization and innovation in Spanish hotel chains. These internationalized chains manage to increase their innovative capacity through the development of dynamic capabilities appropriate to each market. In addition, there is also a positive and direct relationship between greater innovative capacity and performance in these chains.

The first contribution of this study relies on the inclusion of dynamic capabilities, which play a central role in international hotel chains and their innovation strategies. Even though internationalized firms have incentives to invest the resources needed to create and maintain the resources necessary to create and maintain the capabilities needed to develop innovation (obtaining a higher return on innovation, which is important for competitive advantage in global markets), only hotels that develop dynamic capabilities enhance their capacity for innovation. In this case, with internationalization, firms can generate or obtain the resources needed to build innovation capabilities (Hitt *et al.*, 1997). Therefore, this study proposes that international hotels require dynamic capabilities to deploy and renovate their organizational competence and capabilities (Teece *et al.*, 1997) in order to maintain service excellence.

The application of the dynamic capabilities theory leads international hotels to develop main capabilities such as sensing, for example identifying the need to change service operations and innovation in an international and turbulent context. Next, hotels can opt to seize opportunities and adopt activities, enabling the hotel to deliver the service, to respond quickly, and to prepare it in order to achieve service excellence and attract return customers. Finally, they would have to launch reconfiguring activities, which enable the hotel to deliver the service and to test their new service development in the market to achieve a distinctive service.

The second contribution is related with the area of study. Several previous studies consider the influence of dynamic capabilities on innovation in the hospitality industry in recent years (Leonidou *et al.*, 2015; Nieves *et al.*, 2016; Marco-Lajara *et al.*, 2021; Zheng *et al.*, 2012). Nevertheless, little is known about the case of international hotel chains, which are exposed to different dynamic environments, and need to learn and adapt nationally and to the different markets in which they operate if they want to achieve the desired innovation.

In addition, the innovation of these international hotel chains has been linked to performance. One interesting result is that innovation, in international hotel chains, positively influences economic or financial performance but also perceived performance by managers. The combination of objective and subjective indicators provides a more complete picture of the effect of innovation in this case. Moreover, in this study, this perceived performance is even higher, indicating that innovation is seen as very positive for the chain's managers when it is internationalized.

With this work we can also highlight some managerial implications. First, hotel managers should consider that innovation is one of the key strategies to improve their performance when dealing with hotels operating in different markets. Secondly, this innovation is conditioned by the development of dynamic capabilities on the part of the company. These managers must be able to implement activities that allow sensing, seizing and reconfiguring these international hotels at an organizational level, thus increasing the resilience of companies in this industry.

Finally, some limitations and future lines of research are discussed below. First, this work was performed just before the changes due to Covid-19, so it does not take into account the influence of this pandemic on the results. It might be interesting to conduct a new study in a few years to detect possible changes in the relationships established owing to the new environment that hotel companies are now facing. Second, the

sample analyzed consists of Spanish hotel chains. This study could be enlarged to include hotel chains of different countries in order to compare the results obtained. Moreover, the sample could be extended to other segments of the tourism sector, such as food and beverage or travel agencies. These segments have not been widely investigated in the literature and could provide interesting results to advance tourism research.

CONCLUSIONS

This study examines the relationship between internationalization and innovation to examine their impact on the performance of Spanish hotel chains, considering the development of dynamic capabilities as decisive key skills in this context. The results show that the degree of internationalization does not directly affect the innovation capability of hotels. International hotel chains become more innovative through the dynamic capabilities developed. And this more innovative behavior translates into higher performance by international hotel chains.

The process involving dynamic capabilities in MNE hotel companies allows them to find, adapt and reconfigure their resources and capabilities to different environments, generating and perceiving better results at the business level. Few studies have addressed this issue in the case of the hotel industry, and therefore new research is needed in relation to the influence of internationalization on the innovation of hotels from a dynamic capabilities perspective.

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MICRO-FOUNDATIONS OF SERVICE INNOVATION AND SUSTAINABLE COMPETITIVE ADVANTAGE: AN ANALYSIS OF THE SPANISH HOTEL SECTOR

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ABSTRACT

We attempt to research the mechanisms that boost the adoption of innovations in services, and how this affects the competitive advantage of companies in the hotel sector in Spain. We analyze the data collected in a survey addressed to managers of 3-to-5-star hotels in Spain through structural equation modelling using SmartPLS. Our results proved the positive influence of the development of dynamic capabilities on different types of hotel innovation and the moderating effect of hotel chain. Furthermore, while service, process and management innovation are positively related to differentiation competitive advantage, only process innovation is significantly related to cost competitive advantage.

INTRODUCTION

In hospitality, innovation has been considered critical to obtaining and maintaining a long-term competitive advantage (Tigu *et al.*, 2013), so its study in the sector has received increasing attention in management research (Backman *et al.*, 2017; Gomezelj 2016; Kallmuenzer and Peters, 2018; Meira *et al.*, 2019; Pikkemaat *et al.* 2020). Indeed, to increase competitive advantage in a global and growing market, the hospitality industry needs more innovation-focused research (Kallmuenzer, 2018; Meira *et al.*, 2019). If we add to this the uncertainty and turbulent context in which hotels must operate in the face of the COVID-19 pandemic, the need to investigate, from a dynamic capabilities approach (Den Hertog *et al.*, 2010) the management of innovation and its impact on competitive advantage, becomes even greater (Gössling *et al.*, 2020). Recently, some authors (Hossain *et al.*, 2020 and Anning-Dorson and Nyamekye, 2020) have pointed to innovation as a source of competitive advantage in the hotel industry without clearly defining the usefulness of these innovations and how they influence firms (Sharma *et al.*, 2021).

Simultaneously, as drivers of innovation in the hospitality industry have been addressed in recent years (Backman *et al.*, 2017), hotel chains have long been the subject of study from various perspectives (Ribaudo *et al.*, 2020; O'Neill and Carlbäckb, 2011). However, we consider it essential to understand the moderating effect that hotel chain membership can exert on the deployment of resources and capabilities and the development of hotel innovations, since innovation has been considered a strategic weapon for both successful chains and independent hospitality enterprises (Ottenbacher *et al.*, 2006).

Therefore, the objective of this paper can be summarized as follows: First, our paper attempts to explore the drivers of hotel innovation based on the theory of dynamic capabilities and including the moderating influence of a distinguishing characteristic such as hotel chain membership. Secondly, our research tries to evaluate separately the different types of innovation from a micro foundations point of view, as well as to analyze their influence on the competitive advantage of hotels with special emphasis on those specific actions that generate a competitive advantage in differentiation or in costs for Spanish hotels. To this end, we analyze the data collected in a survey addressed to managers of 3-to-5-star hotels in Spain through Partial Least Square Structural Equation Modelling (PLS-SEM), a highly recommended technique to examine complex predictive models, such as moderation relationships.

This research extends the existing literature, providing empirical evidence on how the deployment of dynamic hotel capabilities impacts on the different types of innovation that hotels undertake by identifying the key micro foundations in that context. Furthermore, it contributes to consolidating the empirical evidence of hotel

innovation and competitive advantage by analyzing whether distinct types of innovation lead to different levels of sustainable competitive advantage.

The remainder of the paper is structured as follows. Section 2 includes the theoretical framework underpinning the development of an integrative model that brings together the perspective of the micro foundations of dynamic capabilities and their influence on the strategic management of hotel innovation. Section 3 highlights the most important aspects related to the methodology used. Section 4 analyses the main results obtained differentiating between the measurement model and the structural model. Section 5 discusses the relevant findings contrasting them with previous results available in the literature and presents the conclusion and limitations drawn from the work.

THEORETICAL FRAMEWORK

Dynamic capabilities and service innovation

Despite criticism, the view of dynamic capabilities has emerged as one of the most influential lines of research in the field of strategic management. Initially, dynamic capabilities were understood as "the ability of a firm to integrate, build and reconfigure its internal and external resources and competencies to cope with rapidly changing environments" (Teece *et al.*, 1997, p. 516). Here, the term dynamic reflects the ability to renew the firm's competences to achieve congruence with the changing environment (Teece *et al.*, 1997: 515), which in a turbulent and exceptional environment such as the current COVID-19 pandemic becomes especially interesting in hospitality studies (Marco-Lajara *et al.*, 2021).

Furthermore, Teece (2007, p.1319) stated that for analytical purposes, and from a micro foundations perspective, dynamic capabilities can be disaggregated into the ability to detect and shape the firm's opportunities and threats (sensing), the ability to seize opportunities (seizing), and the ability to maintain competitiveness by improving, combining, protecting, and when necessary, reconfiguring the firm's assets (reconfiguring). Thus, deploying these organizational capabilities enables firms to expand and renew their resources, reconfiguring them as necessary to innovate and respond (or provoke) to changes in the market in which they operate (Teece, 2014: 332). Similarly, Schilke *et al.* (2018) argue that dynamic capabilities can induce change in the firm's existing resource base (and associated support system, such as the firm's organizational and governance structure), its ecosystem and external environment, as well as its strategy.

Similarly, Pavlou and Sawy (2011) considered that the view of dynamic capabilities stems from Schumpeter's (1934) spirit of innovation-based competition, where competitive advantage is based on the creative destruction of existing resources as well as the recombination of new operational capabilities. But not only have dynamic capabilities been related to technological and product innovation, but also to service innovation (Kindström *et al.*, 2013). While the study of innovation in the tourism sector has been extensively researched, there is not a complete understanding of how these processes take place or the types of capabilities on which they depend (Hjalaer, 2010).

Thus, the conceptualization of innovation in service sectors such as tourism has not been uniform. Many research frameworks have been limited to the study of innovation in the firm's service or its delivery processes, neglecting non-technical innovation that includes both organizational and marketing innovations, related to the business model, management of business practices and external relations (Camisón and Villar-López, 2011; Damanpour *et al.*,1989). In short, Booyens and Rogerson (2016), after collecting the key findings, disaggregate innovation into product (or service), process, marketing and organizational (or management) innovation.

Therefore, dynamic capabilities have been considered as an essential driving force for tourism innovation (Aboelmaged, 2018; Jiang *et al.*, 2021; Vu, 2020; Wang *et al.*, 2020), although both theoretical and empirical research on organizational capabilities leading to non-technical innovation is limited (Camisón and Villar-López, 2011). From this point of view, in a context such as the current one, a deep understanding of the micro-foundations - sensing, seizing, and reconfiguring - of the dynamic capabilities that influence service innovation in the hospitality sector becomes really urgent. Considering the difficult-to-replicate nature of these capabilities, companies are able to adapt to changing technological and market opportunities, develop new products and processes, or even develop and implement new marketing policies. Thus, firms that deploy

their set of dynamic capabilities will be able to carry out successful innovations that bring them superior long-term performance (Teece, 2007: 1320). So, we pose the first of our hypotheses:

Hypothesis 1. Hotel dynamic capabilities have a positive influence on service, process, and management innovation.

The moderating effect of hotel chain membership on the deployment of capabilities and innovation

One of the reasons why there is still no clear consensus on the mechanisms that affect innovation in service companies is the diversity and idiosyncratic characteristics of the industries that make up the industry. In the case of the hotel industry, there is one notable characteristic of its own, and that is the fact that belonging to hotel chains influences the propensity to innovate in the accommodation services activity (Orfila-Sintes *et al.*, 2005). Hotels that are affiliated to a hotel chain are managed differently from those that are considered independent (Ribaudo *et al.*, 2020) and therefore several authors highlighted the importance of addressing the study of the influence of hotel chains on business management (Jones, 1999), and on innovation management decisions (Orfila-Sintes *et al.*, 2005). However, the absence of research addressing the question of whether chain-affiliated and independently operated service companies have different approaches to developing successful innovations (Ottenbacher *et al.*, 2008), whether the deployment of organizational capabilities influences the implementation of innovations differently, has been claimed to be lacking.

Some authors such as Lomanno (2010), in his study on the evolution of the hotel industry in the USA, stated that hotel brands must constantly reinvent themselves and adapt to the environment, so that managers of these affiliated hotels develop dynamic capabilities that have a superior influence on innovations than independent hotels. Likewise, Orfila-Sintes and Mattsson (2009) posited hotel chain membership as a determinant of innovation decisions in the hotel industry based on the study of Spanish hotels by Gil *et al.* (2001). Meanwhile, Pérez-Rodríguez and Acosta-González (2021) have recently claimed that chain-affiliated hotels have easier access to new technologies and better management capabilities. Therefore, based on the above we develop the following hypothesis:

Hypothesis 2. The impact of dynamic capabilities on service, process, and management innovation is positively moderated by hotel chain membership.

Innovation and its impact on competitive advantage in hospitality

Achieving and maintaining a sustainable competitive advantage has been considered as one of the main concerns of hotel companies (Grobelna and Marciszewska, 2013; Lu and Tseng, 2010; Meira *et al.*, 2019; Sinclair and Sinclair, 2009; Tajeddini and Trueman, 2012; Wu *et al.*, 2010;) given the dynamic nature of the environment they face. Indeed, given the exceptional crisis resulting from covid-19, many hotels have had to reinvent themselves in order to maintain these competitive advantages. While it is true that innovative business capabilities and resources have been considered as a strong mechanism by which organizations obtain and maintain higher performance and competitive advantage (Barney, 1991; Day, 1994), there is currently still a vibrant line of research concerned with delving into these aspects in service sectors such as tourism or hospitality (Anning-Dorson and Nyamekye, 2020; Larrea *et al.*, 2021; Sharma *et al.*, 2021).

This brings us to think about two main aspects. On the one hand, it has been commonly believed that service innovations may not bring sustainable advantages to firms given the possibility of rampant imitation. However, authors such as Salunke *et al.* (2011) added that this would not have to be applicable to all sectors but could be the case for innovations carried out in the financial sector, so that they expressed the need for research on innovation-based competitive strategy within the service sector. In summary, the literature is fragmented and far from conclusive, so its study in the hospitality sector is of great interest (Anning-Dorson and Nyamekye, 2020; Hossain *et al.*, 2020). On the other hand, considering not only the heterogeneity of the different sectors, but also the different types of innovation that can be carried out, it should be noted that not all innovations have the same effect on the performance and competitive advantage of hotels (Sharma *et al.*, 2021).

Regarding the relationship between innovation strategies and performance or competitive advantage specifically in the hospitality industry, several authors such as Victorino *et al.* (2005) found empirical evidence

supporting that customer-oriented service innovations bring competitive advantages in North American hotels. Recently, Anning-Dorson and Nyamekye (2020) have claimed that as the existing literature indicates, firms with innovative capabilities have a greater competitive advantage. On their part, Camisón and Villar-López (2011) analyzed the antecedents of hotel innovation in marketing and organizational innovation and its subsequent effect on sustained competitive advantage based on a theoretical framework of capabilities. They remarked that innovation is an immediate source of sustainable competitive advantage (Day and Wensley, 1988, Hurley and Hult, 1998) since based on the dynamic capabilities-based view (Eisenhardt and Martin, 2000, Teece *et al.*, 1997) sustainable competitive advantage depends on a firm's dynamic capabilities to innovate. In addition, authors such as Nicolau and Santa-Maria (2013) examined whether the four categories of innovation (products, processes, organization, and marketing) of hotels in Spain influenced the value and competitiveness of the firm and found positive empirical evidence.

In view of the diversity of innovations studied and their impact on the performance or competitive advantage of the hotel industry, it should be noted that not all have the same effect on hotel firms (Sharma *et al.*, 2021). Ultimately, innovation is directly related to competitiveness in the tourism sector as it enables cost reduction and higher quality service (Yfantidou *et al.*, 2019) so we will examine the influence of different innovation strategies (service, process, and management innovation) of hotels on their competitive advantage in terms of cost and differentiation. Similarly, other researchers have analyzed the influence of different hotel management strategies on hotels' competitive advantage in terms of cost and differentiation (e.g., Molina-Azorín *et al.*, 2015; Pereira-Moliner *et al.*, 2016; Singjai *et al.*, 2018). Even, Wang *et al.* (2020) found evidence that eco-innovation directly influences hotels' competitive advantage in terms of cost and differentiation. Thus, we develop the next two hypothesis:

Hypothesis 3a. Service, process and management innovation positively influences differentiation competitive advantage.
Hypothesis 3b. Service, process and management innovation positively influences costs competitive advantage.

Figure 1: Theoretical model and hypothesis
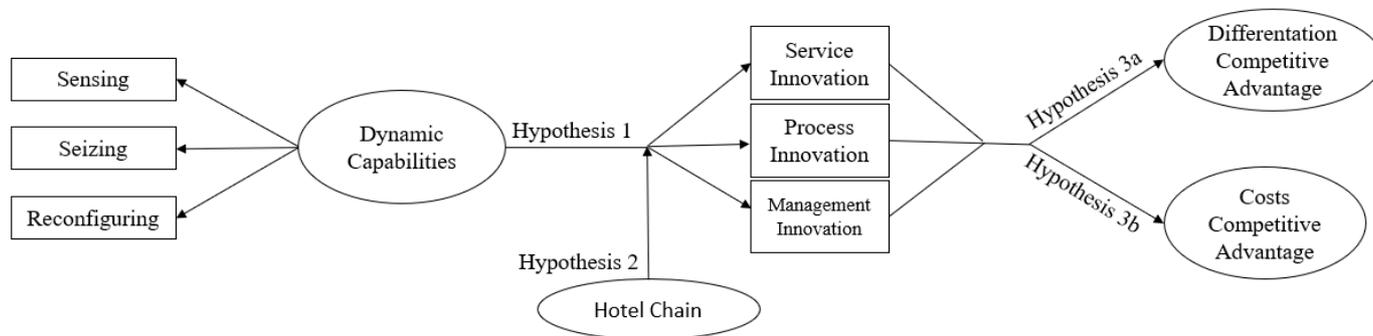
METHOD

This work is focused on the hotel sector, a sector which, despite being very important in the national economy and one of the main components of tourism expenditure, has not been very well investigated from a scientific point of view (Hernández-Perlines *et al.*, 2019). Our study analyzed 3-, 4- and 5-star hotels located in Spain, including independent hotels and those belonging to a hotel chain. Concretely, more than 7,000 structured questionnaires were sent to the managers of these hotels through the Qualtrics tool to obtain primary information during the first semester of 2020, and we received a final sample of 212 valid questionnaires. The collected data were subsequently analyzed using SmartPLS v3.3 (Hair *et al.*, 2022), through the structural equation model technique - partial least square based on variance.

The variables considered latent were measured using Likert scales where hotel managers were asked to indicate their level of agreement with the questionnaire items, with response ranges from 1 = strongly disagree to 7 = strongly agree.

Hotel innovations were measured with the scales developed in previous work by Nasution *et al.* (2011), Nieves *et al.* (2014) and the Oslo Manual (OECD, 2005). Innovation in services has been measured through

4 items that try to capture the modification or introduction of new hotel services, highlighting those innovations that may have been a reference in the industry. Process innovation was measured through 4 items that evaluate the inclusion of new operating systems, equipment and/or computer programs by the hotels, as well as new technologies related to cost savings or increases in service quality. Finally, management innovation has been measured with 7 items considering the disposition regarding hotel innovation in purely commercial aspects, and organizational (new practices in work organization or company procedures).

Dynamic Capabilities (DC) have been measured according to the proposal by Teece (2007) for analyses with empirical data. That is, a second-order construct consisting of the latent variables of sensing (4 items), seizing (4 items) and reconfiguring (4 items), has been considered since the aim was to develop a specific framework considering the micro-foundations of the concept of dynamic capabilities.

Competitive Advantage were measured distinguishing between the Cost Competitive Advantages (CCA) and Differentiation Competitive Advantages (DCA) of the hotels with respect to their competitors, using an 8-item scale adopted from Li *et al.* (2008) based on the work of Porter (1997) and Narver and Slater (1990).

Finally, the hotel chain membership of the hotels under analysis was investigated, whereby the measurement variable takes the value 1 in case of belonging to a chain, and 0 otherwise.

RESULTS

The analysis of the model exposed in the theoretical framework will be divided into two phases, in order to fulfil the theoretical recommendations (Hair *et al.*, 2017): Measurement model and structural model. On the former, we have analyzed reliability of the individual indicators (all factorial loadings exceed 0.707), evaluated internal consistency assessing the composite reliability (index was higher than 0.7), and tested convergent validity through Average Variance Extracted (AVE) showing that all constructs' AVE exceeded 0.5. Discriminant validity has also been analyzed based on cross-loads, the Fornell and Larcker criteria and the heterotrait-monotrait ratio (HTMT) of correlations.

Regarding to the second step, the analysis of the structural model, we have cheeked standardized path coefficients or regression weights (ß) and the variance (R^2) of composites (see results in Table 1). The former measures the strength of the relationship between constructs or causal relationships of hypotheses. To assess the significance of ß estimated, we used a nonparametric resampling procedure called Bootstrap (Hair *et al.*, 2017) with 5000 subsamples. In addition, observing the R^2 values of the endogenous composites (hotel competitive advantage) we can check the amount of variance explained by the different types of hotel innovation. The recommended minimum values for this parameter are 0.1 (Falk and Miller, 1992) because low significant values have little predictive power.

Table 1: Results of structural model

Direct Relationship	β estimated	T statistics	CI 2,5%	CI 97,5%
DC-->Service Innovation	0.506***	7.919	0.379	0.629
DC-->Process Innovation	0.502***	7.01	0.36	0.637
DC-->Management Innovation	0.396***	5.488	0.252	0.535
Service Innovation→ DCA	0.293**	2.842	0.092	0.498
Process Innovation→ DCA	0.229**	2.196	0.015	0.424
Management Innovation→ DCA	0.312***	3.601	0.15	0.486
Service Innovation→ CCA	-0.139*	1.592	-0.317	0.024

Process Innovation→ CCA	0.590***	4.454	0.329	0.847
Management Innovation→ CCA	-0.075[NS]	0.523	-0.36	0.207
Moderating effect of chain hotel				
DC-->Service Innovation	0.201**	2.775	0.058	0.337
DC-->Process Innovation	0.153**	1.97	0	0.302
DC-->Management Innovation	0.163**	2.265	0.019	0.302
R^2 for DCA	0.592***			
R^2 for CCA	0.190***			

This research confirms dynamic capabilities positively influence all types on hotel innovation (hypothesis 1 is supported), being these relationships positively and statistically significant moderated by the hotel chain membership (hypothesis 2 is supported). Hotels that belong to a hotel chain can enhance the effect of dynamic capabilities on different hotel innovation, or achieve greater services, process and management innovation developing the same dynamic capabilities. This could be explained since hotel chain belongs routines and more resources to management the dynamic capabilities and its outcomes (Costa and Pereira, 2020; Ribaudo *et al.*, 2020).

Regarding the effect of hotel innovation on competitive advantage our research also reveals interesting findings. First, competitive advantage in differentiation is positively influence by the development of service, process, and management innovation within a hotel (hypothesis 3a is supported). However, competitive advantage in costs is only positively influence by the development of process innovation by hotels (hypothesis 3b is only partially supported). Finally, model quality is evaluated through the Geisser test (Q^2) to evaluate the predictive relevance of the model, which should have estimated values above 0 ($Q^2 > 0$, see Table 3). Accordingly, medium, and low predictive relevance of the model was observed because of Q^2 values are higher than 0.25 and 0 (Hair *et al.*, 2019).

DISCUSSION AND CONCLUSION

The purpose of this study is to identify the dynamic capabilities developed by hotels that increasingly need to adapt to highly turbulent environments, and which are driving service, process and/or management innovation. By disaggregating not only the different dynamic capabilities that drive the development of innovations in hotels, but also the different categories of innovation that mark the achievement of competitive advantages for hotels, this work allows us to go into a level of detail that would otherwise not be possible. Thus, we have developed a micro-founded model that provides detailed information on the activities a hotel needs to perform to increase their competitive advantage distinguishing between DCA and CCA, as well as enables managers to design urgent strategies for implementation.

In his literature review, Hjalager (2010) called for a glimpse into the antecedents driving innovations in tourism enterprises, as this had only been marginally addressed. Thus, the development of dynamic capabilities in hotels has been considered a key point to boost their innovation capacity (Marco-Lajara *et al.*, 2021). However, in our work we have broken down the micro foundations underlying this assertion and found that hotels' ability to detect, exploit and reconfigure resources positively influences their innovations in services, processes, and management. This had already been a point made by Kindström *et al.* (2013) in their qualitative study with product-focused firms, that we have been able to corroborate in the hospitality sector. Furthermore, empirical evidence has been provided to support the idea that management through hotel chains moderates this relationship. We thus corroborate the finding proposed by Orfila-Sintes *et al.* (2005) that the chain develops capabilities that are conducive to hotel innovation decisions.

On the other hand, in services companies' innovations, in both emerging and developed markets, have been positively related to the achievement of competitive advantages (Anning-Dorson, 2018; de Larrea *et al.*,

2021). However, among the questions that our study tries to address is to detect what type of competitive advantage (differentiation or costs) influences each typology of hotel innovation since research has been largely focused on the study of technical or product innovation (Weerawardena and Mavondo, 2013). Firstly, any kind of innovation carried out by hotels can lead to an increase in quality and originality as a form of differentiation from competitors (Yfantidou *et al.*, 2019). Above all, management innovations that involve modifications in marketing and in the business model, have the greatest positive impact on the differentiation advantage. On the other hand, process innovations seem to be less visible in terms of differentiation but allow very significant cost savings.

Indeed, in recent times the hotel sector has been undergoing a technological revolution that is allowing the introduction of important innovations in processes, which are leading to savings in terms of time and money (Meira *et al.*, 2019). For example, in 2021, the ITH (*Instituto Tecnológico Hotelero*) carried out a feasibility study on the implementation of robotics in the operational processes of hotels, highlighting the greater efficiency of almost all hotels in the face of these innovations (AEI ITH, 2021). These innovations can be implemented from the check in and check out area, for data collection and quality surveys, in the automated management of physical spaces to control capacity and avoid contact, or in the cleaning area with the use of artificial vision for checking rooms or cleaning the air by bipolar ionisation.

Similarly, other authors such as Shin and Kang (2020) have argued that hotels must demonstrate security by integrating innovations that facilitate social distancing and improve cleanliness in the COVID-19 era. The most used innovations have been aimed at reducing interaction between employees and customers through contactless check-in and check-out systems, digital key systems, facial recognition systems and innovative cleaning systems (such as electrostatic sprinklers; ultraviolet light; advanced heating, ventilation, and air conditioning systems; etc.).

To conclude, we are able to provide both theoretical and practical contributions. Among the theoretical ones, we have expanded the academic hospitality literature by offering a more specific view on the development of dynamic hotel capabilities (focusing on the ability of hotels to sensing, seizing, and reconfiguring) and their impact on innovation. Furthermore, we have further distinguished the different types of innovation (service, process and managerial) that hotels can carry out by analyzing their effect on competitive advantage. In fact, competitive advantages in cost and differentiation take different paths. Concerning the practical recommendations, when hotels face crisis like the current one, their managers should consider that not all types of innovation have an impact on a core competitive advantage. Rather, hotels should be concerned with the dynamic capabilities they deploy to leverage innovations and direct them in a distinctive way.

Regarding the limitations and future lines of research, we highlight the fact that our focus on Spanish hotels prevents us from generalizing our results to the whole hospitality industry. A possible future line of research could be broadening the study to other countries to have a complex image of the hospitality industry or even analyzing the differences. Furthermore, it could be interesting to research the theoretical model in a dynamic point of view to catch not only static effect but also the effects that are spread over time with the deployment of dynamic hotel capabilities and innovations.

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THE SERVITIZATION OF INNOVATION IN THE RETAIL SECTOR. THE CASE OF MERCADONA

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ABSTRACT

We propose a case of Servitization in the retail sector. Mercadona has a 27 per cent market share and a remarkable image. It has overcome innovation barriers by working closely with suppliers and customers. With a strong Total Quality culture, Mercadona has a co-innovation program with its customers and suppliers that has transformed its value chain. Its approach has enabled the development and growth of numerous SME suppliers with a great capacity for innovation. The basis of its strategy is the emotional loyalty of its customers, underpinned using social networks and a strong brand image.

INTRODUCTION.

There is scarce literature on servitization in the retail sector, especially in the food and supermarket sector. Moreover, the existing literature focuses basically on digitization services. Our article analyzes how a leading retail company in the food sector, Mercadona, has based its growth, expansion, and competitiveness on developing innovation services in the value chain. This, together with its suppliers, employees, and customers in an exceptional case worldwide of co-innovation with customers and suppliers.

It should be noted that the servitization of innovation, in the case of the supermarket supply chain analyzed here, benefits the SMEs and supplier companies that develop their capabilities and grow by strengthening their future. There is a crucial tractor effect that, as we shall see, affects the entire supply chain since these SME suppliers frequently outsource their innovation.

This paper is organized as follows. First, a brief analysis of the theoretical context: servitization in the retail food market, and the barriers to innovation and elements of competitiveness in this market. Next, we will describe the case and analize the evolution of the company in recent years. We will end with the conclusions and the implications for management to highlight the case.

SERVITIZACIÓN IN RETAILING

A literature search on servitization in the retail market sector, especially in the food area, yields few results (Martín-Peña *and* Bigdeli. 2016). However, there is ample literature on servitization in manufacturing. Although focused on digital servitization, Jang *et al.* (2021) postulate that the servitization experience promotes long-term value co-creation with customers and facilitates customer loyalty and brand retention. In the same vein, Shah *et al.* (2020) propose that a servitization orientation elicits supplier and customer integration and improves the performance of companies in the supply chain. Authors such as Jang and Kim (2021) have underlined the co-creation of value with customers, and its counterpart of brand loyalty, in the case of digitization services.

Mastrogiacomo *et al.* (2019) conducted a global study on 73,000 manufacturing companies to analyze their degree of involvement in servitization. Of these, 38% were involved in servitization processes, mostly linked to distribution (18%), maintenance (34%), or design and development (16%). While in the United States, Australia, and the United Kingdom the percentage exceeded 50%, in Spain it was barely 25%. In the subsectors of interest to us: food and beverages, the percentages of design and development services (assimilable to innovation) were only 4% and 0%, respectively. This fact implies that innovation did not occupy an important place in the servitization processes of these sectors linked to the food retail sector.

In one of the few articles on retailing Kotliarov (2015) pointed out that servitization in retailing has been utilised to create value for customers through interaction with suppliers and customers as a means of value creation and to meet unfamiliar customer demands.

Therefore, we found an academic gap in servitization in retail and, precisely, in the case of servitization of innovation, if we consider this area of research. Therefore, we aim to contribute to filling this gap in the academic literature.

BARRIERS AND ENABLERS OF INNOVATION IN RETAIL CHAINS. A MODEL FOR THE SERVITIZATION OF INNOVATION.

The most significant barriers of innovation in retail chains are the following: market turbulence, conflicts with suppliers, the difficulty of innovation appropriation, the uncertainty of success and the financial risk associated with failure (Albors-Garrigos, 2020).

As the most effective means to overcome these barriers, the scholarly literature highlights the importance of involving consumers in the early stages of product exploration and design and the effectiveness of crowdsourcing and ethnography in innovation (Schenk and Guittard 2011). A seminal school of thought outlined that a customer-centred focus management could enable the latter to create products that could satisfy even their hidden needs. A firm provides customers with tools to design and develop the product in a trial-and-error iteration process (Thomke and von Hippel, 2002). In this direction research in the food industry suggested certain tools that could support conveying product concepts from the design to the production stage (Helminen *et al.* 2016).

A recent paradigm, result of the convergence between social and open innovation: "living labs", has underscored a new approach to involve customers and consumers into innovation. These labs create simulated real-life conditions and atmospheres where the users are free to experiment, test, propose, and develop innovative products or services. Although it has been applied mainly to Information Technology and social innovations, they represent a novel and original approach to the involvement of customers in the innovation process (Cossetta and Palumbo 2014).

Most of the barriers for innovation in the sector serve both as drivers and/ or barriers to innovation: the changing demands of customers, including demands driven by technologies that foster interactivity; the availability of new tools for market research, including those used to understand customer behavior; and the uncertainty of adopting innovations (Pantano 2014). A customer-centric attitude drives innovation while the opposite acts as a barrier (Reynolds and Sundström 2014; Luceri, Sabbadini, and Zerbini 2017). Later, developing emotional links with customers were pointed out as strong facilitators (Albors, 2015; Pantano, 2016).

Anadditionalñ element considered essential for the retailing innovation drive: the relationship between retailers and their suppliers is also crucial in the innovation effort (Londoño *et al.* 2016; Grimmer 2018; Shankar *et al.* 2011; Reynolds and Sundström 2013). However, several authors have studied how the challenging retailers-suppliers coopetition relationship may act as a barrier (Bobot 2011; Kim *et al.* 2013). In the same course retailer private brands are also considered a relevant contribution to new product innovation (ESIC, 2021; Reynolds and Sundström 2014).

Considering the previous arguments, we propose a helix iterative model based in the proposal of Cooper and Edgett (2008) as a holistic approach to this problem. Based in open innovation, and adapted to our sector by adding a third agent - the suppliers, addresses the main problems by conceptualizing a retailer-supplier-customer triangle where its three vertices comprise the core of the process (see Figure 1). This iterative helix model emphasizes the capture of changing customer needs, measures the appropriateness of innovation, and explores knowledge cycles with customers and suppliers through efficient knowledge management transfer based on an agile and lean approach.

The supermarket chain and the supplier manage the R&D activities carried out by both and may offer exclusivity and intellectual property to the former, at least for the new products in question. Co-innovation experiments involving the customer reduce uncertainty and risk if the company adopts the innovative product. The main contribution of the model is that it underlines the importance of cooperation in the retailer-supplier-

customer triad in this process; involving all three parties at all stages results in a product tailored to the customer.

CASE STUDY. THE MERCADONA APPROACH.

We propose a single case study, Mercadona, a large chain of physical and online supermarkets in Spain and Portugal with high market penetration. The information was collected through various methods. Conversations with employees, visits to supermarkets and co-innovation centres to observe and speak with participants, monitoring social media profiles, and interviews with suppliers were all utilised in the field study. Additionally, secondary data was raised from the firm annual reports, journals and web information., and gathering secondary data.

Figure 1*:* Retailer-customer-supplier chain co-innovation (authors based on Cooper and Edget, 2008).
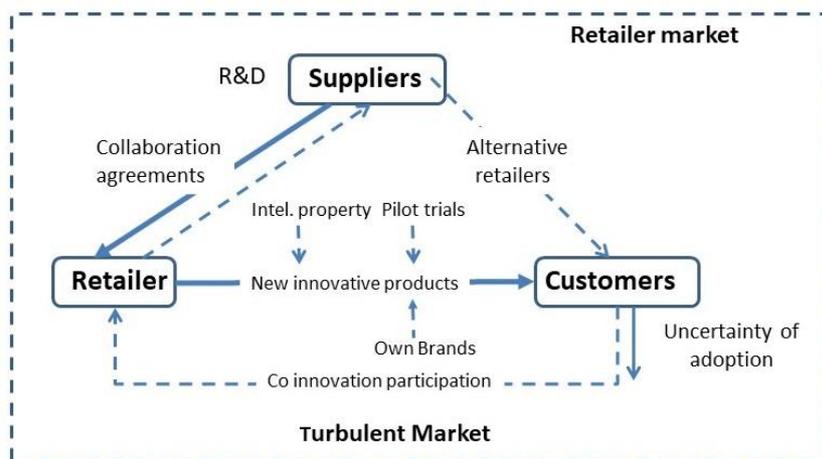
INNOVATION IN MERCADONA

Mercadona has a long history of being innovative. Employees, management, and integrated suppliers of Mercadona have traditionally contributed proposals for innovation. The company introduced a new position, the innovation supervisor, in 2009 (today they are called Specialists), to strengthen its relationships with customers ("bosses" in company jargon). Innovation supervisors observed customers' preferences and desires in the field. They transferred the information they gathered to the coordinators and experts in the Innovation Department (Prescription in the company jargon) in charge of picking the products to be marketed later after defining users' needs. Mercadona hired around 250 innovation supervisors in 2010. It also continued to meet with clients regularly to discuss the findings.

In addition, Mercadona established six innovation testbeds in select stores. Innovation supervisors kept an eye on the testbeds and gathered feedback from customers. Before determining which new products to introduce into its retail chain, the corporation studied the results, including successes and failures. Butcher and deli shops, for example, began serving items on demand rather than in fixed-size containers. This project also resulted in the creation of bread-by-weight counters.

Mercadona launched the "Apron Strategy" in June 2011, a new initiative that significantly improves the innovation process. Customers can now lead innovation in some of the company's locations, thanks to new facilities called co-innovation centres (Mercadona 2012). A new function in the stores, the co-innovation supervisor, supports the innovation program. Product specialists who manage, capture, define, and communicate user demands to the innovation department are co-innovation supervisors. They use surveys and interviews to quantify the "bosses'" habits (customer-consumers). Mercadona established 11 separate co-innovation centres, focusing on a different product category: cooked and prepared foods, personal hygiene, cosmetics, cleaning, textiles and home maintenance, breakfasts, snacks, baby care and daycare, water and soft drinks, pet care, and clothing and footwear care. The "bosses" engage with the items at these centres, designed to resemble a home environment. The personal hygiene and cosmetics centre, for example, is similar to a home bathroom and a hair salon (Figure 2).

Consumers are welcomed to these "Bosses in Love" (again, corporate lingo) centres. They are loyal customers of a particular brand and would not switch to another. Furthermore, they are knowledgeable about the goods. Their participation is entirely voluntary, and they are not compensated for it. These consumers can distinguish and advise on increasing product attributes due to their in-depth understanding of the product. Co-innovation centres take two approaches: first, "bosses in love" test a product and provide feedback, including recommendations for improvement or changes in product qualities; and second, they test prototypes of Mercadona's suppliers' new product.; additionally, they also test and experiment with products suggested by suppliers or employees. The supervisors of the centres attend carefully without suggesting or expressing excessive empathy towards the participant.

Products are displayed in the co-innovation centres in the same way they would be on supermarket shelves. The "bosses in love" are evaluated in-depth by centre managers so that Mercadona can provide them with the most outstanding items and meet all of their requests. Each centre session is performed either one-on-one or with a maximum of two customers. New recipes, packaging designs, and sizes or size modifications are all put to the test. The "bosses" can suggest new product concepts. They form their opinions after analyzing the merchandise. Following that, the data is analyzed and compiled into thorough reports delivered to the innovation department. Each session usually has two supervisors; one attends to the customer while observing and taking notes. Mercadona's methods have been standardized, and the routines have been replicated at each co-innovation centre.

Figure 2: Co-innovation centers for personal hygiene, cosmetics and household products.

The innovation department (Prescription) develops a product concept sheet detailing the functional requirements outlined above. Mercadona's purchasing department uses this sheet to identify the specialist supplier for each product ("Totaler" supplier in its own jargon) or the most suitable specialist who has the relevant capabilities to implement the product modifications or develop new or improved solutions.

The integrated suppliers' R&D departments receive these product files and turn them into prototypes, which are then returned to the co-innovation centre for customer testing. This step is the start of a 6- to 10-cycle iteration process. The first testing is conducted with the "bosses," who offer suggestions for changes or new concepts.

Subsequently, Mercadona supervisors perform testing with 20 consumers once the final prototype has been completed. If they approve, the supplier sends out a small quantity of the new product to be tested in a few stores. Depending on the complexity of the new idea and how it is implemented in stages, it can take anywhere from one to six months to implement. A new product is regarded as successful if its sales rates outperform the previous product line, and it gains market share or saves money in the production process.

In the initial stage, the Specialists identify "Bosses in Love" in-store as candidates for co-creation by monitoring them or using social media. They then collaborate with them in co-innovation centres. They may work with these consumers in their own homes on rare occasions, analyzing product usage more closely. Much of this work was done online with clients in 2020, inspired by the extraordinary scenario created by the COVID-19 epidemic. Short reports for suppliers are created during these sessions. They iterate with selected

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suppliers and customers during the development phases to perfect a product's design. Before the official launch, they test the product in a limited number of stores.

Mercadona updated its co-innovation program in 2018 and opened Jarrods Co-innovation Centre in Paterna, a new type of centre in Valencia. A grocery and a home environment area are part of this centre. The entire product development process takes place and culminates in the final launch of the products in stores. It also enables Specialists to make selections about various assortments and sales space. It is about 6,000 square meters in size and cost around 3.5 million euros to build.

In this type of centre, it is possible to carry out some stages of the R&D process, such as assessing whether a supplier's flours meet the "boss's" specifications in terms of their kneading properties. The co-innovation process is being transformed with transversal participation of all those involved with the "Totaler" concept of a product, i.e. one that meets the expectations of the "boss" so that he would not choose any other.

RESULTS

The specialists explain the process this way: "First we have to differentiate between buyers and consumers. This involves identifying those who buy products for self-consumption, not for others to consume". According to the specialists, a conversation is then initiated with the customer to determine whether he or she is "in love" with a specific product, consumes it regularly, and is willing to "seek for the product" if he or she cannot locate it rather than turn to another.

They also comment those consumers "are extremely knowledgeable about each product, and when you talk to them, you get a tremendous amount of information." "When you talk to 'bosses' who are in love with a product, they notice all the distinctions in flavour, aroma, texture, size, format, and packaging," they say, and can thus differentiate and evaluate enhanced features. Many new customers desire to join the project due to Mercadona's expanded usage of social media. They must, however, adhere to a systematic evaluation to demonstrate that customers are "in love with the goods." Once the client has given their approval, their information is entered into a database of "in love bosses," which includes their contact information and their willingness to work with Mercadona. It is organized by category/product (e.g., desserts/ice cream) (Chauvel, 2021).

On consumers being "in love," one Specialist commented, "There is a certain emotional connection. To compete for consumer preferences, we must give people more reasons to connect with our business and brand emotionally." These consumer profiles show "loyalty, brand awareness and engagement." According to one Specialist, "this is the reason...their choice proves to be critical in the process."

These co-innovation meetings create a significant volume of tacit knowledge. One participant commented, "They asked me to use the product as if I were at home. They watched how I did it, taking note of my every move, including how I opened the hair colouring capsules and asked about ways their design could be changed and improved." It might be hard to interpret customer comments. Specialists may pay visits to bosses' homes to gain firsthand knowledge of their habits and routines about the products in question. These projects dig into consumers' real-world experiences and consumption, capturing the knowledge that should go without telling.

Customers are drawn to these experiences for inherent reasons. We explored this topic with a consumer who was a part of the personal care co-innovation centre., and she commented, "I want a long-lasting hair colour, looks good and makes it easy to colour my hair at home, and I hope Mercadona can develop it. I do not mind colouring my hair here if I can contribute to that. Plus, when I leave the store, I am done with that task. They care about my problem and will come back with improvements because I feel committed to the brand. The co-innovation centre is clean and well-equipped."

According to our research, inter-suppliers (or integrated suppliers) contribute 30% of the ideas and concepts explored in Mercadona's co-innovation laboratories. According to one integrated supplier,, "the information provided in the co-innovation sessions is valuable to our innovation process...especially the feedback in the second and third round."

According to data recorded by Mercadona and confirmed by industry statistics (Valencoso, 2018), 82 per cent of innovative products introduced on the shelves by Mercadona during 2012-2017 were still on the shelves after 48 weeks. They compared to an average of 24 per cent in the overall consumer retail market. Alimarket (2017) reports that Mercadona invoiced €9,800 per square meter, leading the productivity ranking of Spanish supermarkets, followed by Ahorramas with €8,000. These figures compare well with the German retail chains, Aldi (€ 10,350) and Schwarz Gruppe (€ 7,400), as well as the American Whole Foods (€ 8,350). Or the leader Trader Joe's (€ 11,000) (Trotter 2018).

Table 1 summarizes Mercadona's overall innovation results, including financial data to provide context and the number of new goods that made the Kantar Innovation Top 10 list in Spain (Table 1). According to market penetration in their category and specific qualities, this ranking recognizes the most successful inventions launched in the consumer grocery industry in Spain.

Table 1: Co-innovation results of Mercadona during the 2010-2020 period (Albors-Garrigós and de Miguel Molina, 2020).

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total product improvements and new products	150	100	250	400	450	400	350	240	300	397	461
New products on the market because of co-innovation *		24	34	91	100	100	150	105	75	80	73
Consumer Involvement **		1.200	7.000	9.000	6.000	5.500	6.100	9.000	9.000	12.500	12.500
Co-innovation centres		11	11	12	12	12	13	16	19	20	20
New products that made Kantar top 10 panel		1	2	2	2	0	3	1	2	2	0
Staff	63.500	70.000	74.0003	74.082	74.228	75.000	79.000	84.000	85.800	90.000	95.000
Sales (mill. €)	16.485	17.831	19.077	19.812	20.161	20.831	21.623	22.915	24.305	25.500	26.932
Sales units (mill. kilolitres)	8.543	9.101	9.647	9.845	10.103	10.649	11.071	11.586	11.848	12.050	12.542
Profits (mill. €)	398	474	508	515	543	611	636	322	593	623	727
EBITDA***	1.000	1.040	1.082	1.060	1.070	1.120	1.092	754	1.195	1.260	1.550
Supermarkets	1.310	1.356	1.411	1.467	1.521	1.574	1.614	1.627	1.636	1.636	1.646
Spanish Market share % (Kantar)	20,2	20,6	21,0	215	22,1	22,7	23,4	24,1	24,9	24,5	24,7

It must be noted that since 2012, all developments are tested in the co-innovation centres
*** Routine reorganizations carried out during 2012-2016 may cause deviations between sessions and results.*
**** earnings before interest, taxes, depreciation, and amortization.*

We must emphasize that a very intense technological servitization also supports all this Mercadona action in logistics, design, social networks, and online transactions since 2016 (Albors-Garrigós and de Miguel Molina, 2020).

THE SUPPLIERS.

The suppliers are a vital part of Mercadona's success. In this respect, Institut Cerdá (2016) published a study on Mercadona's suppliers. The sample comprises 90 companies and includes the following results reflecting their activity and context.

Forty-three per cent of them have export activity, and 80% belong to the food and beverage sector. With an average turnover of 94 million € in 2015, 40% of them are SMEs. The tractor effect of the chain is shown by the fact that during 2012-2015, 72% of the inter-suppliers have made investments with a total value of 882 million euros, an annual average of 206 million euros, an average per facility of 5.41 million euros and an average investment of 14 million euros, 83% of which is attributable to the agreement with Mercadona.

Concerning innovation, 89 % of this group carried out R&D activities in the company in 2015, and more than 80 % of the personnel dedicated to R&D has been incorporated in the last four years (2011-2015). In 2015,

this cluster's personnel in R&D activities were 2.84 % of the workforce vs 1.09 % of the Spanish food sector. In terms of economic resources, the total investment in internal R&D in 2015 was 52 million €. The subsectors that invest the most are fresh food, dry food, and household cleaning. About industrial property, over the period 2012-2015, 11 companies have registered new patents, and 29 have registered new trademarks. There have been 27 patents registered (88% are product patents and 12% process patents) and 51 trademarks, an average of 7 patents per year and 12 trademarks per year. It is interesting to note the impact on the environment since 57 % of these companies maintain collaborations with Universities and Technological Centers (e.g., AINIA). These companies have outsourced R&D services, in turn, to the value of 2.1 million € (23 % to R&D organizations and 19 % to universities), propagating, in turn, the servitization of innovation.

Although, as already mentioned, Mercadona changed its model of inter-suppliers to that of "Totalers" suppliers (again, company jargon), of which there are currently more than 1,400. Following we discuss some significant individual cases of the progress of these suppliers.

RNB SL

They were founded in 1990 by two pharmaceutical brothers with a capital of 1,200 euros in a small warehouse in a village in Valencia. In 1994 they began to collaborate with Mercadona. In 1999 they became inter-suppliers, with the white brand Deliplus, and in 2000 they set up in the Technological Park. From 2001 to 2013, they expanded their production and became a benchmark with their Deliplus cosmetics line. In that year, with a turnover of 105 million € and 450 employees, they consolidated their position as a major cosmetics company (RNB, 2021). It began exporting in 2017 through an agreement with Tesco, and by 2020 their investment in R&D was 2.5% of their turnover, reaching 110 million € with a workforce of 603 employees. This firm adapted to the change of Mercadona in its relationship with "Totalers" basing its growth on innovation (Economia3, 2021).

Gum SL.

This candy firm was founded in 2009 by two young entrepreneurs. It currently has a turnover of 34 million € and a staff of 150 employees. Despite competition from several multinationals in Spain, they have established themselves as a national benchmark in the field of sweets. Its main drive is their commitment to innovation with flavours, novel formats and health functionalities in their products. A fundamental factor has been its position as a Supplier and its commitment to the Hacendado brand with Mercadona (Marcas Blancas, 2021).

Francisco Aragón SL

The company originated in 2003 with the acquisition by its founders of a small insecticide factory. In 2005 it became a supplier of Mercadona of air fresheners, insecticides, and cleansers. It discontinued manufacturing its brands and began to work exclusively with Mercadona under the Bosque Verde brand. It currently manufactures air fresheners, insecticides and household cleaning products. Their sustainability, quality and innovation characterize its products. The company is permanently committed to innovation and R&D. It currently has a turnover of more than 110 million euros and a workforce of 270 employees (Aragon, 2021).

Bituminous Softeners and Plasticizers (SPB)

SPB was started by an chemist entrepreneur, Miguel Burdeos, in 1979 in a small factory producing cleaning products in an artisanal way. At the start, he introduced small innovations such as perfumed ammonia and, later, other more advanced by observing the customers. In 1986 he moved to a new factory from where he distributed his products all over Spain. It began working with Mercadona in 2000, and in 2005 became an exclusive supplier of household cleaning and personal care products for Mercadona through the Deliplus and Bosque Verde brands[1]. By then it already had a turnover of more than 11 million euros and 240 employees. Today it has a turnover of more than €60 million and a workforce of more than 550 employees. According to its founder, its growth is based on continuous innovation and new products on the market. It has also started a substantial expansion in the international market (Economia3, 2018, 2020).

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[1] Hacendado, Deliplus, and Bosque verde are Mercadona retail brands

An example to be highlighted of the momentum of an innovative product is the case of Hummus with Kalamata Olives that Mercadona launched on its shelves in 2011 as an Hacendado brand. The product, developed by a Greek entrepreneur with extensive experience in food, Stavrakis, made it to Kantar's Innovation Radar list (it classifies the ten most innovative products in Spain consumer products) in 2019. This item has had a considerable boost and has triggered the sales of the producing company, Rensika, from €0.8 million in 2011 to €25.4 million in 2020.

DISCUSSION

The co-innovation program at Mercadona has generated remarkable growth, financial results, and market evolution. It is a shining example of supermarket retailing's servitization of innovation, connecting and integrating suppliers and customers throughout the supply chain. In the co-innovation process, inter-suppliers and specialist suppliers are critical. The Purchasing Department of Mercadona searches through its extensive database of suppliers in each product category to find the best supplier (integrated or specialized) for each product. These vendors must be able to process all of the information provided by Mercadona and define the best solution at the lowest price with the help of their R&D and manufacturing departments (or the best one related to the required quality). Suppliers must have specific innovation competencies to interpret, develop, and apply the concepts defined in the co-innovation sessions. As a result, the personalization of various consumer devices is becoming more common.

We can deduct how suppliers have benefited from this cooperation in the servitization of innovation. Additionally, in cases of R&D outsourcing, there is a knowledge dissemination effect.

The capacity of Mercadona's strategy to find and capture slight regional and cultural distinctions among consumers is one of its advantages. The Canary Islands' co-innovation centres, for example, found local consumers' affinity for tropical fruit yoghurts, which sell far more than similar yoghurts on the Spanish mainland. The co-innovation process at Mercadona is iterative: following the final product launch, employees closely monitor customer reactions to new items, as well as their comments and recommendations for improvement, which effectively restarts the process.

Is the co-innovation model at Mercadona replicable? When we interviewed the innovation managers of Mercadona about the problems they faced during the co-innovation initiative, they stressed the following:

- Listening to the consumer and gaining their trust requires patience, experience, and learning how to capture the knowledge they bring to each session.
- Helping staff develop a self-critical and constructive attitude is critical, as they must be prepared to question the status quo, recognize, and accept failures, which is sometimes difficult when there is pressure to achieve success constantly.
- Quality, client focus, and product uniqueness are the top priorities.
- It is necessary to bring the co-innovation activity into a suitable environment that resembles the consumer environment in order to satisfy consumer desires or demands and adequately manage the enormous amount of data collected; and
- It is imperative to deliver the co-innovation activity into a appropriate atmosphere that echoes the consumer environment.

Mercadona's approach differs from other innovative grocery retailers engaged in innovation: for example, Trader Joe's uses its supermarkets to test products as Mercadona does upstream, but Mercadona goes further. Similarly, Tesco focuses its innovation, basically, on introducing new technologies (Trotter 2018).

The most challenging problem involves suppliers in launching new private labels (or "own brand" for Mercadona). Some inter-suppliers expressed concern about long-term exclusivity agreements, cost-cutting pressures, and the hazards of changing their strategy to deal with only one customer. Several inter-suppliers have discontinued working with Mercadona in the last five years (eldiario.es, 2019). Mercadona faces a difficult task in exploring and negotiating exclusive arrangements with suppliers and managing relationships. Since 2019, a new concept has been introduced to replace the previous ones: specialist or integrated suppliers, the "totaler" supplier. This means a change of strategy that pursues specialization by products, not by categories, with solutions developed from the demand of the "Boss". The company itself defines the "totaler supplier as a supplier that maintains a relationship model with Mercadona based on a long-term

relationship with an indefinite contract, provided that the conditions agreed for each product are met and that, together with Mercadona, develops the best product with co-innovation initiatives from "The Boss" backwards, always guaranteeing: food safety, quality defined from "The Boss" and with "The Boss" every day, service, competitive price in the market and sustainable and socially responsible manufacturing processes (Mercadona, Annual Report 2020). Thus, it has since 2019 1400 "totaler" suppliers, all of which can introduce new products (Ortega, 2021a, Ortega, 2021b). In any case, quite a few of the former inter-suppliers have made the transition to the new model successfully by internationalizing their activity and diversifying their customers.

This case shows that the retailer-supplier-consumer model, in which the consumer plays a central role in servitization, contributes to integrating the supply chain. Consumers can be creative: "in love" with a product are a good example. Personal needs drive participating consumers, and their contribution to innovation is intrinsic or based on self-satisfaction. This motivation must be considered when selecting participants in a co-innovation program. Managing "in love" consumers requires special skills and resources, so Mercadona has increased the number of co-innovation specialists on staff to cope with the increased size of its new co-innovation centres. Training new employees have also become a new task in the new co-innovation centres.

The move from innovation to the new Totaler concept is also revolutionary. It combines all aspects of the marketing mix into one function to arrive at a Totaler 10 product whose attributes and price make it a winner for the customer. Here, the new co-innovation centres play an essential role.

CONCLUSIONS

The Kantar World Panel report published in 2016 (Valencoso, 2018) outlined that retailers' label brands contributed only 4% of product innovations in the grocery retail sector in Spain, suggesting that manufacturers generated 96 per cent of product innovations. In the supermarket and pharmacy retail sectors, our case study indicates that product co-innovation is possible. In an open innovation framework, the triad of cooperation: retailers-suppliers-consumers is a practical approach to innovation. Incorporating integrated and tacit knowledge is critical in the retail industry, as long as there is sufficient experimental training (supermarkets and co-innovation laboratories). New methods to create retail-brand innovation, such as Mercadona's, may represent the retail chain's future. These new retail methods require a strong consumer focus interwoven into a company's culture of continual improvement, which includes workers. It is essential to emphasize the emotional connection as an effective client loyalty strategy (ESIC, 2021).

The method followed by Mercadona assists retailers to respond to changing consumer needs, cooperating with suppliers, and overcoming barriers to innovation servitization. Its supplier relationships have improved as a result of its co-innovation approach. Employee-centred human resource management is required to support the entire organization's commitment to quality and customer-driven innovation. Aligning consumer, supplier, and retailer incentives is a difficult task. However, it is a necessary component of successful retail innovation servitization: our case study shows that incentives are a part of the solution.

As the Cerdá Institute (2016) report emphasized, innovative activity promotes innovation and growth for its suppliers, representing a cluster of excellence in the food sector in Spain. The Mercadona retail chain appears as a driving force for the regional and national economy. However, not leaving aside the supply chain tension which is a significant challenge to be solved given the growing competition in prices and quality in the sector. SMEs benefit from the servitization of innovation in Mercadona's value chain to the point that in a few years, they cease to be SMEs, as illustrated by the practical cases described.

Finally, it should be underscored that the servitization of innovation, as described in this case, is a clear example of what authors such as Shah *et al.* (2020) and Jang and Kim (2021) propose, involving the integration of suppliers, retailers, and customers. In addition, it contributes to consumer loyalty. It improves the performance of companies in the supply chain, as Kotliarov (2015) points out, being a unique tool for creating value for the consumer.

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THE ROLE OF KEY FOCAL ACTORS IN INTEGRATING HOLISTIC SOCIO-ECOLOGICAL ECOSYSTEMS

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ABTSTRACT

This paper examines the role of key focal actors in the process of integrating interacting subsystems (Alexander *et al.*, 2018) within a wider socio-ecological system. The work offers novel insights through an exploration of the case of Zakouma national park in Chad, whose threatened fauna was recovered and protected by African Parks, an international NGO that has pioneered a model of public–private partnership in the conservation of Wildlife and nature Ecosystems. To address the complexities of finding evidence of multi-actor value co-creation, data was collected from both service providers and users employing a qualitative multi-method approach. Mapping is used as the primary tool to visualise and synthesise the complex co-creation interactions, from dyadic micro-interactions, and beyond these, macro-interactions to form the wider service ecosystem.

This work shows evidence of how, key focal actors emerge by integrating resources through multi-actor engagement that enable and guide multilevel value co-creation: from the micro- to the macro-level (Vargo, 2011).

Taking insights from service science and complexity theory this work uses an S-D logic perspective to explore the integration of human and natural systems into holistic socio-ecological systems. Such systems evolve along complex and dynamic trajectories involving feedback on multiple levels. This work hopes to show a way in which ideas from socio-ecology can produce a holistic mindset. This work reflects on the conception of changes in socio-human systems – caused either by the dynamics of the interactions between multiple actors and through the influence of ecological cycles – that mould the evolution of human institutional arrangements based on values, meanings, norms, rules.

INTRODUCTION

African Parks is an international non-profit organization that takes responsibility for the rehabilitation of threatened wildlife and long-term sustainable management of national parks and protected areas across Africa. This NGO has pioneered a model of public–private cooperation, and international partnerships with governments and local communities, to restore protected areas. African Parks currently manages 19 national parks and protected areas in 11 African countries.

This investigation looks at the work of African Parks in one particular protected area: the Zakouma National Park in Chad. We will examine how African Parks brought the local socio-ecological system back from the brink of collapse through the integration of resources and cooperation with other actors concerned with the common good of people and wildlife. Years of political unrest in Chad and the resulting social instability around Zakouma had allowed poaching to become rife so endangering numerous populations of wild species, the achievements of African Parks in reversing the damage done to the local ecosystem required engagement at both local and international levels.

S-D logic is increasingly concerned with complex value co-creation actor engagement, looking beyond dyadic interactions (Alexander *et al.*, 2018) and towards service ecosystems (Akaka and Vargo, 2015). Middle range theory (Brodie *et al.*, 2018) enable to relate the meta-conceptual theorizing of S-D logic to empirical evidence, for instance through the concept of *engagement*, and zooming out the concept of customer engagement further to more broadly multi-actor engagement. Nevertheless, it is still necessary to gain a better understanding of multilevel value co-creation as it occurs both from the micro-level to the wider societal- or

macro-level (Lusch and Vargo, 2014). To do this we must identify the focal actors responsible for integrating engagement objects (Alexander *et al.*, 2018) and assembling the interacting sub-systems (Ostrom, 2009) that ultimately form emerging service ecosystems.

Thus far, actor engagement and value co-creation within the framework of S-D-logic, have been considered fundamentally in terms of socio-human engagement. The interactions between humans and bio-natural systems, on the other hand, have received far less attention (Mazzega et al, 2016). However, Service Science (Ng *et al.*, 2018) advocates an understanding of socio-human and bio-natural systems that recognizes how they mutually interact to produce multi-scale patterns involving non-linear dynamics and feedback loops. In this way, the socio-human and the bio-natural can be seen as subsystems within a holistic socio-ecological system (Folke et al, 2016; Preiser et al, 2018). Indeed, while the tendency to analyze socio-human and bio-natural systems separately may still persist, both the dependence on and the influence of human activity on the natural environment are clear. The era we now live in has been aptly named the Anthropocene (Crutzen, 2006) and our role in climate change is increasingly accepted (IPCC, 2021), thus it seems, examination of the social and the ecological, as one, together, is unavoidable.

In the context of Africa, despite being protected, numerous areas have suffered ecological devastation due to geopolitical instability; and African Parks has had a fundamental role in re-establishing socio-ecological balance of these vulnerable areas. As the remaining wildernesses of our planet become increasingly fragile, there is a growing need for conservation areas and the active protection of wildlife. To this end, governments in many countries have developed national parklands and other forms of protected areas and are reassessing frameworks for the good governance, management, and marketing of these territories (Lockwood, 2010).

The specific objectives of this investigation are to explore the role of key resource-integrating focal actors who coordinate interacting objects (Alexander et al, 2018), here socio-human and bio-natural subsystems, and shape holistic complex socio-ecological systems. The principal contributions of this work lie in deepening our understanding of socio-human systems, with their particular historic and sociocultural context (Edvardsson *et al.*, 2011), as being nested in bio-ecological systems (Lui et al, 2007).

THE CONSERVATION OF WILDLIFE PLACES OF UNIQUE VALUE IN CONTEMPORARY SOCIETIES

Over the last century, society has become ever more aware of the importance of conserving unique natural spaces; since Yellowstone in the USA was inaugurated as the world's first national park in 1872, nearly 100 other countries have created more than 3,000 national parks across five continents. Now, many national parks have been granted human heritage status, demonstrating how society has endowed these wild spaces with cultural significance (Willow, 2011).

The management of protected areas has evolved over the years from a vertical model with public authorities instigating top-down processes towards a model of what Folke *et al.* (2016) term adaptive governance, involving public and private partnership, NGOs, local communities, businesses, within increasing participatory frameworks (Lockwood, 2010). Modern governance processes involve knowledge integration and the seeking of scientific solutions, and it is in this context of the social management of protected natural that the term, socio-ecological system was first coined (González et al, 2008). This approach means that multiple stakeholders are being brought together to form complex dynamic networks for the socio-environmental management of protected areas (Dovers *et al.*, 2015). The conservation movement represents a new understanding of humanity's relationship with the biosphere.

METHODOLOGICAL APPROACH TO ADDRESS THE COMPLEXITY OF SOCIO-ECOLOGICAL SYSTEMS

As service-dominant logic postulates multi-actor co-creation (Lusch and Vargo, 2014), methodological approaches should be explored that involve collection of data from various actors to provide evidence of different insights within service ecosystems. This study adopts a qualitative methodology centred on primary data collection based on interviews with service providers—with African Parks as a case study, and also with other service providers—as well as interviews with service users, namely, tourists and local citizens. Netnography (Kozinets *et al.*, 2010) is also used as a method to analyse ethnography processes over the Internet with a view to studying online communities. (Table 1).

Data for this investigation was collected during field research in the central African Republic of Chad over a period from 2018-2021. After a lengthy visa application process, the author travelled to the country and organized an expedition to the remote Zakouma wildlife reserve in the southeast of Chad. Primary data came from recordings and notes taken during in-depth interviews; participant observation in tourist activities such as going on guided tours of the Zakouma reserve; and netnography (Kozinets, 2010) to explore service users' online co-creation practices (Schau et al, 2009). Complementary data was gathered using content analysis of material produced by key focal actors. This study adopts a qualitative methodology centred on primary data collection based on interviews with service providers—with African Parks as a case study, and also with other service providers—as well as interviews with service users, namely, tourists and local citizens. Netnography (Kozinets *et al.*, 2018) is also used as a method to analyse ethnography processes over the Internet with a view to studying online communities.

Table 1: Theoretical concepts and empirical insights with their methodological implications.

Meta-Theoretical Concepts	Value Co-Creation	Service Ecosystems
Methodological Research Implications	Multimethod data collection (Brodie et al 2018) to understand dyadic engagement around a given focal actor by analyzing micro B2C, B2B, C2C, C2B interactions (Gummesson and Polese, 2009), and also broader levels of value co-creation.	Multi-actor data collection from service providers and service users or beneficiaries (Ekman and Röndell, 2019, 628) to address the complexity arising from multiple, multilevel actor to actor (A2A) interactions.
	Mapping service interactions as methodological tool to visualize micro- and macro-level A2A engagement and identify synergies between interacting systems.	
	Mapping emergent systems enables the understanding of complex socio-ecological systems (Capra and Luisi, 2014), and where all parts are linked internally and to the external environment and cannot be analyzed separately (Preiser et al, 2018). Open service systems are in a continuous dynamic adaptation to cues from external environmental cycles, institutional framework (Thornton and Ocasio, 2008), and social context (Edvardsson et al, 2011).	

The data will be used to generate a map showing the various networks of actors forming the socio-ecological system. While value co-creation is difficult to observe empirically, actor engagement is observable and thus more likely to be manageable (Storbacka et al, 2016); and the shift from objects which are measurable, to relationships that are not, requires a methodological approach to mapping the interactions between related objects –service exchange- and actors (Capra and Luisi, 2014, 80-83; Gummesson, 2017). Mapping interactions that occur repeatedly enables the identification of the resource integration patterns that form wider service ecosystems. These patterns, flows of resources, and feedback between the actors in the system – show evidence of multi-actor value co-creation across the integrated economic, ecological, and social system.

PRELIMINARY RESULTS (Completed findings in the final version)

AFRICAN PARKS AS MARKET SHAPER AND INSTITUTIONAL ENTREPRENEUR

When African Parks took over the management of Zakouma, poaching was having a devastating effect on the park's elephant population; in fact, between 2002 and 2010 the population was reduced by 90% with 4,000 elephants killed for their ivory during that period leaving only 450 individuals. Under Africa Parks management this picture has changed dramatically: no elephants have been illegally killed since 2016, thus, the population is slowly recovering from the trauma of poaching and is once more on the increase, reaching 560 elephants by 2018. Thus, the intervention of African Parks in Zakouma and its implementation a management model has effectively prevented the collapse of a threatened ecosystem reconfiguring it as a resilient, sustainable

protected area. Indeed, Zakouma is emerging as an exceptional wildlife destination. Thus, tourism constitutes a subsystem within the Zakouma socio-ecological system (lower right-hand section of figure 2).

THE ZAKOUMA SOCIO-ECOLOGICAL ECOSYSTEM CENTERED ON AFRICAN PARKS AS THE FOCAL ACTOR

Figure 2 shows Zakouma service socio ecological ecosystem, centered on African Parks as the focal actor, involving multi-actor interactions. This system features a high density of resource integration (Normann, 2001) and a wide range of types of service flow including wildlife protection policies, education, tourism service.

Figure 1. African Parks as the focal actor: Integrating resources to form the *Zakouma National Park Socio-Ecological Service Ecosystem*

Service providers

Service users and **beneficiaries**

U.S. Department of State ▸ US Strategy for Combatting Wildlife Trafficking

The **European Union:** Provide anchor funding for Zakouma (Chad).

provide anti-poaching support in Central Africa. Alongside USAID; **African Parks** work with **WWF,** providing elephant surveillance in Zakouma

Funding for Zakouma

World Wildlife Fund

African Parks pioneered a public-private partnership model for managing protected areas including the restoration threatened ecosystems

Endangered wildlife that need protection from poaching.

Two **anonymous Donors**

funding

Republic of Chad Government 2010: European Union advised them to approach African Parks to take over management of Zakouma in to end elephant pouching.

Mandate to manage Zakouma

Anti-poaching rangers & guides

wildlife photographers and photography companies

protecting giraffes and research

protection

Giraffe Conservation Foundation

Field Guides Association of Southern Africa

provides

Wildlife security skills

Employment training & education

Wildlife tourists: authentic experiences visiting natural spaces to watch wild animals roaming free in their natural environment.

Tourism service

Fondation Segre: protecting planetary biodiversity through the conservation of threatened species and their habitats.

funding

Local people around Zakouma provide human resources working as guides, rangers, and other staff. They also benefit from employment in eco-tourism activities.

Funding projects to end poaching and ivory trafficking

Tourism providers: tour operators, transport agents

Elephant Crisis Fund

This visual representation of Zakouma's service ecosystem enables us to examine and gain a better understanding of multi-actor engagement as it brings together interactions occurring among dyads and triads (Chandler and Vargo, 2011), at the micro-level and at the broader societal and ecological macro-levels. African Parks gained a legitimacy through local human inclusive practices: it is the largest employer in the Zakouma region; it funds primary schools for local children; and it provides medical care for 83,000 local people.

African Parks, appears at the center of figure 2 while service providers appear on the left-hand side with service users and beneficiaries on the right. Service providers include international organizations and governments that co-create value by funding African Parks' projects. Similarly, the wildlife is at once a beneficiary of African Parks: benefiting from protection from poaching and habitat degradation; and they are also key to the provision of tourism services.

The social context (Edvardsson et al, 2011) in central Africa is characterized by a socio-political instability in which poaching is a significant threat. Besides, poachers and also bandits from the conflicts of nearby areas from Sudan –Darfur- and Central African Republic, who attack the local communities living in these threatened wild areas. African Parks has intervened in this institutionally complex picture bringing in novel solutions that combine new material and operational practices including active vigilance, tracking, and collaring of animals, and research projects. In this way, the organization has reformulated Zakouma's narrative and provided new meaningful benefits that address the common good of wildlife and human beings.

African Parks tried to reintroduce rhinoceros into the park by relocating some animals from South Africa. Unfortunately, they did not adapt well to their new environment as they were not used to central African flora.

"4 of the 6 reintroduced rhino died of a lack of nitrogen. Additional rhino will be reintroduced to Zakouma but from lessons learned these rhinos will not be released in the wet season as in the previous case but rather in the dry season forcing them to go to the Salamat River where they will be forced to browse on the riparian vegetation along the river where the alluvial soils are nitrogen rich".

Zakouma Park director, interview

This practice is evidence on how African Parks have learned and adapted their practices as a result.

CONCLUSIONS

The principal contribution of this investigation lie in its detailed exploration of the role of a key actor assembling interacting engagement spheres (Alexander *et al.*, 2018), in this case bio-ecological and socio-economic subsystems (Simon, 1991; Ostrom, 2009). This process can be seen how the protection of wild animals is beginning to support a sustainable wildlife tourism subsystem. Thus, this research goes beyond dyadic engagement, zooming-out towards socio-ecological service ecosystems (Figure 2).

Figure 2: African Parks as key actor: Integrating interacting bio-natural and socio-human systems to form the Zakouma National Park (Chad) socio-ecological system
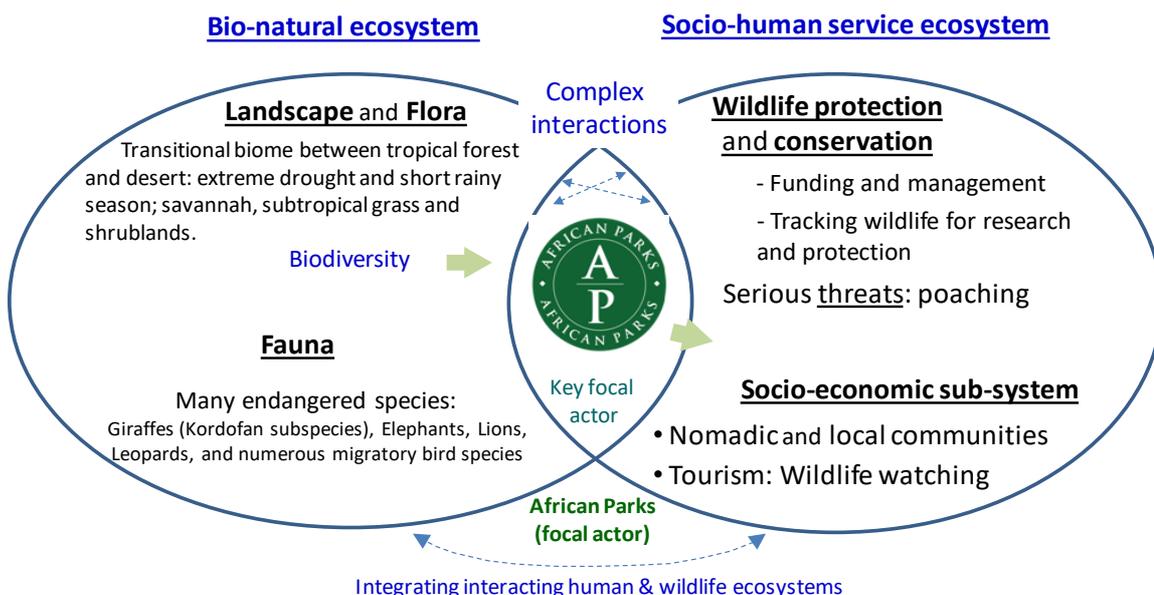
African Parks represents an institutional entrepeneur (Eisenstadt, 1980), as this NGO contributes to creative a narrative of the importance of protecting endangered wildlife and threatened environments so harmonizing the ecological and the socio-human dimensions. Through its work not only in Zakouma, but in all 19 parks under its management across Africa, it has created a meta-system of wildlife and environmental protection on a continental level which has global significance.

This work contributes to a better understanding of multi-actor engagement; it emerges from micro-dyadic interactions and is woven into the macro societal level of the service ecosystem. The Zakouma's socio-ecological system highlights the institutional complexity derived from the existence of opposed actors with conflicting interests (Siltaloppi et al, 2016) and actors that are simultaneously embedded in multiple institutional arrangements. This research is also relevant to the field of marketing in that this area needs to take a more plural vision and rethink its approach to real-world environmental phenomena (Fehrer, 2020), and take account of the criticism that marketing currently tends to ignore bio-natural dimensions (Pitt, 2020).
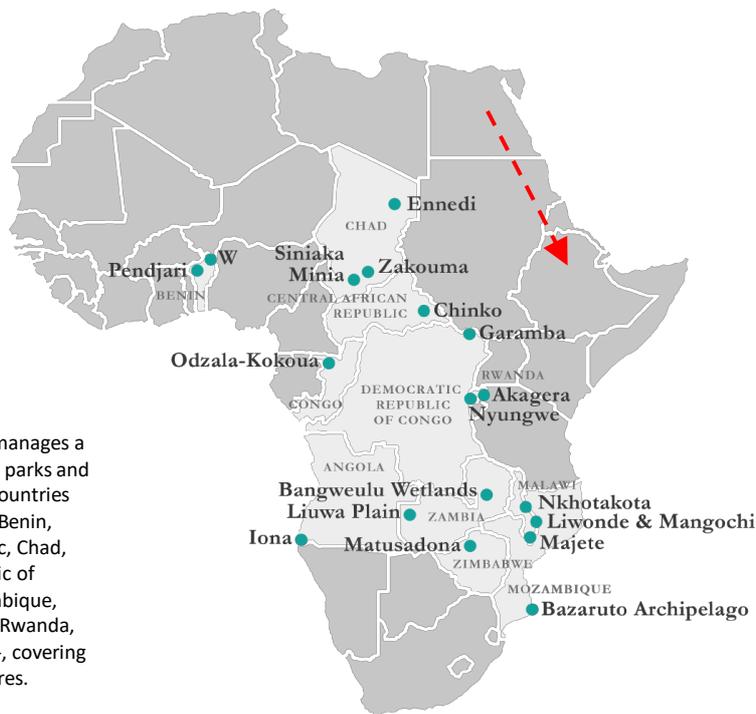
In 2020, African Parks manages a portfolio of 19 national parks and protected areas in 11 countries around Africa -Angola, Benin, Central African Republic, Chad, the Democratic Republic of Congo, Malawi, Mozambique, the Republic of Congo, Rwanda, Zambia and Zimbabwe-, covering over 14.2 million hectares.

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WHAT IS GOING ON IN 'SERVICE ECOSYSTEMS' SCIENTIFIC LITERATURE? RESEARCH FRONTS AND TRENDS

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ABSTRACT

In recent years, the use by researchers of co-citation analysis trying to identify and/or visualize the 'intellectual structure' or 'knowledge base' of different fields or disciplines have been gaining prominence in a growing number of scientific journals. However, the technique of 'bibliographic coupling analysis', particularly suitable for detecting current trends and future research priorities– has been less commonly applied. This study used this last technique to identify and visualize the existence of active research 'fronts' in the context of the papers on 'service ecosystems' recently published in a wide variety of journals. The aim is not only to complement and expand the results obtained in prior studies. Based on the results obtained in our literature review, this paper also outlines possible directions and promising ways for future research.

INTRODUCTION

In a move to expand to the context of service exchange, 'service ecosystems' have emerged as an "analytical lens in service research" over the past decade (Ringen-Höibjerg, 2020, p. 54). Through the 'service ecosystem' concept, it has been argued that scholars and practitioners can recognize the structural intricacies of service exchange, and thus extend the scope of service from a "dyadic producer-user perspective" to another that include the several network connections that influence such exchange (Baron et al., 2018; Mele et al., 2018). The first consequence of applying the 'service ecosystem' concept is hence seen as a changed focus from viewing service producers and customers as the 'loci' of service, towards the inclusion of "many-to-many interactions" with multiple actors (Beirão et al., 2017; Vargo and Lusch, 2016; among others). But, what is going on in 'service ecosystem' literature? This short version of our paper shows some of the results of an analysis of the recent literature on this particular topic applying, for this purpose, bibliometric methods.

The paper is structured as follows. Once the "methods" have been discussed, the next section (Methodology) deals with the collection of data. The outcome of the bibliographic coupling analysis developed –including a visualization of the bibliographic coupling network and the results of SNA and multivariate analyses– are provided in the subsequent section (Results and discussion). Finally, the last section (Conclusion, limitations, and future research) outlines the limitations and directions for future research.

METHODOLOGY

Methods: co-citation analysis vs. bibliographic coupling between documents

In the field of bibliometrics, different 'methods' and 'techniques' can be used when it comes to defining and visualizing a scientific field with the aim of detecting subfields, areas, or lines of research. Some studies have utilized author co-citation (ACA), documents (DCA), or co-word analysis (e.g. Chen et al., 2010; Leydesdorff and Welbers, 2011; Zhao and Strotmann, 2011). Others have utilized the bibliographic coupling analysis (BCA) proposed by Kessler (1963) (e.g. Boyack and Klavans, 2010; Chen et al., 2011; Glänzel and Thijs, 2011). There is yet another group of scholars who have combined some of these analysis techniques, e.g., ACA and co-word analysis (e.g. Zitt et al., 2011) or co-citation and text-based analysis (e.g. Mora et al., 2019). In any case, two types of analysis prevail: co-citation analysis; and the bibliographic coupling technique.

Co-citation analysis, introduced by Small (1973), starts from the assumption that a certain thematic similarity, as well as a certain intellectual connection would exist –at least from the perspective of the citing author (McCain, 1990, p. 443)– between two co-cited documents, in such a way that the higher the co-citation

frequency, the greater the affinity existing between them. The intensity of this relationship will be determined by the number of citing documents or source documents that contain the same pair of documents amongst their references (Small, 1973; White and Griffith, 1981; White and McCain, 1998). Assuming that highly-cited documents represent key concepts, methods, or experiments developed within a scientific field or discipline, such co-citation patterns could then be used to identify and visualize the connections between those key ideas, allowing us to identify the reference documents that have served as the foundation for the development of knowledge in that field, as well as intellectual influences and the seminal character that such documents and the authors responsible for them have when it comes to research (Small, 1973). Nevertheless, this type of analysis offers a "retrospective" vision, or one more oriented towards the past (Grégoire et al., 2006; Vogel and Güttel, 2013), insofar as it allows us to identify the documents that have influenced the subsequent literature to a greater extent; in other words, the intellectual structure or cognitive base of the domain examined. A certain length of time must have elapsed, though, for these documents to be consulted and cited in later studies.

Regarding bibliographic coupling, this technique is based on the identification and quantification of the common bibliographic references cited by the documents analyzed, since the fact that two documents share at least one common bibliographic cited reference suggest that such documents are thematically related, and that the higher the number of bibliographic references shared, the greater their thematic proximity will be (Kessler, 1963). In short, the analytical interest of studies based on bibliographic coupling analysis lies in the fact that it enables the identification of active knowledge areas or "nuclei" within a discipline. Unlike co-citation analysis, it is additionally a "prospective" methodology, in the sense that, from the very moment when a document is published or made known (through its online version, for example), that document can be attach to, or grouped with, others that share the same cited bibliographic references and, consequently, have a thematic affinity. It is not, therefore, necessary to wait for that document to accumulate a certain influence within the scientific community. This methodology additionally makes it possible to know the stage of evolution or development of a research theme or field (Boyack and Klavans, 2010; Jarneving, 2007a, 2007b) and is helpful in detecting the connections of research groups (Yang et al., 2016).

Since this paper's aim is to identify and characterize the main research 'fronts' in the field under examination, it will utilize the latter method of analysis: bibliographic coupling. Social network analysis (SNA) will also be used to construct, visualize, and analyze the network derived from the analysis.

Data source and documents sample

In relation to the data, the "source-documents" utilized in this study were retrieved from the Web of Science™ (WoS) Core Collection (CC). From this database –in particular, two of its indexes: the Social Sciences Citation Index; and, the Emerging Sources Citation Index–, a total of 259 peer-reviewed journal articles published in up to 116 different journals between 2014 and 2021* (until the database consultation date: September 28, 2021) were retrieved.

Only "peer-reviewed journal articles," i.e. research papers, rather than books, doctoral dissertations, or papers containing reviews and proceedings, were considered in this research, since they are the only ones that can be regarded as "certified knowledge" (Merton, 1973) –the institutional goal of science is, in Merton's (1973, p. 270) words, "the extension of certified knowledge." Additionally, the use of citations from research papers constitutes standard practice adopted in the implementation of this type of analysis, increasing the reliability of the results obtained –the review process itself acts as a quality control mechanism that validates the knowledge such articles afford (Light and Pillemer, 1984; Ordanini et al., 2008).

Bibexcel® and the treatment of bibliographic records

The documents retrieved were downloaded directly in plain text format (.txt) to be treated after their conversion through Bibexcel®, a public-domain software [designed to assist users in analyzing bibliographic data (or any data of a textual nature formatted in a similar manner)] developed by Professor Olle Persson from the Institute of Information Sciences at the Swedish University of Umeå to handle and treat bibliographic records.

Bibexcel® offers, amongst many other 'features', the possibility to analyze the information extracted from the different fields within a bibliographic record, including cited references. It carries out counts by frequency, analyzes co-occurrence between different elements (authors, documents, keywords, etc.), and implements bibliographic coupling techniques.

In this research, Bibexcel® served to extract not only the references contained in each one of the source documents examined but also, once the information was processed and homogenized, and after establishing a minimum threshold –value fixed for the purpose of eliminating the most trivial relationships and focusing the analysis on the most significant relationships existing between documents– to quantify, for each pair of documents examined, their bibliographic coupling frequency, i.e. the number of bibliographic references cited in common in both documents. It makes it possible to construct a co-occurrence matrix with the absolute values of the references shared by each pair of documents considered. The reticular structure of information provided by SNA, i.e., of the bibliographic coupling network, was generated by means of the UCINET 6 software for Windows using the matrices previously generated by Bibexcel® to be treated with Pajek®, VOSviewer®, Maqecuation®, or NetDraw®. The different multivariate analyses were carried out, using the statistical package SPSS® v.27, as well as the software mentioned above.

As a novelty, Bibliometrix® –an open-source R-package developed by Aria and Cuccurullo (2017) to perform quantitative research in bibliometrics and scientometrics that includes most of the main bibliometric methods of analysis– was also utilized.

Document selection and calculation of co-occurrence and proximity matrices

In this study, all those source documents with a coupling frequency of at least 16 references in common, with a minimum of one of the remaining documents were considered. This choice was made owing to the impossibility of working with all the documents, added to the fact that such analysis requires the establishment of a cut-off point or minimum coupling threshold –this criterion was subsequently modified to a minimum of two documents in SNA–, thus obtaining a "co-occurrence" matrix, C, with dimensions 66×66, that shows the number of cited references shared by each pair of papers considered. This matrix has two main characteristics: it is a symmetrical matrix; and all the values in the main diagonal are zero.

The next step in this type of analysis –once co-occurrence matrix in absolute values, **C,** has been obtained, and after establishing the treatment that will be given to the main diagonal values in the matrix– comprises achieving a proximity or similarity matrix, **S.** This allows (for example, through the statistical packages SPSS© or STATA©) various multivariate analysis techniques to be carried out to reduce the dimensionality of the data examined, Pearson's r correlation coefficient being, despite the criticism received, one of the similarity measures between pairs most often used amongst a wide range of normalization strategies suggested in the area of bibliometrics (van Eck and Waltman, 2009).

The transformation of the values contained in the matrix **C** into a matrix of similarities, **S,** has the advantage that each value now takes into consideration all the documents analyzed and not only the absolute values corresponding to each one of the pairs of documents considered separately. Likewise, normalized values are obtained, thus clarifying the potential differences in the measuring scale between documents that share a high number of common citations and those other documents that may also be thematically close –even though they have a lower number of shared references–, or between documents that have a much more extensive bibliography than others with a smaller proportion of cited references.

As a general rule, factor analysis (FA) or cluster analysis (CA) is usually applied to the matrix **S** to classify the various elements analyzed into a smaller number of factors or clusters, thus reducing data dimensionality.

Factor analysis and construction of the bibliographic coupling network

In this study, rather than using either of two previous techniques, SNA was adopted as the primary analysis technique, in combination with factor analysis. The suitability of combining this type of analysis –SNA together with another classification or clustering method (such as FA)– lies in the fact that results can be contrasted and provided with increased robustness, as highlighted in by, amongst others, Vogel and Güttel (2013, p. 430), as well as a variety of authors from the fields of bibliometrics and scientometrics.

More precisely and making use of UCINET 6 for Windows and the *spring embedder algorithm* provided by this software –similarly to multidimensional scaling (MDS) approaches, this graph layout algorithm optimizes the distances between every pair of nodes. The path length, i.e. the number of edges between them, approximates the distance between any two nodes. The shorter the mean path length between a given node and other nodes,

the higher its centrality in the network– an effort was made to plot a network through which the different research 'fronts' in the field under analysis can be identified and visualized. The 'nodes' in the network represent citing or source documents, i.e. documents containing the citations. The 'edges' represent bibliographic couplings, i.e. the number of references shared by each pair of documents.

Specifically, and consistent with the criteria utilized to obtain the co-occurrence matrix **C** on which this analysis is primarily supported, a decision was made to establish the same minimum number of couplings (i.e. the same minimum coupling threshold) between each document. In the present study, a minimum number of, at least, two other documents was set (owing to the fact that only those research 'fronts' or nuclei made up of at least three source documents will be examined here) in order to consider those documents exclusively at or above these thresholds. It is worth noting here that the variation or modification of this threshold and the number of documents caused changes in the size of the network, even though its structure did not change to a significant extent, remaining practically invariable. This led to the final decision to use the previously mentioned parameters (tie strength ≥ 16; node degree ≥ 2) as parameters. The number of documents was thus reduced from the 259 initial papers and 66 whose bibliographic coupling values shape matrix **C** to only 48 documents.

Factor analysis –applied this time on the matrix **S** of Pearson's r-correlation coefficients, i.e. on the matrix of similarities between documents– led to the extraction of 18 factors with an eigenvalue ≥ 1 through the implementation of principal component analysis and VARIMAX rotation. From these, only those factors comprising at least three of the different nodes (i.e. documents considered in SNA with factor loadings that have an absolute value ≥ 0.7) were selected. In the event that more than one factor should have to be loaded, the factor with the highest factor loading was selected. The reason for this choice was that it additionally implied eliminating all those other documents that did not significantly load in any of the extracted factors and, once again applying the parameters defined in the preceding analysis, the number of nodes represented in the network was fixed at 43 documents. Finally, with respect to the factors considered (seven in all), they accounted for 64.5% of the total explained variance, drawing a correspondence with the different research 'fronts' or nuclei (represented in the bibliographic coupling network through various symbols and by the label assigned to each one of the documents).

The results of the different analyses performed –bibliometric analysis, factor analysis, and SNA– are detailed in the next section.

RESULTS AND DISCUSSION

The results obtained after completing the different stages included in the analysis are shown below.

In particular, a total of 259 source-documents, which contained a total of 19,990 cited references –13,483 unique references– were analyzed in this research. The average number of bibliographic references was 77.18. Particularly, 85.31% (n = 11,502) of the aforementioned 13,483 unique references were cited only once, and 14.69% (n = 1,981) on two or more occasions (≥ 10 times, 1.00%; n = 135).

Concerning the bibliographic coupling analysis, it proved useful to identify a total of 19,922 unique pairs between documents: 24.70% (n = 4,921) of those pairs shared a single bibliographic reference in common; 71.28% (n = 14,201) between two and nine; and finally, 4.02% (n = 800) over ten common bibliographic references. In this study, as previously explained in the Methodology section, the co-occurrence matrix **C** was constructed with the bibliographic couplings between 66 documents, a number which eventually went down to 43 in SNA and principal components factor analysis. These documents are included in some of the various research 'fronts' that will subsequently be analyzed.

Figure 1 allows us to visualize the 'network' of bibliographic couplings between the 43 documents analyzed. Each one of the nodes is differently represented in this reticular representation, according to whether it belonged to one or another of seven factors considered, from a total of eighteen, in factor analysis (FA). The total variance percentage explained by each one of the factors is shown in Table 1.

Figure 1: Bibliographic coupling network of recent research on 'service ecosystems', 2014–2021*
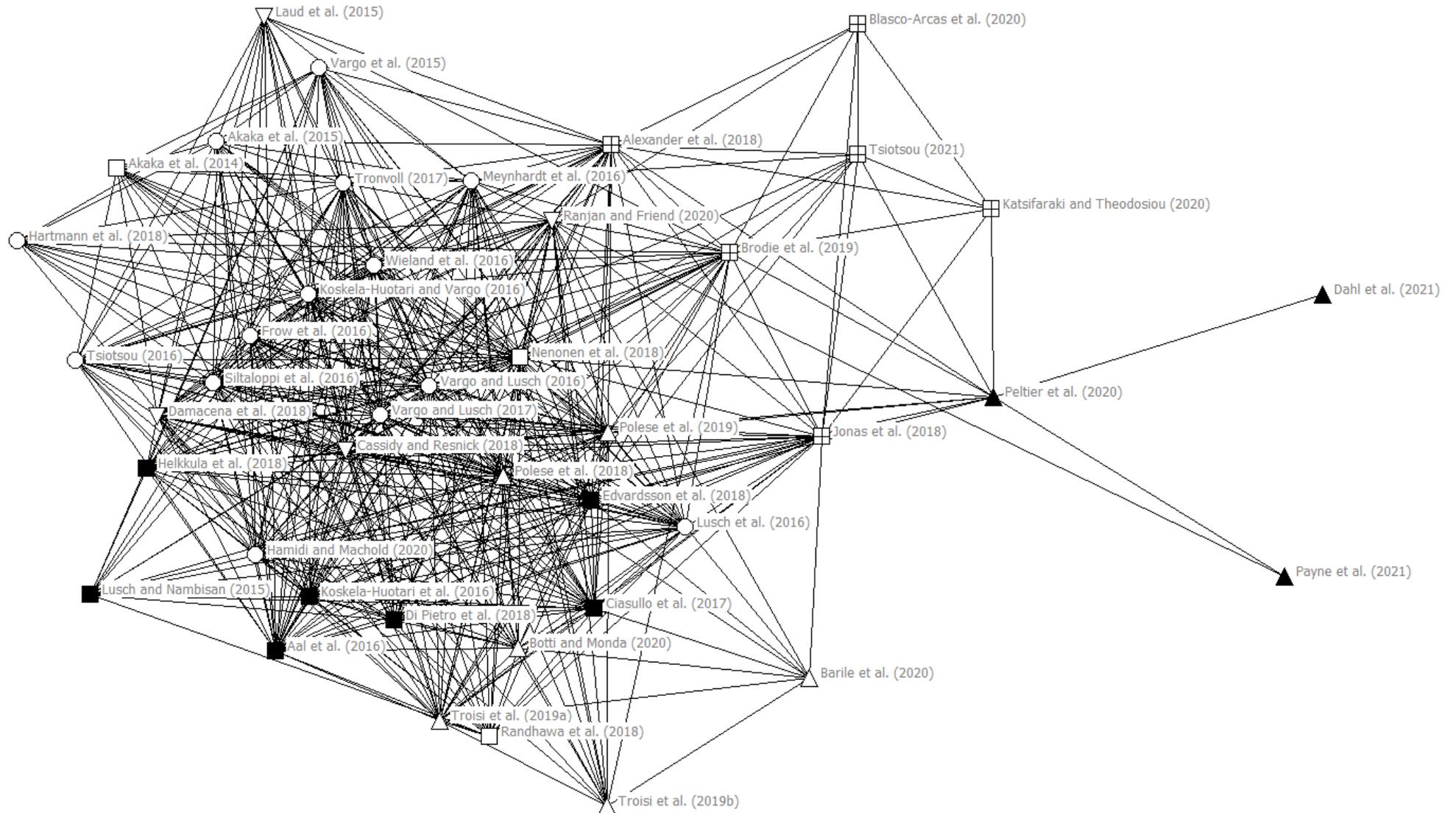
Table 1: Factor analysis: results summary and symbols in the network

No.	Symbol	No. of docs	Eigenvalue	Variance explained (%)	Cum. %
Factor 1	○	14	13,50317	20,30	20.30
Factor 2	■	7	7,99412	12,00	32,40
Factor 3	△	6	6,19851	9,30	41,70
Factor 4	⊕	6	5,12132	7,70	49,40
Factor 5	▽	4	4,04260	6,10	55,50
Factor 6	□	3	3,07692	4,60	60,20
Factor 7	▲	3	2,85553	4,30	64,50

Table 2 shows the value of the different network indicators calculated for some of the nodes shaping it (the 'five' nodes with higher indices). These indices or indicators –centrality degree, closeness, and betweenness– allow the completion of the analysis developed from the perspective supplied by SNA.

In this study, the highest degree of 'betweenness' corresponded to the paper by Wilden et al. (2017): 'The Evolution and Prospects of Service-Dominant Logic: An Investigation of Past, Present, and Future Research.' The role of intermediaries that certain nodes may exert very often has to do either with the fact that such nodes represent documents that deal with transversal issues common to several research fields or that these are documentary typologies such as literature reviews or represent documents written for a general purpose. These documents have particular value because they favor connectivity and cohesion in research undertaken within the discipline in question (Meyer et al., 2014).

To conclude, the different research 'fronts' situated at the forefront of knowledge that reveal the current, and even future, trends in research on 'service ecosystems' are showed in Table 3.

CONCLUSION, LIMITATIONS, AND FUTURE RESEARCH

The investigation developed here is among the works that have, as their main aim, to identify, visualize, and/or characterize, within a specific time period, the most active research 'fronts' in relation to a particular discipline, subdiscipline or scientific field, by using bibliometric methods as opposed to other types of systematization. Concretely, the present research work adopts the technique of bibliographic coupling between documents from their thematic affinity or similarity, determined on the basis of the number of citations or references that they share, and SNA.

Specifically, the analysis technique mentioned above, together factor analysis (FA), would have allowed us – adopting a quantitative method of a deductive nature for that purpose– to identify the most active research 'fronts' in the research devoted to the topic under analysis: 'service ecosystems' through an analysis of papers published during the period comprised between 2014 and September 28, 2021 (the database consultation date).

In the present study, the 'groups' resulting from the analyses are defined at a bibliometric level as research contexts or nuclei (i.e. 'fronts'), which shape the vanguard of knowledge and reveal current trends and future directions in the area under examination.

Conclusions, limitations, and lines of future research are detailed in the extended version of our paper because the length of this short version is limited (maximum 10 pages following QUIS17 template).

Table 2: Indicators –centrality degree, closeness and betweenness– calculated for some of the nodes of the network

Document	Centrality (nDegree)	Document	Closeness (Freeman)	Document	Betweenness (nBetweenness)
Vargo and Lusch (2016)	0,0477273	Wilden et al. (2017)	0,2927928	Wilden et al. (2017)	30,834364
Wilden et al. (2017)	0,0424825	Vargo and Lusch (2016)	0,2685950	Wajid et al. (2019)	19,326122
Polese et al. (2018)	0,0232517	Wajid et al. (2019)	0,2685950	Vargo and Lusch (2016)	12,300252
Di Pietro et al. 2018)	0,0230769	Frow et al. (2016)	0,2589642	Edvardsson et al. (2018)	9,320055
Wajid et al. (2019)	0,0225524	Edvardsson et al. (2018)	0,2589642	Polese et al. (2018)	7,145833

Table 3: Research "fronts" identified after the application of the factor analysis upon Matrix S

1	Tronvoll (2017), Hamidi and Machold (2020), Meynhardt et al. (2016), Vargo et al. (2015), Wieland et al. (2016), Tsiotsou (2016), Siltaloppi et al. (2016), Koskela-Huotari and Vargo (2016), Vargo and Lusch (2017), Lusch et al. (2016), Hartmann et al. (2018), Vargo and Lusch (2016), Frow et al. (2016), Akaka et al. (2015)	Institutions as resource context; trans-disciplinary perspectives in 'service ecosystems'; co-creation practices; institutionalization; institutional view; service-dominant (S-D) logic.
2	Lusch and Nambisan (2015), Aal et al. (2016), Koskela-Huotari et al. (2016), Helkkula et al. (2018), Ciasullo et al. (2017), Edvardsson et al. (2018), Di Pietro et al. (2018)	Service innovation; innovation in 'service ecosystems'; innovative 'service ecosystems'.
3	Barile et al. (2020), Troisi et al. (2019a), Botti and Monda (2020), Polese et al. (2018), Troisi et al. (2019b), Polese et al. (2019)	Smart 'service ecosystems'; technology, value co-creation and innovation; TQM in 'service ecosystems'; social innovation.
Q	Blasco-Arcas et al. (2020), Katsifaraki and Theodosiou (2020), Tsiotsou (2021), Jonas et al. (2018), Alexander et al. (2018), Brodie et al. (2019)	Engagement in 'service ecosystems'; networks/platforms; actor engagement in networks/platforms.
5	Damacena et al. (2018), Laud et al. (2015), Cassidy and Resnick (2018), Ranjan and Friend (2020)	Importance of interaction between different actors for value co-creation; role of embeddedness for resource integration.
6	Akaka et al. (2014), Nenonen et al. (2018), Randhawa et al. (2018)	Open service innovation; dynamic capabilities associated with proactivity in 'service ecosystems'; role of the symbols in value co-creation.
7	Payne et al. (2021), Dahl et al. (2021), Peltier et al. (2020)	Digital servitization value co-creation; digital information flows in 'service ecosystems'.

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A SERVICE ECOSYSTEM PERSPECTIVE ON VALUE-CREATING SOLUTIONS

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ABSTRACT

This paper aims to identify critical servitization challenges empirically and develop a conceptual framework explaining servitization responses through collaborative solutions in service ecosystems. The empirical basis is data from personal, in-depth interviews with 20 leaders and experts representing five B2B firms in the automotive industry. The paper contributes with (1) a definition of ecosystem solutions as a complex array of value propositions, (2) a conceptualization of the ecosystem solutions, and (3) suggestions for further research on ecosystem solutions. Ecosystem solutions are grounded in multiple collaborating actors that integrate available resources cocreating value in the context of current institutional arrangements.

INTRODUCTION

A complex array of underlying business trends such as digitalization, platforms, and automation challenges the current understanding of solutions. Customized solutions grounded in the exchange of value embedded in offerings (goods and services) are under pressure. The traditional understanding of customization, focusing on constellations of products and services in the firm-customer dyad is not enough to support customers' business over time. A wider, systemic and multi-actor scope is needed when responding to specific market challenges to secure value-in-use for customers. Value-in-use (VIU), defined as "all customer-perceived consequences arising from a solution that facilitate or hinder the achievement of the customer's goals" (Macdonald *et al.* 2016, p. 97). To achieve the focal customer's goals all engaged actors' goals must be met to arrive at value-creating solutions over time. This opens up a broader understanding of solutions where VIU is a process outcome and not a property of the offering and solution itself (Vargo and Lusch 2016). Understanding customers' goals, not just at the moment of exchange but the lifetime value, is more critical today than at any time in the past (Lemon and Verhoef 2016, referring to the customer journey). Today, value-creating solutions are created and assessed jointly in collaborative processes that often transcend traditional dyadic customer–firm relations to become more system. The meaning of value proposition (VP) change from denoting VIU for the customer to an invitation to multiple actors, with sets of complementing resources to engage in collaborative processes.

Business firms are forced to manage complexities in their own as well as their customers' business systems. This is pointing towards a systemic understanding of value creation, engaging multiple actors with different goals. Understanding use value for individual business customers requires an understanding of the customer's value creation processes and outcomes, as well as the customer's customers' business challenges and systems (see e.g. Zeithaml *et al.*, 2020). The unit of analysis cannot be limited to the solution or the firm-customer relation only but requires a broader systemic scope and the inclusion of multiple engaged actors and resources beyond the dyad.

This has led to an interest in conceptualizing and defining solutions as a value creation phenomenon (Eggert *et al.*, 2014; Macdonald *et al.*, 2016). An essential enabler in this shift is digitalization that extends the opportunity for solutions supporting the end customer's businesses and thus facilitates strategic benefit and further growth (Baines *et al.*, 2017; Vendrell-Herrero, Bustinza, Parry, and Georgantzis, 2017). Creating solutions grounded in digital offerings with use-value for all engaged actors is a trending topic in research and management practice (Macdonald *et al.*, 2016; Ross, Beath and Mocker, 2019), requiring solutions to contain dynamic relational contracts, governance matching, and a multi-actor perspective (Colm, Ordanini and Bornemann 2020). However, the conceptual foundation needs further development to break free from a narrow and structural understanding of offerings.

Frydlinger, Hart, and Vitasek (2019) provide an attempt in this direction, suggesting how to design a formal relational contract. Such a contract may create a foundation for value co-creation by specifying mutual goals and outcomes, establishing governance structures to keep the actors 'expectations and interests aligned and transparent over time. Traditional contracts do not work in complex collaborations where engaged actors are highly dependent on each other, future events cannot be predicted, and flexibility and trust are required for value creating processes and outcomes. Instead of promoting dynamic collaboration needed to cope with uncertainty and complexities, conventional contracts tend to undermine dynamic value creation.

The literature traditionally portrays a solution as a customized and integrated combination of goods and services offered by a firm to meet a customer's business needs (e.g., Sawhney, Wolcott, and Arroniz 2006; Story, Raddats, Burton, Zolkiewski and Baines, 2016). According to Tuli *et al.* (2007), customers tend to view a solution more broadly as a set of customer-supplier relational processes comprising (1) customer requirements definition, (2) customization and integration of goods and/or services, and (3) their deployment, and (4) post-deployment customer support. This study shows that the effectiveness of a solution depends not only on supplier variables but also indicates that several customer and context-specific variables and contributions from other engaged actors are important, including deployment customer support. We may argue that Tuli *et al.* (2007), although referring to a relational and process understanding of supplier-customer dyads, conceptualize solutions in a structural way within the supplier-customer dyad. Furthermore, the conceptual link to value creation is weak and, we may argue that solutions are implicitly understood as equal to or used as a synonym for value-in-use for the customer. However, there is little evidence that this view on solutions reflects or is informed by how customers think about solutions. Therefore, how the customer's context-specific business challenges and opportunities linked to collaboration between multiple actors and resource use can support the customer's business over time needs conceptual development.

Tuli *et al.* (2007) articulate the need to break away from the provider-customer dyad and a firm or product-centric view to focus on customized solutions. However, they neither developed their broader customer-centric discussion on value creation nor used an ecosystem lens, including value propositions (VP), when discussing value-creating solutions for business customers. Nenonen *et al.* (2020) seem to embrace a systemic understanding of value creation when arguing that VPs are created through a collaborative process, promise value to multiple actors, and harness enhanced resource integration opportunities. However, their paper is focused on VPs only. However, a firm's VP that resonates with a customer's goal may provide a VIU perspective on solutions.

Against this backdrop, this paper elaborates on the relational view on customized solutions by Tuli *et al.* (2007) and more recent research (e.g. Elgeti, Danatzis, and Kleinaltenkamp, 2020; Hedvall, Jagstedt, and Dubois, 2019; Nenonen *et al.*, 2020; Rajala *et al.*, 2019) to extend the view on use value for all engaged actors. A multi-actor and collaborative understanding of resource integration for value co-creation are emphasized. In doing this, the service ecosystem lens from service-dominant logic (see e.g. Vargo and Lusch 2016) is chosen to theorize about solutions in the B2B literature. Since ecosystems are complex, dynamic entities that shape (both enable and inhibit) actors and their different goals and value outcomes, solutions are created and assessed in different ways by and for engaged actors. This is close to what Strandvik, Holmlund and Edvardsson (2012) refer to as "customer needing: a challenge for the seller offering." A needing is based on the customers' mental models of their business challenges that affect their priorities, decisions, and actions, including solving business problems. The needing is operationalized as a profile of three dimensions that represent desired value in use (through solution processes) for the customer: the doing dimension comprises a relieving and an enabling function; the experiencing dimension has an energizing and a sheltering function; the scheduling dimension contains a time-framing and a timing function. Solving emphasizes that value is created by integrating resources in collaborative processes in ecosystems. The outcome, use value can be referred to as solutions that are cocreated or emerging over time beyond the firm-customer dyad. The service ecosystem lens includes multiple collaborating actors, their access to, integration and use of resources framed by the institutional arrangements - the rule of the business game (North 200X).

This paper focuses on theorizing and defining solutions by shifting from a dyadic to an ecosystem's perspective, focusing on solution processes, creating use-value for the end customers and all engaged actors. The article aims to build a systemic understanding of solving the end customer's business challenges and problems using an ecosystem solution. In theorizing, the paper suggests that multiple collaborating actors bring complementary sets of value propositions and resources into the ecosystem solution processes embedded in the specific context. The paper contributes with (1) a conceptualization and definition of ecosystem solution as a complex array of value propositions, aligned to solve the end customer's business

challenges where value is used and realized for all engaged actors in the ecosystem, (2) a conceptualization of the ecosystem solutions and (3) suggestions for further research on ecosystem solutions. Ecosystem solutions are grounded in multiple collaborating actors that integrate available resources cocreating value in the context of current institutional arrangements.

THEORETICAL FRAMING - A SYSTEMIC UNDERSTANDING OF VALUE-CREATING SOLUTIONS

Solutions have typically been defined as a bundle of products, services, and software (Vandermerwe and Rada, 1988) that can resolve customer-specific problems (Miller *et al.*, 2002; Tuli *et al.*, 2007) and increase the total value to the customer during the product life-cycle (Wise and Baumgartner, 1999). However, the extent B2B literature has defined solutions in different ways and by using different theoretical approaches and labels such as integrated solutions (e.g., Davies, Brady and Hobday, 2006), customer solutions (e.g., Tuli *et al.*, 2007), total solutions (Matthyssens and Vandenbempt, 1998), product-service systems (PSS) (Tukker, 2004), complex product systems (CoPS) (Davies and Brady, 2000; Kohtamäki and Partanen, 2016) or hybrid offerings (Ulaga and Reinartz, 2011). Nordin and Kowalkowski (2010) reviewed the literature on solutions in B2B contexts and found no rigorous definition of solutions, but rather several often broad and generic descriptions that could be applied to a wide array of different offerings.

Empirical studies show that a focus on solutions may create a more stable revenue source Balasubramanian and Krishnan, 2004), increase customer loyalty and profits (Tuli *et al.*, 2007) and enable manufacturers to strategically differentiate themselves from their competitors (Nordin and Kowalkowski, 2010). Moreover, Fang, Palmatier, and Steenkamp (2008) (see also Kohtamäki *et al.*, 2013) have highlighted the non-linearity between the provision of solutions and firm performance, suggesting the necessity of building a critical mass of solutions to make a positive performance impact. Existing research also underlines the importance of standardizing solutions to create cost advantages (Böttcher and Klingner, 2011; Davies and Brady, 2000; Matthyssens and Vandenbempt, 1998), helping firms avoid risk and losing strategic focus by cautioning them against creating too much variety (Ceci and Masini, 2011; Fang, *et al.*, 2008; Bond *et al.*, 2020).

Products with linked services dominated the understanding of solutions for a long time (Gebauer, Paiola and Saccani 2013; Hill 2017). Early conceptualizations linked offerings and focused on strategic prerequisites for creating value for the customer by adding and integrating new services to existing offerings (Edvardsson 1997; Edvardsson and Olsson 1996). This has also been referred to as a service extension strategy to increase low customer readiness for advanced services and solutions (Reim *et al.*, 2019). Customers that are familiar with simpler products and services will be more receptive to more advanced services. Rapaccini and Visintin (2015) describe solutions with three interrelated characteristics: (i) the services that should be attached to a product; (ii) the effect of these attached services on the customer value creation process; and (iii) the benefits that both customer and supplier can achieve from the delivery of hybrid solutions. However, there is an emerging consensus that solutions should be viewed as more than just bundles of customized and integrated sets of goods and services (see Macdonald *et al.*, 2016) to e.g. emphasize use-value components (see Macdonald *et al.*, 2017).

Davies, Brady and Hobday (2007) argue that customers are searching for "guaranteed solutions for trouble-free operations," focusing on integrated solutions to identify and solve each customer's business problem by providing services to design, integrate, operate and finance a product or system during its life cycle. The empirical basis is service capabilities for integrated solutions developed through case studies arguing for creating learning processes and capability building that creates the necessary organizational change.

Worm, Bharadwaj, Wolfgang, and Reinartz (2017) argue that solutions represent innovative, customized combinations of goods and services geared to B2B customers. They describe solutions to have four specific traits: (1) are built on understanding customer requirements, (2) are customized to implement customer activities and/or processes, (3) take the form of an output-based performance contract that delivers on customer-specified metrics, and (4) provide post-deployment support. In an empirical study, they analyze whether, when, and why solutions pay off. The authors' test hypotheses developed, supplemented with in-depth theory-in-use interviews, on primary and secondary data collected from 175 manufacturers. Their findings suggest that solutions are associated with increased return on sales but require specific sales capabilities.

Elgeti, Danatzis, and Kleinaltenkamp (2020) argue that solutions in business markets aim to solve business customers' organizational problems by providing end-to-end offerings consisting of customized combinations

of goods and services and the customers' business processes. While the effective integration of customer resources and processes is key for solution success, prior research predominantly focuses on delineating only those capabilities that provider firms necessitate to offer solutions. It remains unclear which capabilities customer firms require developing, deploying, and using solutions effectively and how these capabilities differ across different solution types. Elgeti, Danatzis, and Kleinaltenkamp (2020) address these gaps by combining critical literature review on organizational capabilities of business customers with empirical insights.

This study contributes to research on solution capabilities by explicating the nature, composition, and relevance of a portfolio of capabilities that customer firms require to bring into the solution process. The results can help solution providers develop their existing and new solutions and evaluate, choose, and develop their customer base.

Rajala *et al.* (2019) studied integrated solutions businesses, labeled as the first generation of servitized offerings, and modular solution offerings as the second development phase in servitization of original equipment manufacturers. They study how one manufacturer, Kone, moves from integrated solutions to modular solutions business and develops the prerequisites to design, produce and implement modular solution offerings. The firm's transition to modular solutions progressed through three major capability development phases: solutions based on ad hoc integration, smart solutions based on a modular design, and through-chain modularity. The modular structure aims at fostering the efficiency of the solution offering and the associated production system (p. 630). The study shows how a solution provider can develop the operational capabilities to integrate the core and peripheral components into the solution and orchestrate the modular production system. Rajala *et al.* (2019) identified the solution platform and the required competitive capabilities to provide solutions. Addressing heterogeneous and complex customer problems through individualized offerings becomes a critical success factor for solution providers.

Tuli, Kohli, and Bharadway (2007) argued to shift focus from product and services – the offering - to focus on the solutions from a customer perspective. They explore value-in-use for the customer and how this arises from quality perceptions of the solution's components. Tuli *et al.* (2007) expanded the understanding of solutions by emphasizing the customer side. This expansion broadens the understanding of solutions, although it was still viewed within the dyad. Ulaga and Kohli (2018) argue that suppliers in business-to-business markets are increasingly seeking growth by providing end-to-end solutions to customers.

Colm, Ordanini, and Bornemann (2020) conducted a qualitative analysis of dyadic data (suppliers and customers) to investigate the reasons for mixed solutions. They focus on the complex, dynamic role of governance matching. The results provide a series of tensions arising from solution-specific exchange conditions and the actors' matched governance mechanisms to address them: temporary asset colocation, network closure, knowledge-based boundary objects, rights allocation agreements, and liaison champions. This study argues that solutions evolve in three phases: experimentation, integration, and evolution in which single mechanisms have different functions (safeguarding and/or coordination), provide contingent and transient benefits, and can be used in combination to address complex tensions. Furthermore, two decision points are identified: mutual commitment and balanced power, which separate the three phases. The authors discuss and try to explain why certain solution efforts do not take off some stall, and others revert to mere spot exchanges.

By drawing on results from a case study in the transportation industry, Hedvall, Jagstedt, and Dubois (2019) conclude that: 1) firms are simultaneously involved in the provisioning of multiple solutions, 2) firms take on multiple roles in the provisioning of solutions in the business network, and 3) solutions are subject to interdependencies via connected relationships and thus form "networks of solutions." The authors argue that interdependencies between solutions are a significant characteristic. Thus, firms' interaction with multiple actors "in the provisioning of solutions needs considerable managerial and theoretical attention" (p. 411).

Against the above background, we may conclude that research on solutions is fragmented and either has a firm- or customer-centric view. In a customer-centric view on solutions, the customer is active in selecting suppliers and customizing the solution grounded in customer-specific requirements, although still within customer–firm dyads (Tuli *et al.*, 2007). However, neither the firm-centric nor the customer-centric view explicitly recognize the opportunities of collaborating with other actors in the broader service ecosystem. Thus, both the firm- and customer-centric views inhibit rather than enable exploring and exploiting the potential to create value by embracing digital-enabled collaboration between multiple actors.Based on the above theoretical framing, we argue for a service ecosystem informed conceptualization of value-creating

solutions. This conceptualization is grounded in multiple collaborating actors that all contribute with sets of complementary resources. Collaboration among actors in service ecosystems is initiated by value propositions (VP). A VP is an invitation from one or a set of actors in the ecosystem to customers (or other actors) to become collaborators in cocreating value for themselves and others. With this approach, we break free from a narrow firm-customer dyad to include multiple actors and sets of resources, but still focusing on specific solutions. The value being created and extracted for individual actors may or will vary depending on their business goals. Since in B2B long-term relations are important, often necessary for value creation, our suggested, new conceptual framework on value-creating solutions emphasize value creation over time within the rules of the business game (institutional arrangements). We build on Nenonen *et al.* (2020) when arguing that VPs are created through a collaborative process, promise value to multiple actors, and harness enhanced resource integration opportunities (Vargo, 2011). Building on the management literature, we use VP as a firm's (actor's) single most important organizing principle (Webster, 2002). Our conceptual framework also builds on the B2B literature, arguing that value has evolved from a focus on value in exchange to emphasis resource integration and VIU (Frow, and Eggert, 2018) with implications for the conceptualization of VP and value-creating solutions for multiple actors.

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ROLE OF INFORMAL INSTITUTIONS IN SERVICE ECOSYSTEM AT BOP ECONOMY

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ABSTRACT

The main objective of this paper is to provide initial evidence of how informal institutions guide and govern the behaviors of service receivers in the service ecosystem at the bottom-of-the-pyramid (BOP) economy. An inductive approach of qualitative research method consisting of interviews was adopted to conduct this research. The interviewed data were analyzed thematically. Our initial results show that relationship, solidarity, trust, and social norms as informal institutions possibly guide and govern the behaviors of actors, especially service receivers in the service ecosystem at BOP economy. Empirical research is underway in Bangladesh to evaluate the model quantitatively.

WHY INFORMAL INSTITUTIONS ARE IMPORTANT FOR THE BOP ECONOMY: A SERVICE-DOMINANT (S-D) LOGIC PERSPECTIVE

The formal and informal rules and regulations structure the people's interactions in our society (North, 1990; Williamson, 1985; 1996; Ostrom, 2005; Gidden, 1984; Putnam, 1993; Fukuyama, 2000; 2001; Yamagishi, 1998). It is very difficult to separate the role of both formal and informal institutions in our society. In some cases, formal institutions (rules, contracts, and laws) work well (North, 1990; Williamson, 1985; 1996; Ostrom, 2005). But belief, trust, and social norms as are the most basic informal institutions to establish the formal institutions in our society (Gidden, 1984; Putnam, 1993; Fukuyama, 2000; 2001; Yamagishi, 1998; Yamagishi and Yamagishi, 1994). In the context of the bottom-of-the pyramid (BOP) economy, informal institutions to be very difficult to penetrate the whole scope of the society. But informal institutions guide and govern the behaviors of the actors, especially service receivers in the service ecosystem at the context of the bottom-of-the pyramid (BOP) economy (Siddike and Hidaka, 2021a). The BOP economy comprises 2.7 billion people in the world who live on less than $2.50 a day. Social enterprises provide a wide range of service offerings to improve the quality of life by empowering the people of the BOP economy and helping them to bring positive changes in their lives by creating opportunities for them (Siddike and Hidaka, 2021b; Siddike and Kohda, 2017).

Conversely, service-dominant (S-D) logic is the emerging trend for 21st-century markets and marketing, and it continues its evolution from 2004 to 2020 (Vargo and Lusch, 2004; 2008; 2016; 2017). Service ecosystem, institutions and institutional arrangements, value co-creation, and resource integration are the core concepts of S-D logic (Akaka and Vargo, 2015; Lusch and Vargo, 2014; Akaka, Vargo, and Lusch, 2012; Vargo, 2011). A diverse network of actors is involved in the service ecosystem for the co-creation of value through the integration of resources and service-for-service exchange (Lusch and Vargo, 2014). The concept of "institutions" is the recent advancements in S-D logic (Vargo and Lusch, 2016; Vargo, 2011). In the S-D logic, institutions are defined as the humanly devised rules, norms, and beliefs that control and coordinate the value co-creation interactions and service behaviors of actors, especially the users, in service ecosystems without clearly distinguishing the role of formal and informal institutions (Akaka, Vargo, and Lusch, 2013; Chandler and Vargo, 2011; Chandler and Lusch, 2015; Vargo and Lusch, 2016; 2017; Koskela-Huotari and Vargo, 2016). Recently, Siddike and Hidaka (2021a) conceptually described the importance and role of informal institutions in service ecosystems based on literature review from different disciplines. But they did not provide any empirical evidence.

Therefore, the main objective of this paper is to provide initial evidence of how informal institutions guide and govern the behaviors of service receivers by describing a descriptive structure of informal institutions in the service ecosystem at the BOP economy. More specifically, we describe the mechanism of providing services to the BOP people. Then, we articulate the micro, meso, and macro structure of the service ecosystem in S-D logic, followed by how informal institutions govern and coordinate the value co-creation interactions at

different layers of the service ecosystem in the BOP economy. Finally, we conclude the paper by suggesting future research directions for quantitatively verifying and validating our structure of informal institutions in the service ecosystem.

RESEARCH METHOD

An inductive approach of qualitative research method adopted to provide initial evidence of how informal institutions control and coordinate the value co-creation interactions in service ecosystems at BOP economy (Yin, 2014; Corbin and Strauss, 2015). Data were collected by interviewing the service receivers from a global non-government organization namely BRAC in Bangladesh, which provides services for the people at the BOP economy. BRAC is the number one development organization in the world, dedicated to alleviate poverty by empowering the poor, and helping them to bring about positive changes in their lives by creating opportunities for the poor. BRAC began in 1972 in Bangladesh and over the course of evolution, it has been playing a role of recognizing and tackling the many different realities of poverty. BRAC believes that there is no single cause of poverty; hence it attempts tackling poverty on multiple formats. BRAC provides different kind of services including microfinance, health, education, agricultural, legal aids, safe drinking water and sanitary latrines, livelihood training, support for safe migration and assistance during natural disasters (BRAC, 2013). But in this research, we only interviewed service receivers from BRAC's microfinance program.

The interviews were conducted over the mobile phone due to COVID-19 pandemic. An agreement between Tokyo Institute of Technology and BRAC in Bangladesh was made to conduct this research. In addition, this research was approved by the Human Subjects Research Ethics Review Committee by the Tokyo Institute of Technology. Specifically, we interviewed with the service receivers from microfinance program of the NGO. The interviews were conducted in several steps. First, we made a phone call and explained our research projects to the service receivers. Then, we sought their convenient time to conduct the interview. Most of the cases, the service receivers allowed us to conduct the at the time of the first mobile call. Some of them requested us to give a phone call at their convenient time. We made phone call at their preferred time and conducted the interviews. In this research, we conducted a total of 15 interviews with the service receivers.

In this research, each interview was conducted and consecutively the data were coded, constantly compared and generate the theoretical categories thematically. The interviews were digitally recorded and transcribed. All the interview data were used throughout the analysis. All the interview data converted into word format. In case of recorded data, it was listened again and again. The contents of the recorded interview were verified several times. It was ensured that any important information was not missing. Each interview was read sentence by sentence, word by word, as well as paragraph by paragraph. In some case, a sentence or paragraph was read several times to generate the initial code, concepts, categories and theoretical categories. In this research, codes, concepts, categories, and core categories from 15 interviews were constantly compared to emerge the theoretical categories to develop the structure of informal institutions in service ecosystem at the BOP economy.

RESULTS

FINANCIAL SERVICES PROVIDED BY BRAC

Financial service is one of the core services provided by BRAC. Financial service is known as the "micro-finance" service to the people in the BOP economy. Micro-finance is a tool for alleviating poverty. BRAC customizes a diverse range of products and supports to access financial services, manage and build assets, invest in small enterprises, access employment opportunities and cope during emergencies. BRAC provides customized financial services and additional voluntary service to complement the credit and savings. Customized financial services include small enterprise loans, microloans, loans for migrant, agriculture loans, savings, jobholder loans, and safely save. Additional voluntary services include micro-insurance, digital financial services, cashless branch, emergency loans, medical treatment loans, seasonal loans, and sanitation loans. Recently, BRAC has gained momentous by introducing "*financial education*" (Siddike and Kohda, 2017). Before receiving any financial service, every customer has to participate in "*financial education*". The financial education includes pre-disbursement orientation and a four-day training program.

MECHANISM OF PROVIDING FINANCIAL SERVICES TO THE BOP PEOPLE

BRAC provides all the services through a special platform, consists of 30-40 people is known as Village Organization (VO). VO is an association of poor, landless people that come together with the assistance of BRAC and try to improve their socio-economic positions. In fact, VO is a platform for launching and implementing BRAC's various activities. Here, platform is defined as physical space where poor people meet together for receiving services from BRAC. More importantly, VO serve as forum where the poor can collectively address the principal structural and social impediments to their development, receive credit, and open savings accounts and build on their social capital. The main goal of VO is to strengthen the capacity of the poor for sustainable development and enable the poor to participate in the national development process. Messages from the organization are communicated to the groups through VO leaders. Along with group approach, BRAC is also adopted in individual approach for providing credit facilities.

Figure 1 : How does a loan proposal approve in VO? (BRAC, 2014)

BRAC's microfinance staff meets both VOs once a week or once a month to discuss and facilitate credit operations. In addition, the social development staff and health staff meet VO members twice a month and once a month respectively to discuss various socio-economic, legal and health issues. Credit decisions are taken in weekly VO meetings. BRAC considers three things before considering a loan application: the member's capacity to utilize the loan money, types of business, profitability of the Income Generating Activity (IGA)/business. Formal loan proposal is prepared by the respective program organizer (PO) then the accountant checks and verifies savings and credit records of the applicant by using a computer. The loan proposal is forwarded to the manager at the same office for verification and approval by the manager. At the branch office, the accountant disburses the loan after the manager interviews the borrower (Husain, 2007).

First of all, community women need to become a member of VO by providing 15 taka as an admission fee (5 taka for Passbook and 10 as deposit) with their national id card and a copy of photo and they need to deposit two weeks. In the VO, there is a president, a secretary and a cashier. In addition, there is also a group leader for every five women. Messages from the organization are communicated to the groups though the VO leaders. BRAC's microfinance staff meets VOs once a week (now more than 1200 branches monthly) to discuss and facilitate credit operations. The social development staff and health staff meet VO members twice a month and once a month respectively to discuss various socio-economic, legal and health issues (Husain, 2007).

After formation of group or VO and becoming a member of the group, a loan is proposed by the president of the group and the proposal is approved by the 'voice votes' of other members. Figure 1 shows the voice votes of supporting a loan proposal. Then, the formal loan is prepared by the respective frontline employees of the microfinance institutions. After having the formal loan proposal by the frontline employee, the accountant checks and verifies savings and credit records of the applicant by using a computer. After that the loan proposal is forwarded to the branch manager at the same office. Then, the loan application is verified and approved by the branch manager. And, finally it is informed to the loan applicant that her loan is approved and advised her to come to the branch office at a specific date for taking the loan.

Prospective clients have to come to the branch office before one hour of the loan disbursement. In case of BRAC, every prospective new client and repeated client has to attend a pre-disbursement orientation program conducted by a CSA (customer service assistant). After pre-disbursement orientation and

interviewing by the branch manager, the accountant disburses the loan. Savings and loan instalments are collected in monthly and weekly in the group or VO meetings. Frontline employee makes entries in the collection sheet and updates the passbook, which is kept by the members.

Figure 2 : The process of providing financial services in BOP economy

Customer (C); Program Organizer (PO); Loan Officer (LO)
Customer Service Assistant (CSA); Branch Manager (BM)
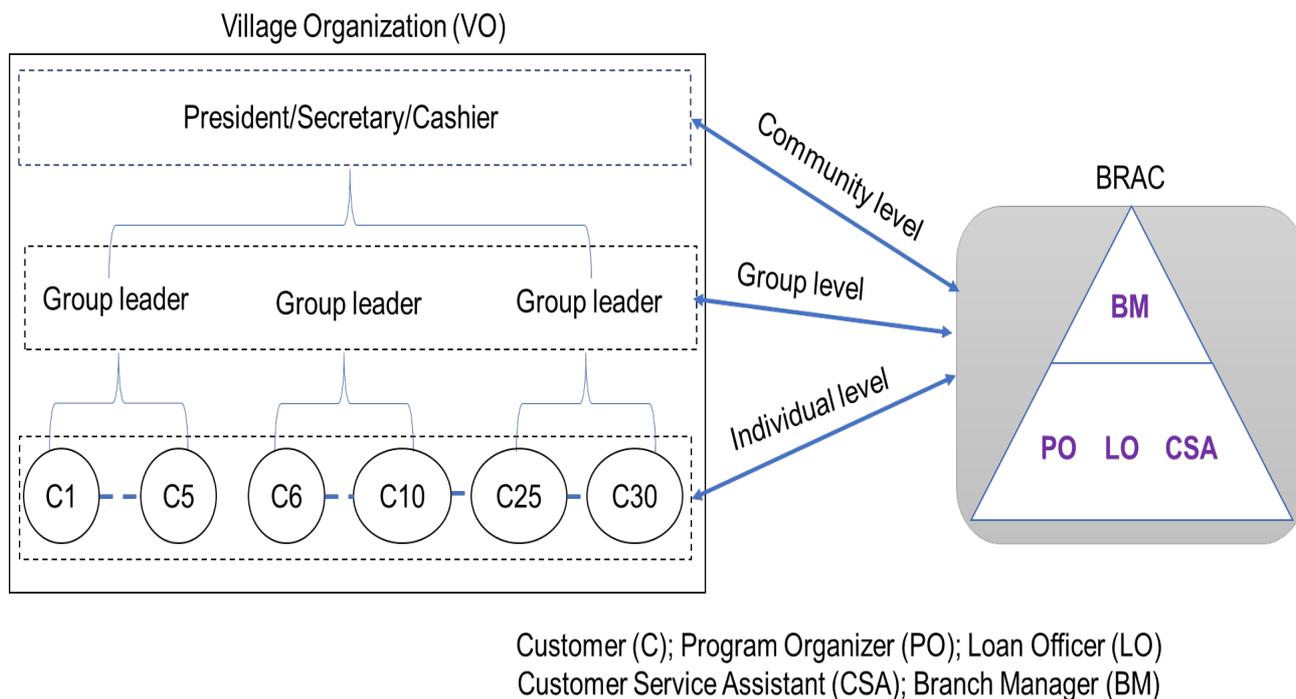
In addition, frontline employee compiles and submits the collection sheets to the accountant. The accountant gives computer posting. In addition, computer printouts are generated for the managers while required. Daily backups are at the branch office. Reports are sent to the branch and regional office on weekly basis (Branch managers report to the supervisor daily basis. Also, they provide weekly report at the end of every week). Diskettes are sent at the end of the month. Finally, data is entered into the central MIS system.

A STRUCTURE OF SERVICE ECOSYSTEM AT BOP ECONOMY

In this section, a structure of service ecosystem was developed in which informal institutions control and coordinates the service interactions. The finding of this research shows that personal, group, and community level relationship, solidarity, trust, and social norms play the most important role for guiding and governing the interactions with different people and service providers in the financial service ecosystems. Figure 3 shows the micro, meso and macro structure of service ecosystem and how the institutions are coordinating and controlling the behavior of actors in different levels.

Customers (C), Program organizer (PO), customer service assistant (CSA), loan organizer (LO), group leader (GO), and branch manager (BM) are the main actors in micro structure. Different kind of interactions take place among C, GO, PO, CSA and BM. In this phase, PO is responsible for communicating with C through the village organization. In addition, PO is responsible for arranging monthly meeting and initial loan proposal as well as collection of loans (repay) from customers. The most important actor (CSA) is responsible for providing financial education through pre-disbursement orientation and four days training for the risky customers. Because most of the borrowers cannot read and write. In addition, PO and CSA also share information and knowledge for the benefit of C. Through these ways, micro structure of service system evolves. In addition, PO and CSA try to identify the need of the customers. Furthermore, BM monitors the overall interactions with diverse actors.

In meso structure, actors namely: GL, PO, LO, CSA, and BM. In this phase, group leaders of village organization interact with PO, LO, CSA, and BM for initial loan proposal and providing different information about customers. In macro structure, many actors including president/secretary/cashier, PO, LO CSA, and BM. Presidents of VOs are responsible for interacting with PO for organizing meeting. In addition, they also interact with LO for proposing loan. Furthermore, they are also responsible for overall activities of village

organization. Furthermore, president interacts with PO for collecting installments from customers. BM can also directly interact with all the actors for overall smooth operations of the village organization.

Figure 3 : Micro, macro, and meso—structure of service ecosystem in BOP economy
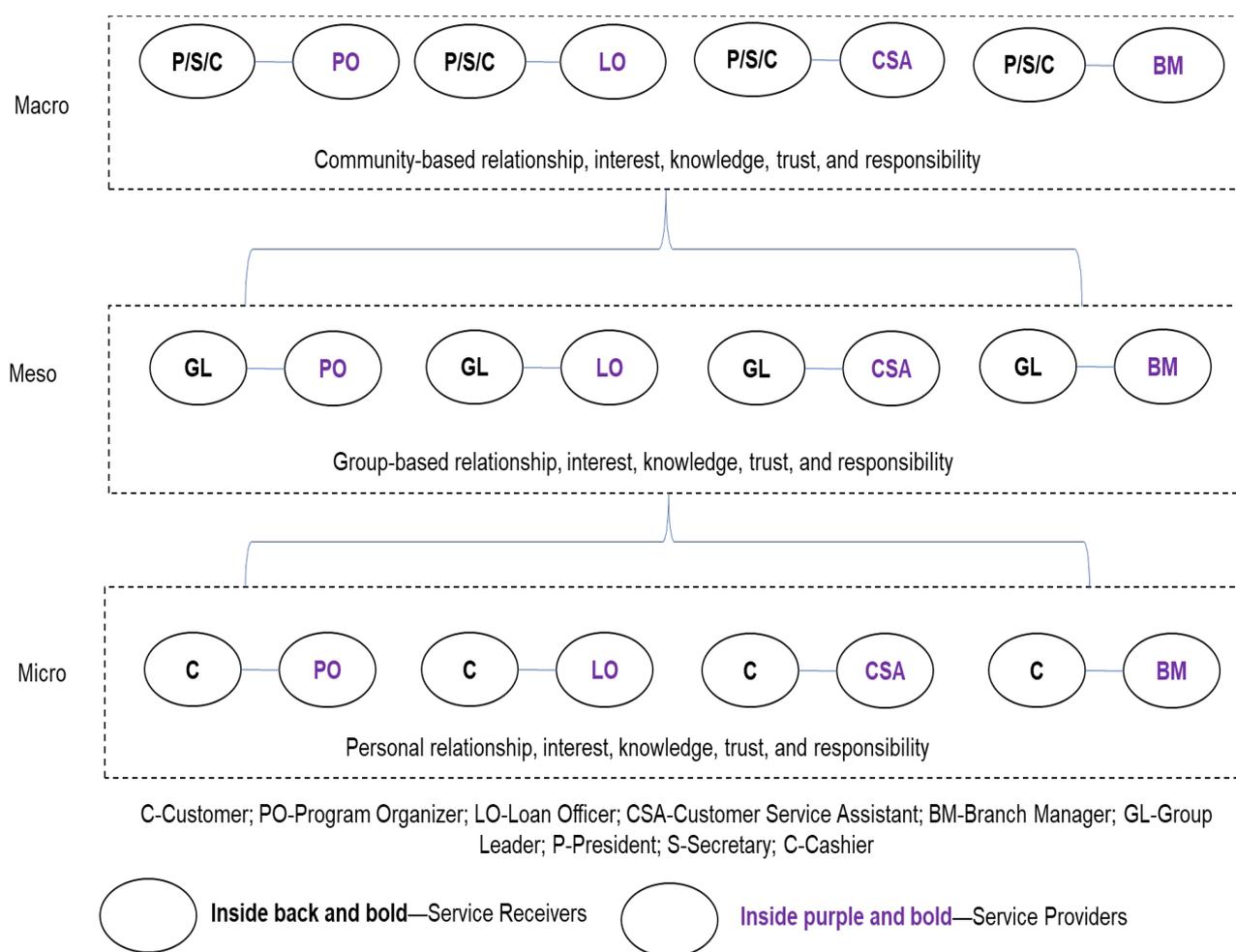
From the view point of structure and institutions of microfinance service system, the success of microfinance service system depends on the roles and responsibilities of different actors. In this case, the role of CSA is very important for providing financial literacy through their regular activities including pre-disbursement orientation and four days training. Basically, CSA makes aware of the poor people so that both parties (microfinance institutions and poor people) can be benefited. In addition, different kinds of consultancy work and training as well as other interventions of microfinance institutions contribute to develop capacity and skills of the poor people that ultimately help them to become "*self-developed*" as well as "*self-employed*". In this way, the most resilient and robust microfinance service ecosystem evolves to eradicate or alleviate poverty sustainably. Without institutions and institutional arrangements, a service ecosystem is just a collection of freely moving actors. Therefore, institutions and institutional arrangements co-ordinate and constrain the behaviours of multiple actors. Our result shows that personal, group and community level relationship, solidarity, trust, and social norms—as informal institutions control and coordinate the behaver of the actors, especially the service receivers. In micro structure, personal relationship, solidarity, trust, and social norms as informal institutions control and co-ordinate the behaviour of customers, program organizers, loan organizers, customer service assistants, and branch managers. In meso structure, group level relationship, solidarity, trust, and social norms as informal institutions control and coordinate the interactions of group leaders, program organizers, loan organizers, customer service assistants, and branch managers. Finally, in the meso structure, community-level relationship, solidarity, trust, and social norms as informal institutions control and coordinate the interactions of president, secretary, cashiers, program organizers, loan organizers, customer service assistants, and branch managers.

A DESCRIPTIVE STRUCTURE AND ROLE OF INFORMAL INSTITUTIONS IN SERVICE ECOSYSTEM OF BOP ECONOMY

In this section, we describe the structure and roles of informal institutions in the service ecosystem of BOP economy based on the initial results from interviews with service receivers.

Relationship

The analysis of initial results shows personal, group, and community level relationships in the BOP economy between the service providers and service receivers, which possibly play the most significant role in generating other informal institutions in the service ecosystem. The result indicates that service receivers have a very good personal relationship with different service providers, namely program organizer (PO), branch manager (BM), and customer service assistants (CSA). For example, an interviewee stated that "*I had a very good relationship only with the PO (fieldworker). The field worker comes to VO regularly, and I join to VO as well as only transact with him (SR2)*". Another service receiver indicated that "*I also have a good relationship with BM. I always meet with him for the business purpose and as usual. Because I always meet him returning from my works. I express the greetings with him (SR7)*". Finally, another interviewee expressed that "*The good relationship with CAS is significant. Because she makes us understand enough about not taking loans from different places and the burden of taking multiple loans, she teaches us financial literacy training, which improves my knowledge about microfinance (SR5)*".

The result shows that service receivers have high bonding with other members of village organization (VO), which is considered a group-level relationship. This group-level relationship helps to know each other. In this case, an interviewee said, "*I also have a very good relationship with other members of VO. Because we live in the same areas and They are my neighbors. Two of them become the guarantors for my loan (SR6)*". The results also show that service receivers have a solid relationship with the president of the VO, which is considered a community-level relationship. In this connection, a service receiver stated that "*Certainly, the relationship with the president of VO plays a significant role. As she is the wife of my father's senior brother, I have a very good relationship with her, which plays a critical role in granting my loan. The VO meeting operated in her house, and she explained to me to PO and BM whether I could repay loans. Then, the president of the VO proposes my loan in the VO meeting*". This community-level relationship plays the most critical role in the service ecosystem of the BOP economy.

Solidarity

The economic exchange activities in the context of financial services of the BOP economy are guided and formed by the sense of combined interests, a sense of feeling unity, and a sense of working together to alleviate poverty from the society (Siddike and Hidaka, 2021a). The results show that personal, group, and community level feeling sense of solidarity motivates them to work together to eradicate poverty from society. First of all, personal level solidarity inspires service receivers to feel working together while working with the PO, BM, and CSA. For example, a service receiver stated that "*Certainly, certainly, it was a feeling of community together while working with PO or BM or CSA. Because they were willingly giving me loans based on my deposit of only 2000 taka. So, it is a great feeling to get services as part of the community (SR2)*". In addition, another interviewee expressed that "*100%, I feel that PO, BM, and CSA are working together to eradicate poverty the society. If someone uses the money properly, they will get 100% success. If they misuse the money, then there will be no success (SR6)*".

Secondly, the group level feeling a sense of solidarity motivates service receivers to feel a sense of unity while working with other members of VO. In this connection, an interviewee stated that "*Certainly, there was a feeling of working together to solve a problem. For example, when I participate in the meetings of VO, I heavily feel that it is about all the people from the same community working together to solve the problems of eradicating poverty and other social issues. I have a great willingness to work with them (SR2)*". Another service receiver expressed that "*It seems to me that I am collaborating with the other members of VO to solve the problems I am facing by taking the loans. It is working well. Some of us have already got the benefits of taking loans. If we don't receive loans, then as poor, wherefrom will we get money? (SR3)*".

Finally, community-level feeling solidarity inspires service receivers to sense a community while working with the president of VO or other community people. In this regard, a service receiver said, "*Yes, I certainly feel that it was feeling of helping all the people in our community. It is very similar to shared interests. Because, 40 years ago, there were houses built by clay and roof with using straws and the fence was built with the*

straws from Jute in every village. Some of them were built with bamboo. But now every house is built, at least with brick. It is only the reason for receiving loans from non-government organizations like BRAC, Grameen, and others. Especially women have benefited a lot from those NGOs. For example, someone who bought a got by using the loans, after five years, the woman has 20 goats. So, it is the real change by using the loans. Someone who bought one cow by using the loans returned the loans within one year. But now, they had ten cows. So again, this is the real change that happens in society by using loans. Through these ways, the poverty already eradicated from our society (SR2)". Another service receiver stated that "*I also feel that the neighbors and I all are taking this loan and utilizing it for good purposes and almost everyone is getting success. So, it is about the feeling that we all are benefiting, and our community is changing in terms of a poverty-free society. I can see that two neighbors have taken the same projects as me and they are also successful. So, I think that we are successful (SR6)*".

Trust

Trust as another informal institution plays the most crucial role in influencing service receivers' perceptions to accept uncertainty, risks, and transaction cost in economic activities in the BOP economy. The results show that personal, group, and community level trust plays the most significant role in getting admission into VO, controlling the spread of fake information, loan disbursement, loan return, and working as a community pressure for returning loans. First of all, the results show that service receivers trust PO, CSA, and BM, which enable and guide the admission into VO, loan disbursement, and successful financial transactions. In this connection, an interviewee expressed that "*Certainly, I believe the field worker or branch manager or area manager or other employees who come to our meeting. For example, in our place, a woman or sometimes a gentleman came to our meeting always. Especially a gentleman always comes and interacts with us. He gave us a lot of instructions, suggestions, and recommendations. In addition, he gave us a gift from BRAC yearly. Whatever may be the value of the gift. But it is a gift. It makes me think personally about the person and the NGO (SR4)*". Another service receiver stated that "*I know the PO or BM or CSA from BRAC. So officially, I can believe PO or BM or CSA. You know that the PO has come from the office, talking about office-related things and telling us about microfinance-related issues. So why will I not trust him? I must trust him for the official purposes (SR5)*".

Secondly, the result shows that service receivers moderately trust the members of VO, which ensures control of the spread of fake information within the community. In this connection, a service receiver expressed that "*Regarding the other members of VO, it is very difficult to say whether I trust them or not. But in the case of sharing information among the members, I believe that the members of VO always inform reliable information about other members, which helps to disseminate reliable information among other members (SR5)*". Finally, the result indicates that service receivers highly trust the president of VO which plays the most significant role of "community pressure" for returning the loan. In this regard, a service receiver stated that "*Trusting the president of VO is important because the PO or BM asked the president of VO about the members. So, the president of VO provides them with information about the members of VO. So, the trust between the VO president and members of VO is critical because the president provides the most vital information to the PO or BM about the member. Depending on the reliable information, BM and PO decide whether they will provide loans or not (SR5)*".

Social norms

Social norms as informal institutions play the most crucial role in influencing service receivers' behaviors, especially to be timely repay the loans, frequently joining the meetings, creating awareness and proper utilization of the loan. The results show that social norms work as personal, group, and community pressure, which influence the service receivers to repay the loan timely. First of all, the result indicates that most service receivers feel a personal responsibility that works as individual pressure for them to repay the loan timely. For example, a service receiver stated that "*My knowledge about microfinance increased than before four years ago my knowledge about microfinance. Now I am fully aware of the microfinance services which influence me to repay the loans timely. I 100% feel that it is my responsibility to return the loans timely. I really feel about it. Because I repay the loans timely, it will be written on my passbook, which will transact the loan behaviors that certainly help me to take loans in the future again (SR6)*". Another service receiver expressed that "*Especially my knowledge, personal pressure, and social responsibility play an important role to return the installments timely. For example, in my case, my wife provides me pressure to save money from daily income to give the installments timely. So, it is the pressure and responsibility from my wife. My wife*

told me that if we miss any installments, we should listen to others about not paying the installments. But better is that please save money every day so that I can pay the installments timely. Please keep the money to me so that on the money before everyone in the specific return day. So, it is about my wife providing me knowledge about returning the installments timely. I think that it is my responsibility to return the installments (SR4)".

Secondly, the result also states that service receivers feel that other VO members will criticize them if they do not repay the installments properly. Therefore, the criticism from the other members of the VO works as a group social norm. In this connection, an interview stated that "*I also fear of criticism from the VO members who are the guarantors of my loans. Specifically, the guarantors from the VO members can criticize me if I cannot repay the installments timely. It is to be informed that there or four persons who become guarantors from the VO members. So, I feel the responsibility to my guarantors that they should not feel shame due to me. In addition, I also think that other members of VO might criticize me If I am unable to pay the loans timely. So, I am fully aware of their criticism. Suppose I am unable to repay the loans. In that case, some people will come to my house, which is a matter of shame for me (SR6)*". In addition, another interviewee indicated that "*I feel pressure to repay the installments timely. Because I fear about the criticism from other VO members, criticism from my neighbors and the community people (SR5)*".

Finally, the results show that service receivers fear criticism from the president of VO and other community members, which significantly influences them to repay the loan timely and adequately. In this connection, a service receiver said, "*Surely, the president will come to my house if I fail to repay the loans. So, I feel a responsibility and pressure from them, which certainly helps me to prepare me to return the installments on the specific day and time (SR6)*". In addition, another interviewee stated that "*Certainly, I also think that if I am unable to return the installments timely, I think that it does not look well in the society. Because other people can backbite and laugh at looking at this news. To sum up, I am a poor person, but I am also a respectable person. So, if I don't return the installments timely, then people from BRAC will come to my house, which looks very odd and very derogatory and matter of respect to society. As a result, I always return the installments timely. So, I always try that people from BRAC don't come to my house. I can return the money to them very nicely. So, I also think that it is a social responsibility to return the installments timely. Otherwise, it will reduce my pride and respect in the society (SR4)*".

CONCLUSIONS AND FUTURE RESEARCH DIRECTIONS

In this research, we showed initial evidence of how informal institutions guide and govern the service exchange and value co-creation behaviors of service receivers in the service ecosystem of the BOP economy. We initially found that personal, group, and community-based informal institutions namely relationship, solidarity, trust, and social norms, increase the acceptance of risk, uncertainty, and transaction costs in the BOP economy and foster social capital—which ultimately helps customers (poverty people) to eradicate poverty. In addition, we showed the influence of informal institutions in the service ecosystem of the BOP economy. Furthermore, a descriptive structure of the service ecosystem was articulated based on the results of this research in which how personal, group, and community—based informal institutions control and coordinate the interactions of diverse actors in the service ecosystem.

This is the first research in S-D logic and Service Science, which shows how different informal institutions guide, govern, and coordinate the service exchange, value co-creation interactions, service behaviors, and overall success of the BOP economy. Previously, Siddike and Hidaka (2021) theoretically described informal institutions' role in the BOP economy's service ecosystem without providing evidence. But in this research, we extensively showed the micro, meso, and macro structure of the service ecosystem using a real-life case of the financial service sector in the BOP economy. More importantly, we showed how relationship, solidarity, trust, and social norms as informal institutions at different levels of service ecosystem control and coordinate the interactions of diverse actors, which is very original to the service research community. This research has significant implications in the current COVID-19 situation and post COVID-19 situation. Currently, almost all the service industries are facing high risks and uncertainties. The research findings will significantly contribute to redesigning service ecosystems to overcome the high uncertainties during/post-COVID-19.

We presented here the findings of an ongoing research project in Bangladesh. We are continuing the interviews with the service providers from a social enterprise in Bangladesh to develop a more generalized descriptive structure of informal institutions in the service ecosystem of the BOP economy. In addition, we

will also survey the service receivers from the same social enterprise in the BOP economy for concretely verification and validation of our descriptive structure of informal institutions. Finally, we will develop our final version of the framework of informal institutions for controlling and coordinating the behaviors of service receivers, economic exchange, and value co-creation interactions based on results from both interviews and surveys, and we will report the results in future paper.

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NEVER TOO LATE TO STARTUP

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ABSTRACT

The average age at the foundation of the fastest growing new companies is 45 years, and the average is slightly lower for those types of companies with the lowest growth rate. The aim of this study is investigating the motivations and the personal background of the senior startuppers. We collected data through 20 semi-structured, in-depth interviews using purposive sampling with 20 senior entrepreneurs between 45 and 67 years. Findings categorize the perceptions of the senior startuppers in 4 ways: (a) a personal need; (b) someone else need; (c) knowledge accumulation; and (d) the extension of an existing business.

INTRODUCTION

Business analysts, scholars, and investors often believe that young people are particularly keen to create the most successful new businesses (Forbes, 2020). Actually, evidence shows how successful new ventures have been created even by adult entrepreneurs; indeed, in 1954 Ray Kroc launched McDonald's at the age of 52. At that time, Ray was a salesman and often ate at the Dick and Mac McDonald brothers' restaurant in San Bernardino, California. Few people realize that one of the best representations of today's youth, the iPod, was born by an intuition of a silver entrepreneur. Steve Jobs was into his 40s when he returned to Apple (Cannon, 2008). In particular, dealing with the topic of startups is quite automatic when thinking of creative and energetic young people at the beginning of their professional career. More and more mature workers are finding the benefits of starting new careers as entrepreneurs. Indeed, in Italy, only 15% of founders are under 35 (Istat, 2018). In the international scenario, the trend is quite similar, with the so-called "silver people" very active in this domain. (Forbes, 2016).

Studies emphasize the role of service innovation 'for' the silver economy but literature providing evidence of service innovation and new business created 'by' the silver economy is still lacking (Djellal and Gallouj, 2006; Mostaghel, 2016; Wang *et al.*, 2016)

Scholars investigated the link between age and high-growth entrepreneurship (Azoulay, 2020). The average age at the foundation of the fastest growing new companies is, to be precise, 45 years, and the average is slightly lower for those types of companies with the lowest growth rate. Similarly, such a scenario occurs in the high-tech sectors and when observing the cases of successful startups' exits. Thus, it seems that it is never too late to become a startupper, indeed, both in psychology and in business studies, numerous researches highlight the advantages of entrepreneurship at a mature age. A step forward in this direction was made with the studies of silver (or senior) entrepreneurship (Cannon, 2008; Aversa and Ladevaia, 2019; Peric *et al.*, 2020) which observed that silver entrepreneurs are over 50 using their experience to create a business in later life.

In this study we used interchangeably the terms 'senior entrepreneur', 'older entrepreneur' and 'silver entrepreneur' referring to individuals aged 50 and above who are planning to found a new business, are currently in the process of starting one or have recently set out a startup. Furthermore, some scholars theorized the "gray entrepreneurship" (Harms *et al.*, 2014); by the way, besides there is no mutual agreement among scholars on which is the exact age - or range of age - in which an entrepreneur may be considered a silver one, this research will focus on startuppers over 50 to try to analyze in-depth this phenomenon and contrast the idea that only IT-skilled and young entrepreneurs may switch a successful idea into a startup. Therefore, this study is not focused on older business owners more generally, but on startuppers aged 50+.

As a consequence of the research gap highlighted above, our study aims to answer some research questions that may contribute to this recent literature stream, as well as give some managerial implications:

- *What are the reasons behind the choices of over 50 to create a new innovative business?*
- *What is the training background and what are the skills of entrepreneurs over 50 who decide to develop a start-up?*

In order to answer these research questions, the present work builds on senior entrepreneurship research and investigates the motivations behind the choices of entrepreneurs over 50 to start a new innovative career as a startupper.

The remainder of the work is organized as follows: firstly, the authors conduct a literature review of senior entrepreneurship. Secondly, the research method and findings are presented, and finally, the paper ends with the main implications and conclusion.

LITERATURE REVIEW

The lengthening of life and its better quality has led to dynamic and virtuous ageing, thus increasing the availability of potential elderly entrepreneurs. This is a great opportunity to begin considering demographic changes no longer in terms of ageing, but also as a counter-aging society. Many studies have focused on innovative solutions to production, distribution, and consumption of goods and innovative services aimed at utilizing the purchasing potential of older people (Djellal and Gallouj, 2006; Mostaghel, 2016; Yang *et al.*, 2016), therefore investigating organizations that provide services 'for' the 'silver economy' but the literature on start-ups born 'in' the silver economy is still scant.

In recent years, this phenomenon has captured the attention of the media, as well as of policymakers and economic operators since the ageing population promises more economic growth and jobs (European Commission, 2021). A step forward was made with the studies of silver (or senior) entrepreneurship (Cannon, 2008; Aversa and Ladevaia, 2019; Peric, 2020) which observed that silver entrepreneurs are people over 50 using their experience - both from a life perspective and related to previous jobs - to create a business in later life. Most of the studies on entrepreneurial education are focused on obtaining pragmatic results in terms of performance and measuring the impact on the economy of the countries in which companies are founded by the over 50s. Cannon (2008) dealt with the challenges that senior entrepreneurs face and what governments and organizations are doing to lower the barriers for them, thus stimulating their willingness to accept the challenge brought by the market. Matos *et al.* (2018) carried out a study to analyze what determines the performance of senior entrepreneurs. Nasurdin *et al.* (2012) carried out a study on silver entrepreneurship in Malaysia; the research focused on understanding the external factors that drive the success and growth of these initiatives. In particular, the evidence shows that policymakers are unable to develop specific measures that will help retirees in a second career in entrepreneurship (Nasurdin *et al.*, 2012). According to an investigation in the Italian context (Aversa *et al.*, 2018) what is still lacking in the country is a systematic strategy for updating and increasing the skills of seniors. Public co-financing of training actions aimed at seniors, different learning methods, temporal distribution of the training actions could act as a counterweight to negative attitude or limited propensities of individuals and companies towards lifelong learning. A smaller and more recent number of studies have highlighted more "motivational dimensions", close to the focus of this research (Bonnstetter, 2012; Amoros and Bosmo, 2013; Isele, 2014; Isele and Rogoff, 2014; Brooks, 2019). In addition, research in the United States from the MetLife foundation reports that 34 million boomers would like to start their own businesses (Isele, 2013).

The research results of Amoros and Bosma (2013) highlighted different categories of senior entrepreneurs, according to the different motivations that push them to aim at becoming entrepreneurs at a later age: the first group is composed by those entrepreneurs motivated by necessity - they need to solve a personal matter-, the second group - namely "*those people who could obtain employment but choose instead to be entrepreneurs*" (Amoros and Bosma, 2013, p. 35). According to Isele and Rogoff (2014) public opinion is becoming aware that senior entrepreneurs with their robust work and life and networking experiences, as well as their enthusiasm to stay productive are a huge untapped resource. Indeed, it's time to stop thinking of these demographics as a liability and instead recognize them as assets and work across industries to help break down barriers to unleash their potential (Isele and Rogoff, 2014). Similarly, Brooks (2019) stated that workers' attitudes emerge differently according to the stages of life: while at a young age some qualities - such as reactivity - are predominant in the so-called "fluid intelligence", aptitudes for research and the

transmission of knowledge mature at an advancing age and they materialize as "crystallized intelligence". The different characteristics of entrepreneurs (Bonnstetter, 2012) of different age groups reveal a greater predisposition for different roles, especially as regards the transmission of knowledge and synthesis skills in more advanced ages (Brooks, 2019).

As seen, some scholars paving the way to studies on silver entrepreneurship, albeit in a fragmented way, have paid attention to the motivations that push senior entrepreneurs to embark on new adventures, but few contributions focus on their competences, the skills they have, and their previous work experience, besides these elements are quite commonly related to adults. Thus, there are very limited scientific contributions in the extant literature that suggest what are the reasons that can push the people over 50s to found a start-up and - at the same time - what are the typical profiles of these latter senior entrepreneurs.

METHODOLOGY

The focus of this study is investigating the motivations and the personal background of the senior startuppers. To gain an in-depth understanding of these portraits we adopted a qualitative approach. This choice is in line with the extant research on senior entrepreneurship (e.g., Soto-Simoene and Kautonen, 2020), a still emerging field. More in general, qualitative research is suitable for scholars dealing with exploratory research, since it is needed to consider the breadth, the novelty, and the complexity of the topic, in which a research is in its infancy (Bryman, 2016).

Through a series of in-depth online interviews with senior entrepreneurs a current senior startupper profile is investigated in this research. More in detail, we collected data through 20 semi-structured, in-depth interviews across Europe, considering success cases from international programs and other cases emerged through the snowball technique. Thus, this research used purposive sampling with 20 senior entrepreneurs, aged between 45 and 82 years. We opted for semi-structured interviews to avoid limiting the responses of the interviewees and to get more insights on potentially underestimated issues. The questions are made within the frame of the results deriving from the previous analysis of the literature, but with the chance for the interviewers to ask further questions or debate additional topics coming from the interviewees themselves (Bryman, 2016). Data emerged from the interviews were transcribed by the authors, then analyzed using NVivo software [version 11], also to set future opportunities to run sub-analysis based on the business features (industry, dimension, and so on) or on the startupper characteristics (age, cultural background, availability of money, and so on), as soon as further data will be available.

FINDINGS

The analysis of the interviews led us to categorize the perceptions of the senior startuppers in 4 ways, all of them leading to the emerging of a business idea, then stimulating the silver startuppers to create and run their own business. These 4 ways are: (a) a personal need; (b) someone else need; (c) knowledge accumulation; and (d) the extension of an existing business. Before presenting the four categories, it is important to clarify that this categorization is not intended to separate startuppers and their reasons to operate just because of one of the 4 reasons mentioned above; indeed, the reasons in these categories should not be meant as mutually exclusive, as confirmed by most of the interviewees when reporting about the interplay among multiple reasons as stimulating their willingness to set a business idea and then invest to turn it into a real business. Moreover, some other reasons (e.g., life experience, work experience, a future job opportunity for a family member, as well as the availability of free time) further complemented the description of the multiple reasons. In any case, we decided to present the findings of this research according to these 4 categories as they are the most representative examples emerging from the analysis and in order to favor the understanding of the outcome of our analysis and enable the comparability of personal features emerging from the interviewees.

Senior entrepreneurship for a personal need

The first category deals with a personal need, namely some senior startuppers decided to run a business after longly looking for a solution for himself or herself and missing to findings a proper offering on the market; indeed, some of the examples shaping this category are the use of new technologies for monitoring health conditions - e.g., a smartwatch linked to some sensors in a flat and connected to other people - or the setting

and the implementation of new tools for gardening. The creation of a solution for self led the entrepreneurs falling in this category to think about how this need may reflect both a challenge and a business opportunity, thus the value they attributed to the efforts they made or their being part of a group of people perceiving the same need, made them aware of a chance to launch a business starting from the idea they set.

Senior entrepreneurship due to someone else need

The second category refers to a need perceived by someone other than the senior startupper, either a person he/she is in touch with or society at large, too; thus, this reason for creating an idea and turning it into a business is similar to the previous one since there was a need triggering the idea, but in this case the senior startupper aimed at offering a new solution to a friend or acquaintance, a pet, or society at large. Moisturizing creams for dogs, products to counteract the negative side of some drugs, and customized tags for bags are just some of the examples shaping this category. Even in this case, the solution was set and tested to solve a problem someone other than the startupper had and deriving from a direct observation - as for the dogs - or an explicit request of someone else - as for the tags for bags. Anyway, interviewees reported their positive evaluation of the solution they achieved as the key triggering them to try to make a business out of it after testing the positive output of someone else using the solution.

Senior entrepreneurship as the result of knowledge accumulation

The third category consists of business cases in which the knowledge held by the senior startupper was so relevant that he/she had a clear advantage compared to other entities already acting in a market; in this scenario, both life experience and work experience played a crucial role in stimulating the creativity of the startupper. The reason shaping the third category is totally different from the reasons describing the two previous categories, since the entrepreneurs levered on the knowledge they had - mainly from their previous job - in light of creating an innovative solution and then setting a new business, thus the creation of a new venture was not the consequence of a solution, but a planned path. This is the most evident difference with the two previous categories.

Indeed, previous job experience, the combination of new studies with previous ones considered when at work, and a high specialization in a certain business - or scientific - field describe highly skilled people, putting into practice what they already knew - with reference to a certain market - to run a new business. Technological solutions for health care and monitoring as well as the diffusion and implementation of knowledge from the natural science domains applied to the food industry are two further examples, we found in this third category of reasons.

Senior entrepreneurship as extending an existing business

Finally, the fourth category describes the extension of an already existing activity, namely the business opportunity a former employee or manager had perceived when at work and elaborated in his/her own mind by implementing novel elements in the activities the business he/she worked for was running. Therefore, this category may be considered as similar to the previous one and very different from the first two, since also in this case the aim of creating a new venture was evident from the beginning. Some examples of this evidence are the launch of a new distribution channel for products already on sale and the transformation of a not-for-profit association for rescuing animals into a for-profit company.

IMPLICATIONS

The study has implications for practitioners and scholars. With these findings, we primarily contribute to literature dealing with the interplay between senior entrepreneurship and startups. While the traditional perception of entrepreneurship and new ventures founders is usually linked to young people and the force this form of entrepreneurship may propagate, the data show us that, in multiple ways, older people are a significant entrepreneurial force; thus, we confirmed the consideration by Brooks (2019) offering that an attitude may emerge at different stages of life; by the way, there was scant evidence of the reasons way this may happen, thus the four categories may prove their usefulness in clarifying why someone aged 50+ should start a business. Therefore, we advance current knowledge on the mechanisms and mindsets behind the choices of over 50 to create a new innovative business (Nasurdin *et al.*, 2012; Aversa and Ladevaia, 2019).

Although this study focuses specifically on older entrepreneurs, the resulting insights may also have implications for other people, such as university staff, due to their being in touch with different fields of science, the availability of accelerators or programs oriented in the same directions, as well as implementing the networking effects this institution may offer.

The four categories emerged in this study are partly aligned with a previous categorization proposed by Amoros and Bosma (2016), but the novel elements emerged from this study are the further consideration of what a 'necessity' may stand for: indeed, we provided evidence about personal reasons and someone else's reason to consider the offering of a new business when a certain matter would emerge. Moreover, Amoros and Bosma (2016) have generally referred to the opportunity to start a second working life after being fired or decided to leave the workplace: this reason is confirmed - besides quite rare - and is reflected into the last categories, with specific reference to the willingness to create a new business derived from - or at least referred to - the knowledge acquired by the entrepreneur-to-be in a specific workplace.

Additionally, the results of this research could also have significant implications for senior entrepreneurs and startuppers. Firstly, the combination of senior entrepreneurs' experience - both at the workplace and in life in general - and the observation of reality act as a lever to develop new ideas and transform them into businesses. New entrepreneurs may be thought of as 'incubators' of a new youth entrepreneurship that wants to set up startups. They act as mentors, advisors, possible financiers and more. Older entrepreneurs often have less technical skills than their younger counterparts, and younger tech-savvy entrepreneurs believe that young entrepreneurs will benefit from partnering with older ones, due to their being more experienced and, of course, better financial partners.

In addition, specific implications stem from the analysis of the training background of older entrepreneurs. To encourage startups development senior professionals and entrepreneurs interested should attend the - more and more increasing - entrepreneurial training programs. These programs may allow the deployment of new business ventures in the startup ecosystem. Moreover, they can help build long-lasting relationships with the world of innovation and also may become part of the largest communities of startuppers, mentors, and startup advisors. These processes of partnering entrepreneurs-to-be play a central role in increasing the probability of success of high-risk business projects, especially for deep-tech startups where it is more necessary to integrate a business oriented approach.

LIMITATIONS AND CONCLUSION

Our research presents some limitations that may suggest possibilities for future research. The research presents some constraints on generalization (Simons *et al.*, 2017) because our sample only includes a purposive sampling consisting of 20 senior entrepreneurs, although all of them belong to the same geographical context. Future studies could explore how innovative startups born from senior entrepreneurs foster the startups ecosystem. Furthermore, future research could analyze and provide a better understanding of senior startuppers' identity, their education, and their personality, also in line with the trend of study in psychology on this topic.

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INFORMAL SERVICE ECONOMY: MOTIVATIONS, ATTITUDES AND PRACTICES OF INFORMAL ENTREPRENEURS

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ABSTRACT

A two year longitudinal study were carried on in Colombia exploring informal entrepreneurs. Semi-structured interviews, governmental and non-governmental reports and popular music were used as data. Finally, applied thematic analysis was used to shed light about the attitudes, motivations and practices of entrepreneurship in their everyday life. The study shows that informal entrepreneurs have mixed attitudes and motivations towards both, the incentives from the government to formalize their businesses, and their future expectations of formalizing them. Furthermore, transgressing law and risking their life to be able to survive describes the vulnerability that informal entrepreneurs face in their everyday life.

INTRODUCTION

In the last 20 years, the Colombian government has implemented several laws and initiatives to promote formalized entrepreneurial activities with the objective of improve macroeconomic indicators and societal wellbeing (Appendix 1). The current national development plan 2018-2022 (Gobierno de Colombia Departamento nacional de planeación, 2018) defines legality and entrepreneurship as the pillars to achieve social equity. One of the lines that support entrepreneurship is defined as an environment to grow, that has the objectives of: augmenting the number of consolidated high-potential ventures, increasing access to formal financial services for early stage companies and reducing the costs (such as taxes) for becoming formalized businesses.

However, despite these initiatives adopted by the Colombian government, the understanding of informal entrepreneurs everyday life (such as attitudes, practices) is still not sufficient to design programs that improve their reality and the country´s economy (Chowdhury, Audretsch and Belitski, 2019) causing them to fail in practice. Thus, the overall informal economy rate has remained between 47 per cent and 49 per cent percent during 2017 to 2020 and most of these entrepreneurs experience the poverty trap: low income, low savings, low investment and low productivity. Furthermore, less than 1 per cent percent of informal entrepreneurs has a retirement fund (Gobierno de Colombia, 2020) and the cost of their formalization is about 50 per cent percent of their profit in a fiscal year (CONPES, 2019).

Considering the efforts made by the Colombian government but also the disparity between the government's expected results and socio-economic reality of informal entrepreneurs, it is necessary to shed light about the motivations, attitudes and practices of informal entrepreneurs about their economic practice. To fill this gap, this research seeks to qualitatively explore the attitudes, motivations, and practices of informal entrepreneurs in Colombia with the objective of understanding the nature of being an informal entrepreneur in practice and what structures facilitate/hinder their insertion to the formal economy, to provide insights that may help designing services and policies that could improve the wellbeing of informal entrepreneurs and their vision of societal prosperity. This research exposes the motivations, attitudes and practices of informal entrepreneurs in the communities they serve. Our findings show that viewing informal entrepreneurship as a nuisance and something to eliminate is shortsighted.

LITERATURE REVIEW

Informal Entrepreneurship

Most governments, non-governmental and educational institutions contemplate entrepreneurship as a solution to reduce vulnerabilities (Bosma *et al.*, 2020), considering two-thirds of the global population lives in poverty and faces a daily struggle to meet their living needs and access to services (Reynoso, Valdés and Cabrera, 2015; Viswanathan and Venugopal, 2015; Fisk *et al.*, 2016, 2018).

Informal entrepreneurship fills gaps – supply and demand – in formal economies (Cross, 2000; Onodugo *et al.*, 2016), reduces the government's fiscal space and limits compliance with quality standards, such as technical regulations, designed to protect the life and health of consumers (Perry *et al.*, 2010). Informal entrepreneurship is a viable economic option for a widening range of people (Giraldo, Garcia-Tello and Rayburn, 2020) because it pays more and has more flexibility than traditional employment (Cross, 2000; Maloney, 2004), is a manifestation of aspirations for success (Jimu, 2006) and an attempt to survive and thrive, often stimulated by economic constraint (Jimu, 2006; Viswanathan, Sridharan and Ritchie, 2010; Venugopal, Viswanathan and Jung, 2015). Likewise, Bosma *et al.*, (2020) states that the motives to start a business are: To make a difference in the world, build great wealth or very high income, continue a family tradition and earn a living because jobs are scarce. Autonomy and independence were not included as a motive due it is common to all early- stage entrepreneurs.

Transformative service

Consumers face exclusionary practices by service providers that induce to unfair access to services, due to systemic discrimination by reason stigmatizing personal or social characteristic (Anderson *et al.*, 2013; Fisk *et al.*, 2018). Considering the service exclusions that consumers experience in service ecosystems, transformative service research (TSR) has emerged with the purpose of improving human well-being and reducing its suffering through fair service encounters (Rosenbaum *et al.*, 2011; Anderson *et al.*, 2013; Anderson and Ostrom, 2015; Fisk *et al.*, 2018, 2020; Nasr and Fisk, 2019). In view of the important role that services play in improving human well-being and reducing human suffering, it is important to design new service solutions to serve humanity with justice, recognizing that different people have different needs and resources that they bring to the exchange, as is the case of informal entrepreneurs that are excluded from services in formal economy due their economic practice

METHODOLOGY

A qualitative approach was selected to understand the attitudes, motivations, and practices of informal entrepreneurs, the role of the informal entrepreneur and its motivation to formalize. Combining phenomenology to examine and explicate the lived experiences of individuals with a phenomenon (Creswell and Poth, 2018) and practice-theory to explore enacted practices in context (Nicolini 2012; Giraldo, 2014), with the objective of finding out how informal entrepreneurs live their everyday life, with their attitudes, motivations and practices as described by multiple people experiencing the phenomenon (Rayburn, 2015; Creswell and Poth, 2018). A longitudinal study for 2 years were carried on, exploring three (2) types of informal entrepreneurs (musicians and street vendors) in Colombia. To obtain information from hard to reach populations (Corus and Ozanne, 2012; Ellard-Gray *et al.*, 2015), the researchers apply purposeful sampling (Creswell and Poth, 2018), snowball sampling (Biernacki and Waldorf, 1981; Alvarado Lopez *et al.*, 2011), netnography (Kozinets, 2012) and use aesthetics expressions as data source (Suárez *et al.*, 2016).

A total of 20 semi-structured interviews were applied and 8 informal settlements were observed in the cities of Barranquilla and Bogota, Colombia. Also, Interactions were sustained with 5 informal Instagram stores in Colombia, 7 documentaries of informal entrepreneurship in Colombia and 15 songs of Colombian artists were selected to obtain natural and rich narratives about the attitudes, motivations and practices of informal entrepreneurs in their everyday life (Suárez *et al.*, 2016). The information was analyzed using applied thematic analysis (ATA) as is a rigorous, inductive set of procedures designed to identify and examine themes from data in a transparent and credible process that comprises portions of grounded theory, interpretivism and phenomenology (Guest, MacQueen and Namey, 2011; Giraldo, Garcia-Tello and Rayburn, 2020).

FINDINGS

The findings suggest that informal entrepreneurs' attitudes, motivations, and practices embedded in society are associated to dignifying serving people, generating well-being uplifts, supporting the idea stated by Giraldo, Garcia-Tello and Rayburn (2020) of transformative entrepreneurship as service. This conclusion is undisclosed by the codification, data reduction and linking of data from informal entrepreneurs' narratives that were organized by recipients, motivations, attitudes, and practices. Informal entrepreneurs are looking for inclusiveness through resilience, which is expressed through defiance and self-confidence as the attitudes that frame their life, overcome reality and critical consciousness as the motivations to start a business and mimicking, serving conveniently, educating and innovating as the practices associated with informal entrepreneurship (Figure 1).

Figure 1: Informal Entrepreneurship is dignifying serving people
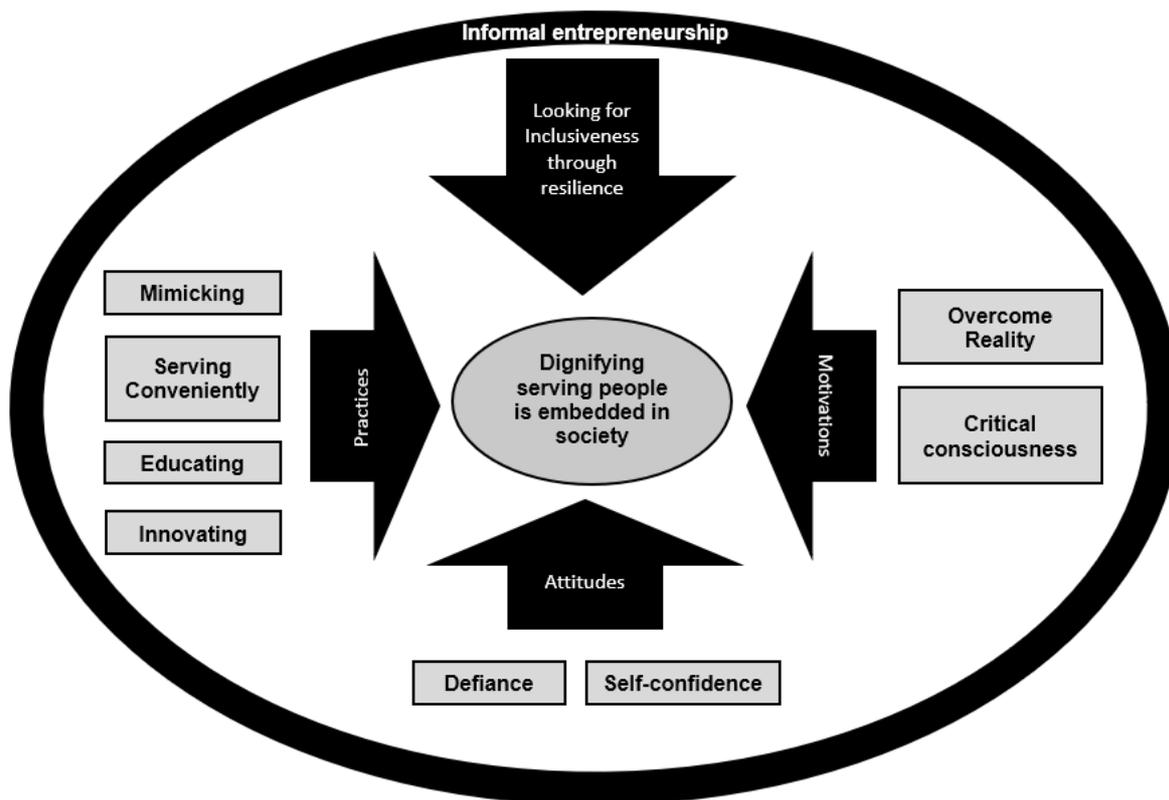
DISCUSSION

The findings allow the researchers to deepen the understanding of the survival mode, growth mode bases for entrepreneurial activity (Giraldo, Garcia-Tello and Rayburn, 2020), and the resources constraints and unclear institutional norms under which informal entrepreneurs operate (Khoury and Prasad, 2016), through the understanding of the attitudes, motivations and practices informal entrepreneurs posited. Therefore, it is possible to point out that the figure of informal entrepreneur and its intention to formalize will depend on the capabilities they have and the mode in which they develop their business.

It is necessary to move from a top-down, all inclusive policy approach for all the informal entrepreneurs to a differentiated policy approach (Giraldo, Garcia-Tello and Rayburn, 2020), that understand the role that informal institutions play for various types of entrepreneurship and how these could be mediated by formal institutions (Khoury and Prasad, 2016; Chowdhury, Audretsch and Belitski, 2019). Enabling policy makers, academics, entrepreneurship, and innovation centers to design services and policies that uplift wellbeing and encourage business formalization for each specific group based on their needs, capabilities, and mode of entrepreneurship.

CONCLUSIONS

This research deepens in the understanding of informal entrepreneurs' attitudes, motivations and practices (Cross, 2000; Maloney, 2004; Jimu, 2006; Viswanathan, Sridharan and Ritchie, 2010; Venugopal, Viswanathan and Jung, 2015; Bosma *et al.*, 2020; Giraldo, Garcia-Tello and Rayburn, 2020; Gobierno de Colombia, 2020), allowing practitioners and academics to design services and policies according to the extreme conditions, resources constraints and unclear norms (Khoury and Prasad, 2016) under which each category of informal entrepreneurship operate (Giraldo, Garcia-Tello and Rayburn, 2020) in order to improve their wellbeing and motivate them to formalize their business.

Furthermore, the study expands the knowledge of the transformative role of informal entrepreneurs (Giraldo, Garcia-Tello and Rayburn, 2020), the role that informal institutions play for various types of entrepreneurship and how these could be mediated by formal institutions (Khoury and Prasad, 2016; Chowdhury, Audretsch and Belitski, 2019). Finally, the main limitation of this study, is that it was only carried on in two Colombian cities. It is suggested that future research projects can explain further realities in different Latin American cities and countries. Comparison and contrast of findings among different Latin American contexts, and other global regions, may bring a common agenda to ensure common and tropicalized structures which may regulate informal entrepreneurship and how those structures might be enacted towards informal entrepreneurs' benefits as well as economic formalization and governmental growth.

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START UP ECOSYSTEM: FEATURES, PROCESS, ACTORS.

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ABSTRACT

The success of start-ups strongly depends on the ecosystem in which they are inserted. In this regard, it is important to understand the concept of the start-up ecosystem, especially from the point of view of scholars and professionals.

The desire to deepen the dimensions and components of the ecosystem and to observe more closely the best start-up-friendly ecosystems, then propose a comparison with the Italian context, is derived from evidence indicating that the most successful start-ups are concentrated mainly in certain areas of the world, and this concentration is by no means accidental.

INTRODUCTION

The topic of Start-up ecosystem has become increasingly popular in recent years and consequently more and more frequently the subject of study. This is the result of rise in Innovative start-ups all over the world.
The numbers speak for themselves, both nationally and internationally: In Italy there are 14 k start-ups registered in the special section of Italian firms register (registrodelleimprese.it, 2021), the same in total have raised about 600 million of venture capital in fundraising, with an average turnover of 167k euro and employ almost 60k workers both at managerial and operational level. The incubation and acceleration activities are about 220 of which 40 certified by the MISE, about 40 of university type, and only 17 "purely" corporate (Sole 24 ore, 2021); In Europe the trend is likely and it is growing: with a total of almost 300k start-ups of approximately 1100 incubation and acceleration programs and with a total of 40k jobs generated by start-ups (Genome, 2021).

The gap analysis makes it clear that the literature prior to these studies certainly focused on the description of start-up ecosystems as an emerging phenomenon but paid little attention to identifying the specific components, actors, and processes that, through very complex dynamics, influence the entrepreneurial ecosystems, more or less determining the well-being of the start-ups located within them. This has led to the lack of a theoretical framework for start-up ecosystems and, consequently, the lack of managerial implications. The research question aims to understand how they support the development of start-ups and, parallel to this, how they contribute to the viability of the start-up companies that are part of it and the particular variables of start-up ecosystems that have a major impact in some contexts with regard to influencing the well-being and development of start-ups. Can the influence, weight, and importance of these identified variables and components vary depending on the geographical contexts in which the start-up ecosystems are located?

This paper investigates the different features, origins, and ways of operating of the actors who are part of the start-up ecosystems and how these components can impact the birth and development of start-ups. Furthermore, the question is whether some best practices of some ecosystems can be replicated in others. Therefore, the aim of the research is on the one hand to propose a framework as a theoretical interpretative model useful both for the description of the fundamental components of the start-up ecosystem and also useful for giving ideas to future research guidelines; and on the other hand, the other objective is to report some practical evidence useful to support and guide the choices of organizations, institutions and actors identified as key roles of the Start-up ecosystem.

LITERATURE REVIEW

A focus and a review of the existing literature study of the ecosystem study start-up is essential.

It is from this study that there is the opportunity to analyze and subsequently identify these strategic components and therefore to hypothesize potential steps forward to be taken both from a theoretical point of view but also from a managerial point of view.

There is definition by Motoyama and Knowlton (2014) that "particularly seduces" those who try to start a systematization because it embraces a very broad meaning of the term and therefore makes it easier the way for possible classifications.

"Start up ecosystem is a segment of an entrepreneurial ecosystem where there are particular key connections with other entrepreneurs, with support organizations and with institutions critical for new firms to succeed and that play a key role within the community of start-up businesses" (Motoyama and Knowlton, 2014).

Studies on start-up ecosystems, over the years, have focused on different dimensions of the phenomenon, highlighting different characteristics of Start-up Ecosystems from time to time. This diversity has made the theme over the years increasingly complex, less linear and therefore more interesting to study.

In this work, authors have decided to carry out a classification in a transversal sense with respect to this diversity that has emerged over the years, and to prepare a literature review of the main theoretical contributions on Start-up Ecosystems according to the attention they place on three different variables: Geographical Contexts, Resources and Actors. By deepening the studies through these three variables, authors have highlighted the importance that scholars have given, over the years, to some components, to some factors rather than others.

Geographic variable prospective: "the Entrepreneur and the startups"

The scientific contributions that focus attention on geographic contexts and therefore on the diffusion of entrepreneurial culture at the local level and on territorial mechanisms and opportunities, are the least recent but at the same time more pioneering. These place "at the center" of the ecosystem concept the figure of the Entrepreneur, dealing with the phenomenon of "new entrepreneurship" and the start-up companies.

One of the definitions that anchors the concept of Start-up Ecosystem to Geographical variables is that of Cohen in 2013 which defines it as an environment formed by geographically close entrepreneurs and by start-ups in their various stages and different types of organizations interacting as a system for creating new start-ups (Cohen, 2013). The definition shows the importance and the main key role that many authors give to the innovative company and therefore to the entrepreneur within the ecosystem (Cohen 2013; Cukier and Kon, 2018). Among the various definitions of start-ups, the one that often comes back most useful is that of Stave Blank (2013) which defines a start-up as a temporary organization in search of a scalable and repeatable business model.

"Scalability" and "Replicability" therefore growth as very coveted objectives by start-ups. These two concepts connect the start-up component in turn to another component identified by our proposal than that of new technologies. In fact, there is a robust literature that supports or better describes the commitment of "support" organizations to favour not so much the development of new technologies within the ecosystem but more than anything else to make the latter more accessible within them. ecosystems towards nascent start-ups (Nielsen *et al.*, 2016; Thiel and Masters, 2014; Chesbrough, 2003; Aernoudt, 2004; Bruneel *et al.*, 2012). When technologies become more accessible within ecosystems, they allow start-ups an optimal development because obtaining a scalable and replicable business means obtaining advanced technological systems that increase efforts and costs and the use of resources not proportional to the increase in size and turnover (Ali, 2019). These conditions attract an ever wider and more strategic group of interlocutors "through the outsourcing of Investments" (Nielsen and Lund, 2016).

Resource Variable Prospective: "Accelerator and incubators"

Scientific contributions that focus on resources in terms of financial resources, skills, competences, mentoring, on the other hand, inevitably refer more often to the key roles of business incubators and business accelerators. Among the definitions of startup eco-system more anchored to the concept of resources, the definition of Hemmert *et al.* (2016) must certainly be mentioned, which highlights the impossibility, for the development of flourishing contexts, of both resources and financial knowledge and skills provided by organizations. support i.e. business incubators and accelerators. Similarly, Buchnik *et al.* (2018) state that the performance of a start-up ecosystem depends on the various resources available; they refer to both those usually related to all businesses (such as resources, knowledge, and skills) and those specifically related to new ventures (such as contests, simulations, a learning program made of lectures, courses, and mentoring).

It is also necessary to focus the literature review on the main definitions of accelerator and incubator. The meaning of accelerator as a structure committed to planning the growth and development of start-ups through functions of transfer of skills and/or financial or tangible resources is now shared (Bruneel *et al.*, 2012; Cohen, 2014; Tripathi *et al.*, 2018). Surely, many distinctions can be made between accelerators and incubators based on the timing of intervention, or on the fundraising phases (Bruneel *et al.*, 2012) or private and public nature (Grimaldi and Grandi, 2005), universities-based accelerators (Greco *et al.*, 2020; Petretto, 2008; Ismail, 2016) and those one linked to communities (Ciappei, 2006). Anyway, there are two considerations to make that are more relevant than the list of differences between these organizations. The first concerns the relevance of how, over time, two different academic approaches to the theory of business incubators have developed, which are affected by the cultural differences found between the continents of the world. In fact, the literature identifies two opposing conceptual models: the first, called "European" refers to incubators mainly financed with public funds and focused on social development objectives at a territorial level. The second model instead, called "Anglo-Saxon" deals with describing private structures, today mainly focused on the development of technological start-ups with a view to investment and therefore participation in future economic results (Cohen *et al.*, 2019). This does not mean that incubators with overseas characteristics cannot exist in Europe, perhaps the opposite is more unlikely (Greco *et al.*, 2020). The second is what "Susan Cohen" asserted in 2013 with the increase and spread of business support practices, there is no longer an incubation that is the same as another. "The accelerators differ in several ways" (Cohen 2013, p.1).

This is to say that the phenomenon has become not only more widespread but also much more articulated and complex. Therefore, each organization presents in this case some very peculiar characteristics which are different from others and must be analyzed separately and this makes the phenomenon once again more interesting from the scientific point of view (Cohen and Hochberg, 2014; Dempwolf *et al.*, 2014; Cohen, 2014; Greco and Tregua, 2021).

Actor Variable Prospective: "the role of University"

Finally, the scientific contributions that focus on the concept of start-up ecosystem actors are naturally the most avant-garde ones because they consider an integral and determining part of the start-up ecosystem, not only the start-ups themselves and the end market, not only the start-ups and organizations supporting the latter but all parts of a social context that act to make this ecosystem more vital and flourishing (Mele and Russo Spena, 2018). It is in the field of study with a broader perspective that it is possible to identify the University as an innomediary (Mele and Russo Spena, 2019) within the start-up ecosystem.

The possibility for universities to become actors in the economic development of a country through the offer of educational-training activities and technology transfer and through the provision of services to start-up companies, has in recent years grown the interest of many scholars who have concentrated their research on the relationship between these institutions and new entrepreneurship (Clarysse *et al.*, 2005; Petretto, 2008; Petretto, 2008; Fetters *et al.*, 2010).

In the United States, for many years, universities have played an important role in the field of entrepreneurship promotion, focusing in particular efforts on the management of intellectual property in promoting the creation of new businesses through both direct and through spin-off the vehicle of university incubators. For example, Stanford University, more than any other institution, has been considered the engine of the birth and development of the hi-tech economy in California. Before the past decade, Stratford University professors, researchers and students had founded nearly 3,000 companies. Companies such as

Sun Microsystem, Cisco Systems, HP (Hawlett Packard), and Google were founded precisely thanks to technological prototypes created by Stratford University (Confindustria and Bank of Boston, 2009).

A process of evolution oriented in this direction, albeit slowly, is also starting in Europe where, despite a widespread perception of a lack of cooperation between the academic world and the business world, some university institutions are working hard to provide important help to make a more competitive territorial entrepreneurial reality in the face of the new challenges of global innovations and the unstoppable evolution of technologies.

METHODOLOGY

The preliminary study and the review of the literature on ecosystem start-ups allowed authors to identify some gaps in previous studies that need to be filled. The first gap concerns the fact that even the most recent studies discount the fact that for many years the reference literature has considered the phenomenon of the birth of new innovative businesses as a simple and small component in the broader sphere and phenomenon of entrepreneurship (Brown and Mason, 2014). The second gap concerns scholars' underestimation of the theme of start-up ecosystems, associating it too often with that of innovation ecosystems (Jackson, 2014; Basso and Baltar, 2018). In this way, the most important difference between the two types of ecosystems mentioned above has been neglected. In fact, both ecosystems present the content of technology and innovation, but innovative ecosystems are not necessarily linked to the variables and dimensions of entrepreneurship as much as start-up ecosystems are. A third gap was analyzed. The literature of the past has often treated start-up ecosystems in the same way as the phenomenon of business incubators and accelerators (Cohen *et al.*, 2019). However, through this study it is discovering that start-up ecosystems are very complex and articulated ecosystems of which business incubators, while of strategic importance, are only a single part. Finally, another gap in the studies that should be noted is the absence of actual Managerial Implication on Start-up Ecosystem. It is true that ad ed Cohen *et al.* (2019) have identified to what extent Accelerators make start-ups perform better, and in which phase of the life cycle they are more essential, he has even studied the design of the incubation and accelerations process, but he has limited to focusing on support organizations and not on all the players of the Start-ups ecosystem. Similarly, Cook Jonathan (2020) conducted a study on the entrepreneurial-university ecosystems of London and developed a framework that identifies the role of 6 key components, but he studied this in entrepreneurial ones in general without a specific focus on start-up ecosystems.

The authors adopted a qualitative approach (Dubois and Gadde, 2002) due to the nature of the topic being basically related to the features and components of the start-up ecosystem and the novelty of the debate. Our choice is in line with previous studies in entrepreneurship, such as Goyal *et al.* (2016), opting for a multiple-step analysis to first frame the context, then analyze it in detail. Indeed, an initial screening of start-up ecosystems was performed to frame the scenario and acquire general knowledge on their activities; the evidence of these ecosystems was combined with the key themes arising from the literature to outline our research process. More in detail, broadness is recommended in the initial phase(-s) of research to avoid discarding relevant elements and to obtain an overall perspective on the problem under investigation (Yin, 2009). Such a posture proved to be useful for research carried out with open interviews. Thus, the authors investigated the key themes in the wider context of the most relevant startup ecosystems, especially three among them, aiming to acquire practical insights into the activities they performed.

Three start up ecosystems are chosen, each very different from the other. The first two are Italian ecosystems with opposite functioning models but inserted in a similar economic and cultural context. The third, probably the most important in the world, that of Silicon Valley, was chosen because it operates in a practically opposite cultural economic scenario.

Regarding the research process, the analysis started with a desk analysis of the Startup Ecosystem Report issued by Genome (2020); through the report, the authors established an exploratory research process, as in Hernández and González (2016) in dealing with the same topic and in Goyal *et al.* (2016) aimed at scanning the main topics dealing with a population of business entities, as UBAs are in this case. In first step, additional sources were scanned to expand the amount of information available beyond the Genome Report; these resources included websites and reports of national governments, official websites, and documents and reports of firms shaping the startup ecosystem and published on their official websites, as well as startups

reporting on their evolution through similar reports. Some examples of additional sources are the website of the Dutch Ministry of Economic Affairs, reports issued by U.S. technology-based companies, and documents prepared by Singaporean business angels and Australian startups. The combination of these sources ensures the reliability of the information considered and favours the validity of the analysis; indeed, the use of multiple sources supports the efficient, reliable capture of key information, as suggested by Jonsen and Jehn (2009), with reference to triangulation in qualitative studies.

As a second step, three cases were chosen to start data collection and set our case study protocol (Yin, 2009) in order to draw systematically from the knowledge acquired in the first step of analysis and to infuse contextual evidence, as also suggested by Stake (1995). Therefore, the second step was based on the investigation of topics derived from both the literature review and the first step of analysis. In this case, data and insights were collected through open direct interviews. It was anticipated that the content of the interviews would offer additional insights into the evidence that emerged from the desk analysis of the startup ecosystems screened by Genome. The interviews favoured a further increase in reliability, as both new sources and new methods of analysis expanding the consideration emerged from the first step of analysis (Jonsen and Jehn, 2009).

Regarding sampling, the method used was the convenience sample (e.g., Oppong-Tawiah and Chan, 2016), as it was necessary to consider the need for in-depth information and the opportunity to obtain direct insights from, and interviews with, well-informed members of these contexts. Moreover, interviews on entrepreneurship in an ecosystem-based perspective have already been chosen by other scholars (e.g., Spigel, 2017).

The three startup ecosystems with an embedded UBA chosen for this analysis were NAPLES—Campania New Steel (hereinafter CNS) and ROME—Luiss EnLabs (hereinafter LEL). Additionally, these two contexts offer the advantage of obtaining information from two different approaches, as only one of the accelerators participates in the funding of startups. The third ecosystem, that of Silicon Valley in S. Francisco, does not have a business accelerator acting as a centralized catalyst but, as it tourn out, it works differently. Representatives of the institutions that participated in shaping start-up ecosystems were interviewed. Professors who deal with entrepreneurship have been chosen within the partner universities of the accelerators to bring entrepreneurship as close as possible to university teaching and activate as many collaborations as possible between these two components.

For the interviews with the actors of the ecosystems of Rome and San Francisco, a narrative analysis approach was chosen. Narrative analysis is an approach to the elicitation and analysis of language that is sensitive to the sense of temporal sequence that people, as tellers of stories about their lives or events around them, detect in their lives and surrounding episodes and inject into their accounts.

Inroads have been made into business and management research in the last 20 years (Czarniawska, 1998; Boje, 2021). The narrative approach was ideal for us because it allowed us to receive information (in particular, through qualitative interviews) relating to episodes that allowed us to understand how the dynamics of the pre-chosen organizations changed over time and, therefore, from the genesis to the conformation of these and the relationships between them. An emblematic example using a narrative approach like this paper approach is that of Boje (1991), who analyzed the types and uses of stories in an office supply firm based on his participant observation in the organization and interviews with key actors.

As for the interviews with the Campania New Steel incubator in Naples and the staff of the University of Naples Federico II, it is not limited to the narrative approach but also a phenomenological approach is used. In fact, the authors are an integral part of the latter ecosystem as Ph.D. students. It is believed that the phenomenological approach (Schutz, 1967) is important as an integration of the narrative one because the contribution of the authors as a leading actor in the investigation corresponds to the question of how individuals make sense of the world around them and how an individual (the authors, in this case) interprets the reality surrounding him. An emblematic example in the literature is the "interpretivism in action" (Grint, 2020), which uses the example of Richard Branson to show how Branson instilled an ideological commitment to a goal by building a vision in which fun rather than rewards is seen as a reason to be associated with the Virgin brand and how Branson also created an image of himself as an entrepreneur intent on protecting the interests of the consumer.

FINDINGS

Having clarified the purposes of the various levels of research, the concrete highlights of the findings corresponding to the three levels of the research process are reported with focus on some specific results, that is to say: Evidence from Reports; evidence from interviews with directors of Accelerators, from interviews with Startups' Founders and from interviews with University Professors.

Evidence from Global Reports

The evidences from Global Start up Ecosystem Genome have been infused with insights from the literature, leading to the identification of the topics shaping the debate on Start-ups Ecosystems. The themes and perspectives of particular interest comes from the analysis are shown below as considerations on the global context:

-   COVID 19. First of all, the global crisis covid 19 must be considered, which is to be considered as a conjunctural situation for Ecosystem Start-ups. In the 2020 report, drops were found in the development metrics of start-ups within ecosystems, but in the 2021 report, on the contrary, a clear recovery is already recorded
-   RANKING. About 75% of the percentage of the value generated globally by the start-up belongs to the top 7 Start Ecosystems in the world ranking, namely: San Francisco, London, New York, Boston, Tel Aviv, Shanghai, Tokyo and Seattle.
-   ITALIAN SCENARIO. The Italian start-up ecosystem is considered very little on a global level. Last year only Milan was mentioned in global reports, this year only Turin. The Italian ecosystems are not even mentioned among the rankings of runners up and therefore of pursuers
-   EUROPE. In Europe (without considering London) only Berlin appears in the top 30 in the ranking
-   SOCIAL INCLUSION. Apparently off topic with respect to the purpose of this research but an evidence on the world scenario: contrary to what one can imagine, diversity management and more generally social inclusion in entrepreneurial ecosystems even in start-ups are still very distant challenges to reach. Suffice it to say that the percentage of female Founders is only 13%.

Main evidence from interviews: Directors of accelerator

The first results concern the interviews with the directors of the two accelerators respectively Campania New Steel Napoli and Luiss en Labs Roma, M. Varrone and G. Riotta of Luiss en lab. In the same way, the main information obtained from the interviews will be reported with the two directors of start-up accelerators with respect to the three dimensions identified in the previous analysis of start-up ecosystem: Actor, Resource, Geographic Context.

Both research contexts are UBAs but, as anticipated, and as will be further described below, they have opposite models. Furthermore, data on already-accelerated startups are useful for describing a specialization of the two accelerators. The main businesses of these startups by CNS deal with digital transformation, the implementation of artificial intelligence, the use of the opportunities offered by the Internet of Things, or leveraging the combination of social innovation and health. On the other hand, the main businesses of the startups accelerated by LEL are digital transformation, marketplace, and software development.

Another interesting element is a past-looking one – namely, the achievements of startups accelerated in CNS and LEL. The number of startups of the CNS accelerator that achieved significant fundraising is about 15. The total capital raised by startups in the CNS accelerator is over 2 million euros. The startup that raised the most funds is SyenMaint, with total fundraising of 250,000€. On the other hand, 80% of startups accelerated by LEL managed to raise at least 300,000 €. The startup that has collected the highest funding is 2Hire, which reached fundraising of 5 million euros.

The success the two UBAs brought to the two startup ecosystems is mirrored in the exit strategies; indeed, during the last two years, two startups achieved an exit strategy in the CNS accelerator, while six startups accomplished an exit strategy in the LEL accelerator. However, no startup of the two accelerators has yet managed to enter the stock market.

Qualitative data are interesting and useful in obtaining insights into how the two UBAs performed, though the ways to do that are also important. Indeed, in terms of the development of startups and the viability of these processes for the UBAs themselves interesting answers emerged. The business model of the CNS accelerator is win-for-call or pay-for-support; thus, it does not become a member of the startups with which it works. If the startup receives funding through calls, the support is free, while if the startup fails to obtain funding, it must pay for the support services. Conversely, the business model of the LEL accelerator is equity for support. In any case, the accelerator becomes a stockholder of the startup.

Main evidence from interviews: Professors

As already described in the paragraph dedicated to the research methodology and the methodology process applied to this study, the professors at the main universities of Naples and Rome were also interviewed in narrative analysis mode.

In this section, the results of the interviews with professors and assistant professors engaged in academic entrepreneurship at University Federico II of Naples, University La Sapienza of Rome, Luiss Guido Carli University of Rome, and John Cabot University of Rome are reported.

The interviews were developed with some of our guidelines to highlight the specific commitments of the respective universities in supporting the start-ups of the reference ecosystem. The specific purpose was to detect emerging or already existing initiatives and the limits or prospects in the action of the universities in the start-up ecosystems of Naples and Rome, as well as any resources and tools that, according to the interviewees, are currently lacking and thereby preventing universities from performing at their best in supporting entrepreneurship.

The professors and researchers of the universities interviewed are: Antonio Pescapè Full Professor Ingegneria Informatica, chair of the spin-off of University Federico II of Naples, and Scientific Director of DIGITA Academy; Nadia Di Paola, Assistant Professor of Business Venturing and Blockchain Management at University Federico II of Naples and editor-in-chief of the International Journal of Entrepreneurship, COST Association MC substitute; Riccardo Maiolini, Associate Professor of Business Administration at John Cabot University of Rome and adjunct professor at LUISS Business School; and Nicola Cucari, Assistant Professor of Management at University La Sapienza of Rome.

The first consideration of this analysis of the academic staff involved in the topic of entrepreneurship is to highlight a countertrend with respect to the previous interviews with the founders of start-ups in the start-up ecosystems of Rome and Naples and the directors of the incubators of the same ecosystems of start-ups. The countertrend in this section concerns the fact that, unlike previous comparisons, this comparison shows a rather similar model of functioning of the role of the university. While the Rome start-ups pursue very different logics from those of Naples, just as the Neapolitan-certified incubator has a completely different model from that of Rome, the role of the universities of Rome and Naples, according to the information received from the interviewees, is very similar.

Main evidence from interviews: Startups Founders

The interviews with the founders of the main start-ups included in the ecosystems of Naples and Rome were, like the previous ones, conducted in narrative analysis mode following the three reference variables identified by the study: resources, actors, and geographical context. The founders of the start-ups interviewed are Flavio Ferroni, CEO of MegaRide, and Simone Ridolfi, CEO of Off Lunch and Foodys.

Among the main results of these interviews, one condition is immediately evident: that the start-ups established in ecosystems often significantly adapt to the configuration of the reference ecosystem, as well as adapt and shape their own development goals. These considerations are confirmed by the founders interviewed, as reported in the following excerpts: "A Benchmark Interview".

Silicon Valley is undoubtedly the most famous and productive innovation cluster in the world, with success stories such as Google, Facebook, Apple, HP, eBay, PayPal, LinkedIn, and Tesla and with an ability to attract

money and human capital highly specialized from all parts of the world. Jim Spohrer, investor and serial manager, was chosen as a representative actor of the San Francisco Silicon Valley scenario. He is a founding member of the International Society of Service Innovation Professionals. In this case, the choice not to interview professors or incubator directors, as was done for the ecosystems of Naples and Rome, was dictated by the fact that she would not have been a 360-degree representative figure like Jim Sporher, given his most transversal experiences from which to derive as much generic and appropriate information as possible for purposes of this comparison. The interview with Jim Spohrer began with a general description of the San Francisco scenario and then continued with a list of the main Silicon Valley stakeholders.

IMPLICATIONS

The call for investigating the components identified in this work, that represent both a proposal for an interpretative model of start-up ecosystems at an international level and a contribution regarding the theoretical and managerial implications, was addressed.

Among the theoretical implications three main implications are reported. The first is of a methodological nature and precisely concerns the proposal of an interpretative model of the Ecosystem Start-ups. The framework identifies five key components identified, namely Start-ups, Incubators, Accelerators, Universities, Access to technologies explored through the three variables identified by the global literature-report infusion: geographic contexts-resources-actors. Another kind of implications concerns an integration to the previous observations. The previously described model may prove useful for future research as it is now supported by the awareness of scholars and professors that the topic of start-ups has become so widespread that it is no longer a topic that concerns only those who dream of being an entrepreneur. The data on the development of the phenomenon presented in the introductions speak for themselves. For this reason, it is desirable that future studies envisage a multidimensional approach to the topic of Start-up Ecosystems. An approach that goes beyond the search for performing processes for the proliferation of start-ups and that focuses instead on describing how actors, resources and processes conform and shape themselves on the basis of different geographical socio-cultural contexts is desirable. In this way, an identification and identification no longer post phenomenological but "deeper" therefore not only of the methods of improvement but also of the genesis of Start-up Ecosystems which influences future developments in a more or less positive way.

As for the practical implications it should be noted that the literature, global reports and interviews carried out on different levels and in different contexts show that both financial support (therefore Venture Capital, private funds, Business angles) and "formative" support in terms of knowledge transfer, skills and skills influence the birth and development of new innovative companies and therefore on the well-being of ecosystems. In particular, the exploration of this work allows us to assert that the presence of Venture Capital in ecosystems is certainly a more frequent condition in the United States than in European geographic contexts. Furthermore, it is clear that the presence of Venture Capital financial instruments directly affects the short-term performance of start-up companies and therefore the timing between the transition from MVP (Multiple Viable Product) and the Early Stage and Execution phases of the start-ups established in their internal, shortens this critical step. On the other hand, support services, mentoring, skills transfer by incubators, accelerators and universities ("European model"), on the contrary, have more long-term implications such as the diffusion of entrepreneurial culture in ecosystems, an easier access to higher entrepreneurial training and collaboration between public and private institutions and new innovative companies.

LIMITATIONS AND CONCLUSION

Finally, from the results obtained it is presumable in the Italian and European ecosystems there is a lack of culture of "failure as a positive event". In the States, however, awareness of one's mistakes is often the basis of success. "Failure and innovation are inseparable twins". It should also be noted that the typical phrase "9 out of 10 start-ups fail" has no empirical evidence and the interviews (albeit to a small sample) of managers, founders, directors of incubators, and entrepreneurship scholars definitely highlight this.

Today's Italian start-ups are suffering, it is not short-term failure, but the so-called "dwarfism": they survive for a long time but without being able to reach important development goals such as important exits or stock market listings. It is more difficult for Italian start-ups to allow a return on investment by shareholder and founders.

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Service technologies
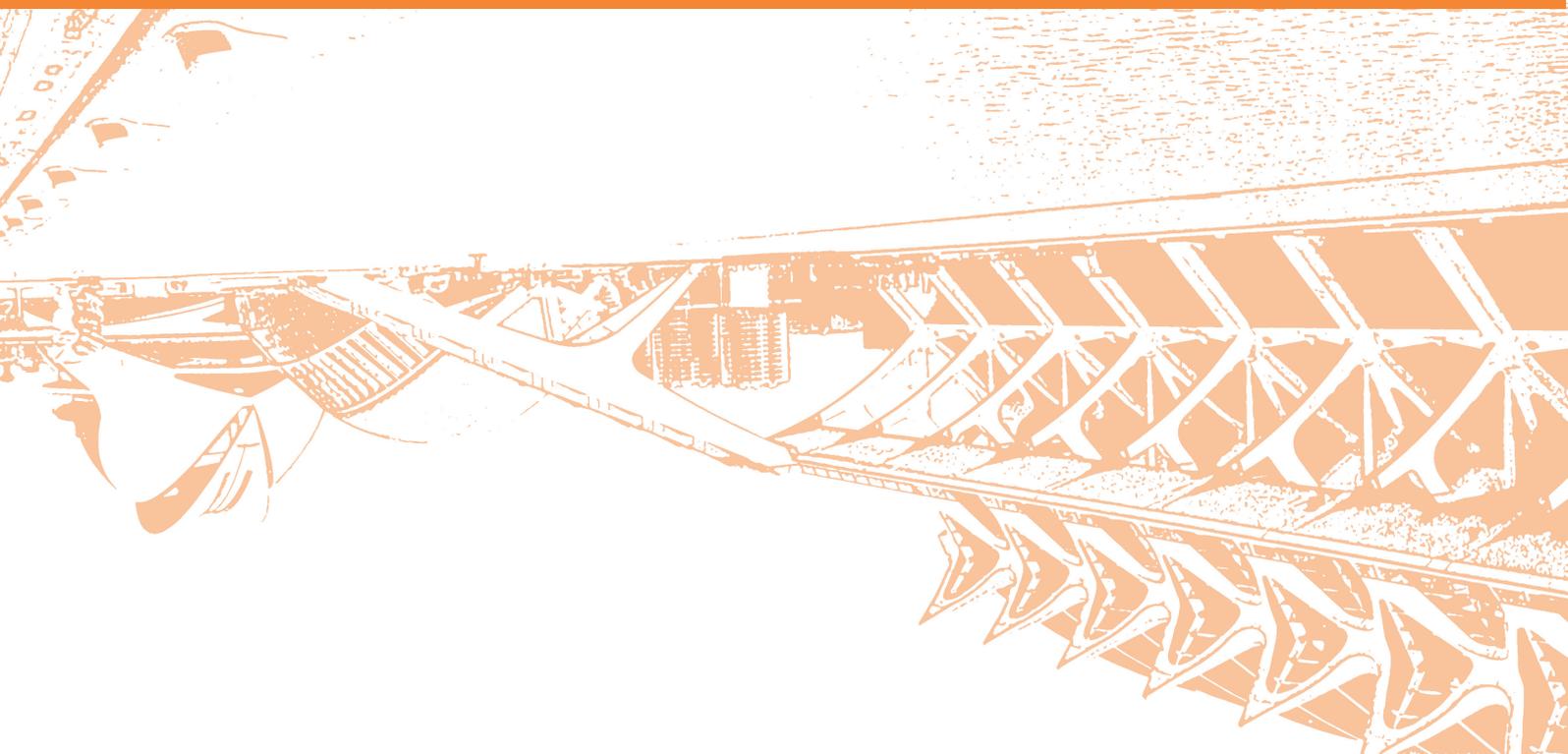
DIGITAL SERVITIZATION: A CUSTOMER-FACING PERSPECTIVE

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SUMMARY

Digital technologies are increasingly prominent in enabling new service strategies. A key role in successful implementation of such digital service strategies is played by customer-facing units, although achieving their support can be challenging. Despite a strong and continuous interest in strategy implementation, the research has yet to understand what drives such support. To address this gap, our study aims to examine the interplay of conditions behind customer-facing units' support for digital service strategies. Based on the survey data from a world-leading manufacturer's service operations and service sales units, the study addresses the aim through fuzzy-set qualitative comparative analysis.

INTRODUCTION

In the digital age, technology represents a key driver of service strategy (Huang and Rust, 2017). Whereas more traditional IT technologies such as databases, ERP and CRM systems enable accumulating historic and after-the-fact information, modern digital technologies instead allow collecting in-use, real-time customer information, and thus enable continuously customized service offerings (Kopalle, Kumar and Subramaniam, 2020). Similar to how large digital firms such as Google and Amazon leveraged modern technologies toward success, legacy businesses can drive growth with a similar approach (Grewal *et al.*, 2020). In general, successful strategy implementation is key to increased firm performance—and yet it often ends in failure despite considerable resource investments (Morgan, Katsikeas and Vorhies, 2012) because creating strategies appears to be easier than implementing them (Homburg, Droll and Totzek, 2008).

In such situations, full support from customer-facing (frontline) employees is almost always crucial for implementation of new strategies (Hayati, Atefi and Ahearne, 2018)—and, in particular, of service strategies that are directed at customers. For the latter, it is typically customer-facing units that implement strategic changes in real time for the firm's customers (Cadwallader *et al.*, 2010). Although customer-facing units' support is critical during the strategy implementation phase, achieving it can be extremely challenging (Hayati, Atefi and Ahearne, 2018). Hence, whereas digital technologies are driving innovative service strategies (Huang and Rust, 2017), it is not surprising that firms often experience challenges of implementing such strategic initiatives (e.g., Mann and Gryta, 2020).

Despite a strong and continuous interest in strategy implementation, research has yet to understand what drives customer-facing units' support for digital service strategies; that is, service strategies enabled by digital technologies. To address this critical research gap, our study aims to examine the interplay of conditions behind customer-facing units' support for digital service strategies. With the survey data from service operations units and service sales units of a world-leading manufacturing corporation, this study follows the research stream on business-to-business service transition that has focused on manufacturing firms' strategies of adding services to core products for increased customer value (e.g., Ulaga and Reinartz, 2011; Tuli, Kohli and Bharadwaj, 2007).

CONCEPTUAL BACKGROUND

To grow long-term customer relationships, business-to-business firms increasingly leverage new services to drive firm value through generating customer demand, enhancing existing customer value, and increasing customer loyalty through higher switching costs (Dotzel and Shankar, 2019). Simultaneously, rapid technological advancements such as those around big data and artificial intelligence profoundly affect

customer relationships (Rust, 2020). Enabling the growth of the service economy, technological advancements transform service and increasingly become the foundation of service strategies (Huang and Rust, 2017). Among its multiple applications for service strategies in the digital age, technology increasingly drives creation of customizable service offerings (Ng and Wakenshaw, 2017; Kumar, 2018) and both standardization and personalization of back- and front-end service processes (Huang and Rust, 2017).

For manufacturing firms, technologies allow for a more effective and efficient resource management—such as when service delivery is radically improved with the technological advancements (Antioco et al., 2008)—and offer benefits such as facilitation of maintenance services and reduction of field personnel costs (Ulaga and Reinartz, 2011). Technologies also enable manufacturing firms' new service offerings through, for example, collection and analysis of customer information, and allow for the increasing tangibility of service offerings and thus willingness to pay on the customers' part (Antioco et al., 2008). In B2B contexts, services are already typically grounded in strong customer relationships, and value co-production between the firm and its customers further increases while services are being continuously adapted to customer demands based on new technologies (Huang and Rust, 2017). If a manufacturer is offering services, the installed base of the firm's products is potentially a unique asset that can become the source of strategic product usage and customer process data (Ulaga and Reinartz, 2011).

By relying upon digital technologies to collect and analyze sensor data on equipment wear and tear, manufacturers can enhance their services: for example, firms can provide real-time customer advice, continuously mass-customize equipment performance, and predict equipment failure on both component and systemic levels before it occurs (Kopalle, Kumar and Subramaniam, 2020). For many manufacturers, the unique data access and service-related data analysis represent a competitive advantage over other manufacturing firms, pure service providers and other players; and while accessing strategic customer data is critical, it is processing and analysis that might potentially turn the data into a source of cost reductions or new revenues for the firm (Ulaga and Reinartz, 2011). Thus, gaining competitive advantage in the digital age can be achieved through the data expertise and obtaining insights from data (Kopalle, Kumar and Subramaniam, 2020), which enables technology-driven and customer-focused service strategies. As a result, applications of new technologies demand scholars and practitioners to understand their effects in relation to firm strategies (Grewal et al., 2020).

With continuously transforming market demands across industries, the need for rapid change has become widespread in order for firms to remain competitive (Ahearne et al., 2010). To address constant changes in a firm's environment, managers often need to develop and introduce new strategies. However, the key challenge with new strategies often concerns not their development or introduction, but rather how effectively firms implement the new strategies (Hayati, Atefi and Ahearne, 2018). Although implementation is crucial for the alignment between a strategy and organizational performance, firms often fail to implement new strategies (Homburg, Droll and Totzek, 2008). Specifically, firms often experience challenges of successfully executing innovative service strategies that are directed at customers (Cadwallader et al., 2010).

While implementing a strategy, any firm's key goal is typically to obtain the employees' support for the strategic initiative (Hayati, Atefi and Ahearne, 2018). Such support for strategy implementation is critical for maximizing the strategy's outputs and therefore is a key predictor of successful strategy initiatives (Hayati, Atefi and Ahearne, 2018). Specifically, the success often depends on customer-facing employees (Ahearne et al., 2010) since the strategy implementation's mechanics are often left to customer-facing units that are encouraged to create their own execution approaches (Hayati, Atefi and Ahearne, 2018). Customer-facing employees enable service delivery and participate in marketing the firm at large through customer interaction (Cadwallader et al., 2010). By introducing customers to new services, frontline employees are often critical for the customer-focused strategy implementation and its success or failure—especially in case of services that are considered complex (Cadwallader et al., 2010). As a result, customer-facing employees' support for the strategy implementation leads to higher probability of achieving the implementation goals, whereas execution might become problematic when such support is low (Hayati, Atefi and Ahearne, 2018).

Despite a strong and continuous interest in strategy implementation, the scarcity of research specifically concerns customer-facing employees' role in implementing organizational change (Sarin, Challagalla and Kohli, 2012). With service strategies directed at customers, managers often have a goal of both innovation and execution, thus necessitating an understanding of how customer-facing employees embrace new

services and its strategy implementation (Cadwallader *et al.*, 2010). While strategies often fail due to execution problems, failure prevention becomes critical for managers and of high interest to scholars (Cadwallader *et al.,* 2010), demanding deeper theoretical and practical knowledge of the interplay of conditions behind customer-facing units' support for digital service strategies.

METHODOLOGY

Following the configurational approach (e.g., Frösén *et al.*, 2016; Salonen *et al.*, 2021), this study conceptualizes the existence of a complex interplay of conditions behind customer-facing units' support for digital service strategies. This study predicts that the support for digital service strategies is a complex phenomenon likely to be better explained not by individual conditions but rather by their complex interplay. Specifically, individual conditions are causal ingredients expected to interact as part of a configuration, representing a causal recipe for achieving the studied outcome. Moreover, alternative configurations of conditions are expected to exist, where each unique causal recipe allows achieving support for digital service strategies.

To analyze the collected survey data, the present study employs fuzzy-set qualitative comparative analysis that is increasingly applied in business research (e.g. Frösén *et al.*, 2016; Salonen *et al.*, 2021). Based upon the configurational approach that provides an alternative to statistical methods, this method leverages the notions of conjunction, equifinality and asymmetry, and allows testing separately for necessity and sufficiency (Ragin, 2008).

To examine the interplay of conditions behind customer-facing units' support for digital service strategies, an entire population of cases was chosen, comprising all service operations and service sales units within the focal manufacturing corporation. Unlike with a random sample, such a purposive sampling approach is particularly suitable for large-N qualitative comparative analysis studies (Greckhamer *et al.*, 2018).

RESULTS

In line with the configurational approach (e.g., Frösén *et al.*, 2016; Salonen *et al.*, 2021), this study conceptualized the existence of a complex interplay of conditions behind customer-facing units' support for digital service strategies. Specifically, we suggested that the outcome is predicted by the complex interplay of conditions and not by the individual conditions as such. The results of fuzzy-set qualitative comparative analysis are in line with the proposed framework. The analysis uncovered alternative configurations of conditions representing unique causal recipes for customer-facing units' support for the digital service strategy: if a unit exhibits all causal ingredients outlined in any of the recipes, then the unit will also exhibit the outcome. This finding is in line with the configurational perspective's notions of conjunction and equifinality, suggesting that a complex outcome is typically linked to a combination of causes instead of a single cause and that different causal recipes may be linked to the same outcome (e.g., Frösén *et al.*, 2016; Salonen *et al.*, 2021). The results provide no exactly matching configurations between service operations and service sales, indicating that different causal recipes enable support for these two types of customer-facing units.

The analysis of the outcome's absence also uncovered alternative configurations of conditions, representing unique causal recipes for the lack of support for the digital service strategy: if a customer-facing unit exhibits all causal ingredients outlined in any of the recipes, then the unit will also exhibit the lack of support. Similar to the above, this finding is in line with the configurational perspective's notions of conjunction and equifinality. Furthermore, the causal recipes for absence are not the inverse of the causal recipes for presence. This finding is in line with the configurational perspective's notion of asymmetry, suggesting that the causal recipes linked to a complex outcome's presence typically do not mirror those linked to the outcome's absence (e.g., Frösén *et al.*, 2016; Salonen *et al.*, 2021). Finally, the results provide no matching or similar configurations between service operations units and service sales units, indicating that different causal recipes explain the lack of support in the former compared to the latter.

THEORETICAL IMPLICATIONS

The present study provides two main theoretical implications. First, we contribute with novel insights to the growing strategy implementation literature that focuses on customer-facing employees and units (e.g., Ye, Marinova and Singh, 2007; Ahearne *et al.*, 2010; Cadwallader *et al.,* 2010; Sarin, Challagalla and Kohli, 2012; Hayati, Atefi and Ahearne, 2018; Salonen *et al.*, 2021). Specifically, our study reveals that customer-facing units' support for digital service strategy is explained by a complex interplay of conditions, in line with the configurational perspective's notions of conjunction, equifinality and asymmetry.

Second, the present study contributes to the research stream on business-to-business service transition (e.g., Ulaga and Reinartz, 2011; Tuli, Kohli and Bharadwaj, 2007). By leveraging the survey data from a manufacturing context, the findings outline the differences between service operations units and service sales units when it comes to their support for digital service strategies. Specifically, the interplay of conditions behind support and lack of support is distinct for service operations in comparison to service sales. Our findings thus extend the service transition literature by offering insights on what drives each unit type's support and lack of support for digital service strategies.

MANAGERIAL IMPLICATIONS

The present study offers implications for manufacturers that aim to implement digital service strategies. First, managers in charge of implementation can leverage alternative configurations of conditions to achieve support from customer-facing units. Specifically, if a unit develops all conditions from any of the configurations, then management can expect it to be enough for the unit to exhibit support. Second, although the findings suggest that no configuration is valid simultaneously for service operations and service sales, there are several configurations that are similar between the two functions. Such similarities suggest that unified, "umbrella" approaches may be employed for ensuring support across customer-facing units.

LIMITATIONS AND FUTURE RESEARCH

The present study has limitations, offering avenues for future research. First, the empirical evidence is based on a sample derived from a single manufacturing firm implementing a digital service strategy. We thus suggest studying other firms that implement different strategies, as well as extending the scope beyond business-to-business context. Similarly, whereas our study focuses on the support from customer-facing units (specifically, in service operations and service sales), scholars studying different settings might be interested in examining other types of units. Furthermore, while support might be measured at different stages of the strategy implementation, future studies may benefit from a longitudinal approach.

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UTILIZATION OF DIGITAL TWINS IN INDUSTRIAL SERVICE BUSINESS

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ABSTRACT

Data-based industrial services are still hard to realize in practice, even though there is plenty of hype around industry 4.0 and related concepts. Digital Twins can be a basis for new kinds of industrial services with entirely new value offerings related to products, processes, or even factories. The purpose of this paper is to explore Digital Twin-based industrial service opportunities and examine how to develop and commercialize Digital Twin-based services successfully.

INTRODUCTION

In the future of service systems, value creation is essentially data-driven, value capture asking for extensive analytics and modern knowledge management assisted with artificial intelligence. Traditionally value has been seen as an add-on to the products in the industrial process. Currently, the products and services are not seen as the end results but as inputs to the value creation processes of the customers (Normann 2001). The value of the products and services is created in the use context when they are used by the customers (Normann and Ramirez 1993; Grönroos 2008; Vargo and Lusch 2008).

A Digital Twin (DT) is a virtual representation that serves as the real-time digital counterpart of a physical object or process. DTs can be a basis for new kinds of industrial services with entirely new value offerings related to products, processes, or even factory levels (Kritzinger *et al.*, 2018). In this study, the focus is on industrial production plants and related production machines and assets, which lifecycle can be supported with the DT. Machine-related information is distributed across multiple DTs. DTs may be hosted by different ecosystems, which provide access to the information in a non-unified manner. This brings up the need for merging and managing these ecosystems. In the current market, either machine manufacturers make customized products for production environments or produce standard products and massively sell them across the world. To adapt their new machines to existing environments, either customers wait a long time and pay higher prices, or buy the off-the-shelf product and again work a long time to adapt and configure them to their production line. In both cases, the first installations are painful and costly. In addition, the digitalization era is making machines more software-intensive time by time. Software-intensive machines are subject to not only physical maintenance but also software maintenance and upgrades. Industrial Internet and DT information enable industrial equipment manufacturers to expand their business from selling capital goods to selling their products as services. New service concepts and operation models are needed for fleet management, remote operations and to share DT information for other possible service providers. DTs and value chains can offer open Application Programming Interfaces (APIs) that create unique opportunities for new stakeholders to enter manufacturing ecosystems. However, industries are lacking now understanding and competencies of creating next-generation business models with actual revenue streams generated from the DT data management and related knowledge for the respective ecosystem stakeholders (Sandberg and Hemilä, 2018). Digitalization will change organization structures, new competencies are needed, new collaboration processes will be introduced, new business strategies should be created and finally, an entirely new business model is needed for the companies operating in digitalized industries (Porter and Heppelmann, 2015). Establishing DT-based services requires deploying business model innovation, i.e. changes in the entire business model or specific elements of it (Johnson *et al.*, 2008). Customer value propositions play a pivotal role in the transformation, as they are placed in the core of the business model and represent the customer value perspective of proposing value (Johnson *et al.*, 2008; Payne and Frow, 2014) and articulate the customer benefits that the company can offer (Rintamäki and Kirves, 2017). Thus, customer value that truly resonates with the target customer needs to be understood to create successful offerings (Anderson, 1998; Payne *et al.*, 2017; Payne and Frow, 2014; Johnson *et al.*, 2008). The purpose of this paper is to

explore DT-based industrial service opportunities and examine how to develop and commercialize Digital Twin based services successfully.

METHODOLOGY

In the ongoing research project, the aim is to update existing Service Development Phases (Hemilä and Vilko 2015) to cover digitalization and DT-related aspects of the industrial service offerings. Research is adopting mainly a qualitative and explorative case research approach, as it is considered appropriate to gain theoretical and empirical insight into the topic that is previously under-investigated (Gummesson 2000) and where the variables are complex and multiple (Yin 2003). This paper is based on the first service innovation phase, where the used data collection method was semi-structured interviews within the consortium companies. We managed to interview in total twelve persons from six companies. The interviews were conducted during June-October 2020 via remote connections (Microsoft Teams).

Table 1: Conducted interviews

Country	Company	Size
Finland	SW provider	SME
Finland	SW provider	SME
Finland	SW provider	Large
Finland	Manufacturer	SME
Finland	Manufacturer	Large
Turkey	Manufacturer	Large
Turkey	SW provider	SME

The interview topics were categorized into four main themes as shown in Figure 1. Data analysis was conducted following the same thematic categorizations as in the structure of the interviews and the results of the interviews are presented in this paper also in the same order.

Figure 1: Interview topics.

Company present stage and offering (digital twins today)	Company´s strategy on digital twin development (digital twins in the future)	The role of data in digital twin development	Customers and their needs	Network and roles of actors involved in digital twin development
•Current IoT/digital twin based offering •What is a digital twin?	•Development of IoT/digital twin based offering now and in the future •Decision-making recarding digital twin development	•What kind of data is needed? •How the data is collected, analysed, shared and utilised?	•What are the main customer segments or target groups for digital twin-based services? •What are the needs of the customers? •What are the values of the digital twin services for the customers?	•What are the most important actors, resources and competencies in digital twin development? •What are the roles of the actors in digital twin development? •What kinds of partners are needed in the future?

This research will provide keys for understanding the challenges and needs for manufacturing industries' new services based on DTs. The updated Service Development Phases will define how in practice new service business models with the utilization of DT for the entire lifecycle of the systems can be created.

FINDINGS

The final aim of the research is to provide new business models and service concepts based on the DTs, and models on how to develop DT-based services. On the service development, the framework of service business development presented by Hemilä and Vilko (2015) will be the basis, but that framework will be updated with DT and digitalization views. The following sub-chapters present the results from the interviews.

Current stage and offering of Digital Twin-based services

The conducted interviews showed that the interviewed companies offer a wide range of digital services and the digital service portfolios vary according to e.g. the business environment and customer base of the companies. The share of digital services in the overall service offering of the interviewed companies is high: all or most of the services in the service offerings of the companies are digital. However, the share of DT-based services is significantly lower; only a few of the interviewed companies currently offer DT-based services to their customers. The focus of the DT-based service development seems to be more on the future strategy of the companies rather than the current stage of the service offering. In most of the interviewed companies, the digital services are linked to predictive maintenance purposes throughout the lifecycle of the machines and improving the production of the customers. The digital service portfolios of the interviewed companies currently include:

- E-commerce for spare parts
- Real-time remote monitoring, support, and control through sensors
- Education/training of the customers remotely
- Consultative digital services
- Software, licenses, systems, and platforms

In terms of digital services, the service concepts seem to be relatively well described in the interviewed companies. The structure and content of the digital service portfolios are highly developed; e.g. the customer value of the digital services is well established in the interviewed companies. The DT-based service offering however is mainly relatively undeveloped, even though the need and benefits of DT-based service offerings are recognized in all of the interviewed companies. We discovered that the definition of DT varies among the interviewed companies, affecting the standpoints where the companies consider to be currently and the focus of developing the DT-based service offerings in the future. We recognized two ways of defining DT in the interviewed companies:

a) DT is a digital version of the machine(s). According to this definition, DT is seen as a simulation and testing tool e.g. safety and quality testing and tracking the changes. According to this definition, the DT-based service offering consists of DT-enabled testing and simulation services.
b) DT is a placeholder that collects information from different data sources throughout the lifecycle of the machine(s). According to this definition, DT collects a lot of data from the machine(s) through the development, delivery, and usage of the machine(s). E.g. condition and usage data, simulation models, the location and ambient conditions of the machine are being collected and the data is gathered into one place. According to this definition, the more data sources can be linked, the stronger the DT is.

We discovered that the companies that define DT as a digital version of the machine consider that DT-based services are currently included in their service portfolios and offered to the customers. On the other hand, the companies that define DT as a placeholder that collects information from different data sources do not consider that DT-based services are included in their service offering currently. These companies are in the phase of increasing their knowledge about the DT concept and focusing on the future vision and implementation opportunities of DT-based services.

Strategy on DT based service development

Stoll *et al.* (2020) have indicated the starting point for DT services and digitalization being the strategic decision to "do something digital with customers over the longer term". Most of the interviewed companies focus on the future development regarding DT-based services, rather than currently offering DT-based services. All of the interviewed companies emphasize the significance, need, and motivation for increasing the knowledge regarding the DT, gaining experience about the DT concept, and consequently developing service concepts linked to DTs. The future strategy on DT service development in the interviewed companies varies depending on the definition of DT and the current services, the field of business, and the operational environment of the companies. The focus on the development work varies also from one machine to the entire ecosystem, depending on the fundamental business model of the company; machine selling companies seem to concern the DT development based on individual machines or fleet management, whereas the software companies seem to focus more on developing the entire ecosystem. The long-term

future targets were also harder for most of the interviewed companies to describe. Some companies emphasize the importance of creating a scalable business model for DTs, some aim to host an end-to-end solution and implement an as a service-model for DTs. One company presented that developing and implementing cognitive DTs is one of their future strategies.

The role of data in DT based service development

According to the interviews, the most important data needed in DT development can be split into two groups:

1. Basic data about the machine(s).
2. Operative data of the machine(s), including e.g. lifecycle data, condition monitoring data, and status data. The data is gathered from sensors and PLC systems of the machine(s).

Both two data groups of the machines are needed to be able to develop DT based service offering. Most of the interviewed companies currently collect data from the machine(s). Machine selling companies collect and analyze data from their machines either in-house or through partners. Software companies act as data collection and analysis partners for the machine selling companies. Data analysis happens in two ways in the interviewed companies. Approximately 50 percent of the interviewed companies collect data from the machine(s) and send it to their customers to be analyzed and approximately the other half of the interviewed companies analyze the data in-house and offer analyzed or processed data to their customers.

Customers and their needs regarding DT-based services

We discovered that the focus of the digital or DT-based service offering varies widely in terms of customer segments and none specific dominant customer segment for offering DT-based services is recognized among the interviewed companies. Some of the companies offer digital services to very specific customer segments, whereas some companies offer services to a very broad range of customers. In addition to the variation in customer segments in general, DT-based services are developed or offered to a wide range of customer domains, and many different domains are recognized to benefit from DT-based services. However, some conservative domains are recognized to currently have boundaries linked to the DT-based service offering. Customer demand for the DT-based companies currently or in the future is one of the main drivers for the development of digital or DT-based services in the interviewed companies. Some of the companies described that the customers are currently relatively passive in terms of DT-based service development and the service development is mainly based on internal drivers, whereas some of the interviewed companies described that external pressure forces the companies to develop the DT-based services and customers are more important motivators than the internal drivers. All of the interviewed companies stated that digital and DT-based services are developed and offered to efficiently solve the customer`s problems and to improve customer satisfaction by creating added value for customers. On a more progressive level, building proactive strategic partnerships by co-developing products, technologies, and services with selected customers is an important driver for DT-based service development for some of the interviewed companies. Based on the interviews, we discovered factors that affect the customers` needs and interests towards the digital or DT-based services. The customer`s motivation to adapt DT-based services is high if the service is critical to the pivotal processes in the customer`s business. This includes cases where e.g. the customer`s production or core operations are significantly affected by the DT-based service. This factor also affects the customer needs towards the DT-based service, e.g. the service process and delivery have to be faster in critical cases. The customer`s commitment to the DT-based service is higher if the service is used often and the service is linked to the customer`s regular (e.g. daily) operations. On the other hand, if the service is used only occasionally, the customer`s interest and commitment towards the DT-based service might be lower. The customer organization`s interest in the DT-based services might be lower if the customer does not have a clear vision of the benefits or application areas for the DT. The customer needs also might vary depending on the level of knowledge in the customer organization: e.g. the customers that have a low level of knowledge and know-how of DTs might need services that provide more expertise and resources than the customers that have a high level of knowledge of DTs in their organizations. The customer`s interest and needs towards the DT-based services seem to be different in e.g. the optimizing phase of the business lifecycle compared to the business development phase of the lifecycle. The customer needs are strongly linked to the application areas of the DT and can vary in some cases significantly according to e.g. the customer operations, segments, or domains. According to the interviews, most of the noted customer benefits of digital or DT-based services are linked to effective predictive maintenance and fleet management. Furthermore, the

interviewed companies presented that customer benefits of the digital or DT-based service offerings are strongly linked to the availability of accurate and real-time data, enabled communication between assets, and the transparency of the operations. To address the customer value creation perspective of the digital or DT-based services, we discovered that the customer value propositions of the interviewed companies included the following customer benefits:

- Savings in maintenance and operative costs
- Savings in downtime of maintenance
- Improvement in safety (e.g. product safety and occupational safety)
- Improvement in product delivery efficiency
- Improvement in the reliability of operations
- Improvement in product quality
- Increase in sales in the value chain (addressing the customer`s customers)
- Faster and improved application of new technologies and updates
- Decrease in energy use due to smart manufacturing

As a summary of the customer view, there is a need and a lot of potential business around DT services, but also many customer-specific challenges to be solved before successful operations with DT. Customer segmentation and competition analysis need to be developed, leading to an action plan with a clear aim and timeline (Stoll *et al.* 2020).

Network and roles of actors involved in DT-based service development

Addressing the network aspect of the DT-based services currently and in the future, we discovered that the perceived importance of networks and partners vary among the interviewed companies. We recognized three types of network perspectives:

1. Some companies value customers as the most important partners, without concerning broader partnership or network level of digital wins.
2. Some companies emphasize the role and importance of certain individual partners or subcontractors in e.g. data collection and analysis but do not emphasize the network or ecosystem view of the DT development currently or in the future.
3. Some companies currently see themselves as ecosystem actors or strongly emphasize the importance and need for a holistic ecosystem for DTs in the future. The ecosystem for DTs could benefit all ecosystem actors significantly, enabling e.g. joint offering or customer value creation linked to DT-based services.

The companies that emphasized the need for the holistic ecosystem-level approach presented that building of the ecosystem for DT-based services requires especially defining of the roles for the ecosystem actors. According to the interviews, currently, the ecosystem for the DTs lacks clear roles, responsibilities, and coordination. Thus, especially an orchestrator role for the ecosystem is needed to build and coordinate the ecosystem. The companies that emphasized the need for an ecosystem presented that ensuring trust, reliability, open communication and transparency are critical in building and implementing the ecosystem-level approach. According to these companies, the ecosystem should include both technical and business-oriented actors, e.g. software actors and manufacturers. Furthermore, global standards and definitions linked to DT are needed in the future to build the ecosystem, ensuring that all actors define DTs as well as the roles and actions in the network the same way. Currently, the partners related to DT-based services in the interviewed companies include several types of actors, including private companies, authorities, and public organizations. Actors linked to data collection and analysis as well as customers were especially emphasized among the interviewed companies. Strategic partnerships are built with customers in some cases, thus customers are seen to have a pivotal role in the DT network. The current network regarding DT-based services includes:

- Subcontractors for collecting, sharing, storing, and analyzing data
- Standardization and regulation actors
- Research organizations, involved in the DT development through joint research projects.
- Technology providers, enabling and developing the technology of DT-based services
- Customers that are involved in co-developing the DTs with the interviewed companies

- Start-ups that are involved in co-developing the DTs with the interviewed companies
- Safety community
- Teleoperators

Based on the interviews, some roles or actors in the network of DTs are currently missing or needed. However, apart from the orchestrator role that was emphasized by some ecosystem-oriented companies, not any particular actor was emphasized in the interviews. Instead, several actors were mentioned regarding the future network of DTs, some specifically linked to the business models and environments that the interviewed companies operate in. According to the interviews, the partners or actors that are needed for DT-based services in the future include:

- Integrator companies regarding DTs
- Companies offering reliable cleaning of data by using AI
- Infrastructure enablers for delivering DT-based services
- Digital solution/technology providers and development partners, e.g. virtual and visualization solutions, augmented reality and programming
- Service development support/partners
- Orchestrator for the DT ecosystem

Within the manufacturing industry, digitalization will change operational models, organization structures and reflect which kind of core competencies are needed in the digital era of manufacturing. The service network and partnerships should be created within the service development (Ekman *et al.* 2016).

CONCLUSIONS

Based on the learnings of literature and consortium interviewees, DT services can be divided up into two main categories. One service group contains service concepts such as creating, hosting and providing DT infrastructure. Another group encompasses existing data-based service concepts to which DTs offer new and more efficient ways to service processes for instance through real-time data use, forecasting simulation, and life-cycle data management. According to Martinez *et al.* (2019), utilization of DT data is used for monitoring (simple product-oriented services), simulation (e.g. product design, detection of failures, prediction of potential problems, determination of the next best actions), prediction, integration of life cycle steps (vs working with fragmented digital tools) and operation optimization. Hemilä and Vilko (2015) presented service development phases as follows:

- SDP1 - Company present state and strategy
- SDP2 - Products and their features
- SDP3 - Customers, segments, needs
- SDP4 - Product lifecycle
- SDP5 - Services along the product lifecycle
- SDP6 - Service offering, service modules
- SDP7 - Service organization, service processes
- SDP8 - Earning logic, service pricing models, service value
- SDP9 - Service sales and marketing models
- SDP10 - Service launch to markets
- SDP11 - Follow-up and improvements

When developing DT-based services, the Service Development Phases can be utilized, but with adding findings from our study. Beginning with the Company present state and strategy (SDP1), the company should define what the definition of a DT is and what the main strategic goals for utilizing DTs are. As our interviews indicated, the machine manufacturers' core is the machine itself, but it should be updated with sensors for collecting relevant data (SDP2). The machine should provide data for ensuring operational efficiency, for maintenance purposes, so a detailed understanding of machine lifecycle phases is needed for identifying the DT-based service opportunities (SDP4). Customer understanding, customer needs, and different customer segments need to be defined for fulfilling future customer demands with DT-based services (SDP3). Then the service innovation and development need to be done (SDP5). Sometimes services as packages or modules are offered in order for the customers to choose the best fitting offering to meet their specific needs (SDP6). The DT ecosystem or network of companies to realize DTs in practice need to be identified, selected

and agreed (SDP7). Finally, the entire business model might need to be updated or changed, but at least the earning logics need to be developed (SDP8). Sales and marketing channels can be the existing ones, if the manufacturer is already having services and DTs might not affect service sales models (SDP9). Surely, the value proposition is updated with DT and the sales and marketing materials need to be updated accordingly. In addition, interviews indicated that the adoption of DT services is higher among the customers if their knowledge about DT is high. Then sales and marketing can enhance customers' understanding of DTs. DT-based services need to be launched (SDP10) and updated in a long run (SDP11).

Practical Implications

New understanding is needed of how to develop service offerings with the data and multiple DTs of the products. With the updated step-by-step service development phases, an entire business model can be turned more competitive. This paper highlighted the DT service opportunities and challenges. With systematic development steps, a successful DT-based service business can be realized.

Research limitations

The present study has certain limitations that need to be taken into account. The phenomenon of utilizing DTs in industrial service development is very extensive and complex and this study approached this phenomenon from a rather narrow empirical perspective. The selected case study methodology brings out limitations as far as the generalization of the results is concerned. However, by understanding these particular cases more in-depth, we might eventually learn something about the greater phenomenon of DT-based service development in the industrial context.

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LIFTING SERVICE ETHICS TO VALUE RESPONSIBILITY: A RESEARCH AGENDA IN THE AGE OF DIGITALIZATION

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ABSTRACT

This paper seeks to craft an ethics discussion within the service research community and aspires to design service ethics for the collaborative economy. This study examines ethics in service research. The traditional ethics of business and marketing focused on one-way communication based on the values of service providers. Digitalization has enabled two-way communication, which highly impacted by the ethical imperatives of digitalization. There is a fundamental lack of service research on this critical shift from value co-creation to value responsibility. We assess, in this study, customers as actors or value creators but also as responsibility takers. We seek to underscore ways ethical, social, and environmental inequalities can be identified and communicated with all stakeholders.

INTRODUCTION

COVID-19 created a complex global ethical challenge. Before the pandemic, the economic and social service systems were accelerated based on the trends of globalization and digital technologies. Two years after the world was highly impacted with COVID-19, anti-vaccine movements and fake news are becoming a common driving force of misinformation in this age of digitalization. How the pandemic affects business and society is not yet possible to understand but it has influenced this study as the crisis transforms the ways we communicate and the meaning of ethics and morality in society.

This paper seeks to craft an ethics discussion within the service research community and aspires to design service ethics for the collaborative economy. This study examines ethics in service research. The traditional ethics of business and marketing focused on one-way communication based on the values of service providers. Digitalization has enabled two-way communication, which highly impacted by the ethical imperatives of digitalization. There is a fundamental lack of service research on this critical shift from value co-creation to value responsibility. We assess, in this study, customers as actors or value creators but also as responsibility takers. We seek to underscore ways ethical, social, and environmental inequalities can be identified and communicated with all stakeholders. Service ethics need to be rethought to include responsibility and moral values of all involved parties or actors. The extensive marketing ethics and services marketing literature combined with the emerging collaborative economy thinking informs this research agenda.

In this paper, we conduct a literature analysis based on the ethics and responsibility in the age of digitalization by reviewing and analyzing sharing economy, economy and ethics, and service research to develop a research agenda. To support our research agenda and literature analysis, we will apply narratives that represent the role of customers, not only as actors or value creators but also as responsibility takers. The narratives are based on the case of Uber; and Instagram app markets, to allow us to discuss the challenge and complexity of service ethics.

This paper makes an original contribution by examining ethics in service research in the collaborative economy and by raising the question of value responsibility.

THEORETICAL AND CONCEPTUAL FRAMEWORK

Sandel (2012) suggests that markets have inherent borders and moral limits. Reflecting on these market borders, Sandel (2012, p. 203) concludes that this is also a question about how we want to live together: "Do

we want a society where everything is up for sale? Or are there certain moral and civic goods that markets do not honor and money cannot buy?" This points out the role of markets in the age of digitalization and the collaborative economy, and lifts the question of ethics in the value co-creation process. Jonas (1984), in his "search of an ethics for the technological age" argues, responsibility is imperative as the nature of human action has accelerated and changed, and, since ethics is concerned with action, it should follow that changed nature of human action calls for a change in ethics as well. Of course, ethics normally refers to a set of right and wrong values that guide what humans ought to do, usually in the form of rights, fairness principles, societal benefits, or virtues. However, ethical questions must now be made explicit (Laczniak, 1983) during this fast transformation of digitalization.

In the collaborative economy, a considerable amount of responsibility has been attributed to consumers and their behaviors in their assumed ability to live up to and/or change the dominant social paradigm (Kilbourne and Beckmann 1998; Jackson 2005; Ehrenfeld and Hoffman 2013). Collaborative consumption gained the buzzword when Botsman and Rogers (2010) published their book: What's Mine is Yours. Some of the famous terminologies relating to the collaborative economy explain the phenomena of peer-to-peer sharing such as: 'the mesh' also referred to as 'social sharing' by Gansky (2010); 'access-based consumption' (Bardhi and Eckhardt, 2012); 'connected consumption' (Schor and Fitzmaurice, 2015); 'hybrid economy' (Rifkin, 2015), and 'collaborative economy' (Probst et. al., 2015). Botsman and Rogers (2010) argued that there are four main drivers that peers participate in collaborative consumption: (1) affordability and cost-saving activities, (2) environmental concerns, (3) P2P technologies build trust among peers, and (4) sense of community.

The collaborative consumer or Prosumer of the digitalized world is socially constructed to consume (Baudrillard 1998; Peattie 2009) and relies on the dominant social paradigm to support rationalized consumption (Carrigan and Attalla 2001; Ehrenfeld and Hoffman 2013). This shows that the sharing economy is not guided by the neo-classic view of economic responsibility.

In this era, customers are co-creators of value and resource integrators, as argued in SD-logic (Vargo and Lusch, 2014), and customer dominant logic – CDL in service logic (Grönroos and Gummerus, 2014). In macromarketing, the role of businesses in Corporate Social Responsivity (CSR) discusses value responsibility (Haase, 2015). It is much more intertwined where individual, collective and social responsibility interacts in the value co-creation process. We will use that insight in the context of value co-creation and responsibility where economic and moral issues are not separated and not guided by deterministic thinking. We propose that this link should be reinterpreted in the actual context of service research on value co-creation and the global society today to reflect the need for a balanced view of individual and societal cooperation, and resource integration to facilitate values responsibility.

We will expand the domain of service management from a narrow dyad based perspective on the service provider and customer interactions to meet a bigger context and, at the same time expanding the concept of service management. The focus is on the business mission to serve someone, with the insight that business and ethics are intertwined and cannot be separated (Freeman, 1994) and that management with a societal perspective includes leadership thinking (Normann, 2001), a stakeholder orientation (Laczniak and Murphy, 2012), and sustainable business transformation action (Sebhatu *et al.*, 2021) to meet this new landscape at the micro, meso, and macro levels.

Based on these axiom/foundational premises, Vargo and Lusch suggested using S-D logic as a broader framework. One of those possibilities for extension is the study of macromarketing, including *ethics, economic, environmental, and social sustainability*, as well as *public policy* (Vargo and Lusch, 2017).

Murphy and Laczniak argue that research must be directed toward the societal, ethical, and normative aspects, concerning Vargo and Lusch's (2017) perspective on the more humane or ethical ethos of S-D logic with "Ethical Foundations for Exchange in Service Ecosystems" (Murphy and Laczniak, 2019). They point out three ethical foundations (Murphy and Laczniak, 2019): The relational nature of S-D logic (key relational virtues trust, commitment, and diligence), facilitating virtues (fairness, integrity, respect, empathy), communication, and action virtue transparency;

The importance of both value and values, where value has to do with economic contributions, while values pertain to the ethical dimension of exchange; and

Stakeholder importance of S-D logic and exchange in service ecosystems.

The concepts in the theoretical framework and their interdependencies, as illustrated in the conceptual framework, drive the constituent parts of service ethics (see Figure 1 below), the framework for service at the age of digitalization is illustrated as the relationship between the platform – service provider- consumer (Figure 1) and the accountability. In the sharing economy, the consumer gets a free platform for collaboration. However, this doesn't mean without responsibility. Value co-creation is part of the value responsibility. In this paper, we are not focusing on the social responsibility or CSR (corporate social responsibility) aspect of the service provider, by which organizations practice their business-societal practice (Sebhatu and Enquist, 2022). The main concepts (Table 1) of the theoretical framework enable a focus on specific information during the data-generation phase and a broader interpretation of data during the analysis phase. These concepts are re-defined or contextualized based on our literature analysis.

Figure 1: The relationships of consumers – service providers – platform in assessing service ethics
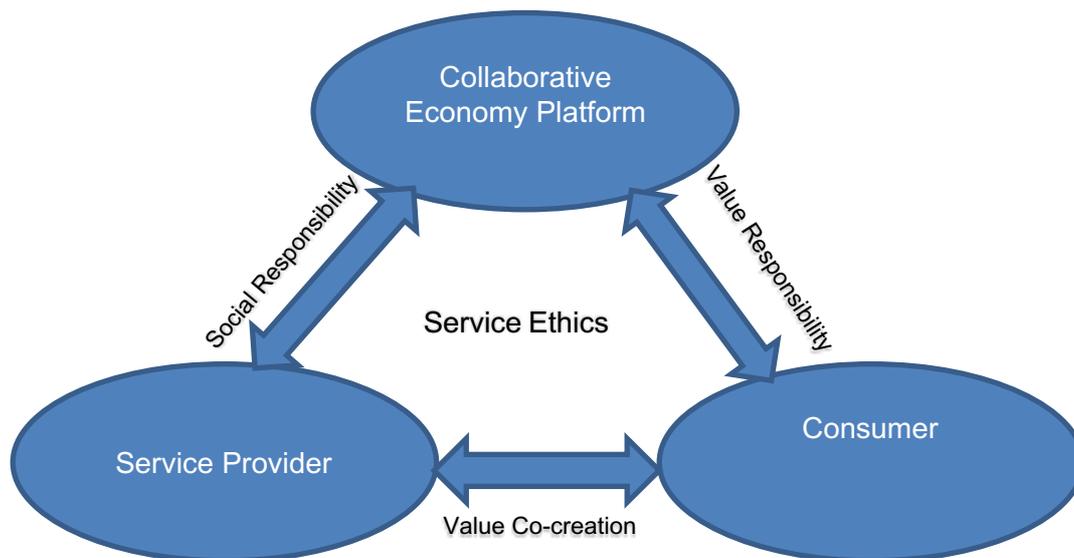
Table 1: Definitions of key terms

Term	Definition
Value co-creation	Value co-creation refers to the process and collaboration between service providers and customers, as actors exchange resources and cooperatively create value.
Value Responsibility	Value of responsibility refers to the accountability, commitment and embracing the decisions, actions, and behavior taken during co-creating value. It is action-oriented.
Service Ethics	Service ethics refers to right and wrong values and actions during the process of value co-creation that underlines what ought to do, in relations to rights, fairness principles, societal benefits, or virtues.

RESEARCH METHODOLOGY

To build a framework for our service ethics study, we conducted a literature review (Enquist *et al.*, 2015). The study was carried out in a dialectic between theory and the narratives (practice). The narrative analysis allows us to analyze a chronologically told story, and explore how various elements, which are sequenced (Webb *et al.*, 2000). Using multidisciplinary theory building and our conceptual framework, we seek to reinterpret the dialectic between theory and practice in an explorative manner via a critical reflexive methodology (Alvesson and Sköldberg 2010; Alvesson and Kärreman 2007) in a specific context. The context of this study is based on prosumers that are engaged in the collaborative economy. We are searching for new meaning and a

deeper understanding of service ethics practice (Kristensson Uggla 2010; Enquist, Sebhatu and Johnson 2015; Gummesson 2017). We are also opening the dialectic between theory and practice using our literature review and theoretical framework.

The context of this study is narratives that explain the need for contextualizing service ethics. We are searching for new meaning and a deeper understanding of business practice (Kristensson Uggla 2010; Enquist *et al.*, 2017; Gummesson 2017). We are also opening the dialectic between theory and practice through our conceptual framework (Table 1), built to address a specific context based on the descriptions of the narrative's studies (Enquist *et al.*, 2017).

Narrative: Uber

"Take responsibility for your own problems in a tough culture."

'Take responsibility for your own S***!' said Uber boss Travis Kalanick, who was filmed in a furious row with the driver who moaned that working for the taxi app firm was 'bankrupting' him (The Guardian, 2017) because of its low fares and the company's treatment of its drivers. According to the financial reports in 2017, there's no question that it's been a hard year for Uber and its leader, a bad year compressed down into an awful three months. However, that pleasant conversation between Kalanick and his friends in the back of an Uber Black? - a black car, the high-end service his company introduced in 2010 – about a hard year reflects the question "Value for whom and the ethic behind". "I make sure every year is a hard year." Kalanick responds, "That's kind of how I roll. I make sure every year is a hard year. If it's easy I'm not pushing hard enough" he continues.

This conversation of being hard devolved into a heated argument over Uber's fares between the CEO and his uber taxi driver, Fawzi Kamel, who then turned over a dashboard recording of the conversation to Bloomberg. Kamel, 37, has been driving for Uber since 2011 and wants to draw attention to the plight of Uber drivers. The video shows off Kalanick's pugnacious personality and short temper, which may cause some investors to question whether he has the disposition to lead a $69 billion company with a footprint that spans the globe.

Sources: *Wong, J. C. The Guardian, March 1, 2017, https://www.theguardian.com/technology/2017/feb/28/uber-ceo-travis-kalanick-driver-argument-video-fare-prices; Newcomer E., 28 February 2017, Bloomberg, https://www.bloomberg.com/news/articles/2017-02-28/in-video-uber-ceo-argues-with-driver-over-falling-fares*

Narrative: Instagram app markets

Maids for Sale

In the age of digitalization and collaborative consumption, unethical behavior by both consumers and platform/service providers is increasing. This ranges from minor incidents in sharing platforms to the worst human rights violations in "slave markets" on Instagram and apps like 4Sale and Haraj. These platforms are used to buy and sell housemaids in the Middle East by prosumers. The apps are known as 4Sale and Haraj and can be downloaded on Apple's app store and Google play. The use of these apps is widespread across the Middle East, and the BBC Arabic Service Undercover team decided to investigate how users of these apps use them for the buying and selling of black slaves, particularly young women from West Africa. The 4Sale app allowed you to filter by race, with different price brackets clearly on offer, according to racial categories. The team were urged by app users, who acted as if they were the "owners" of these women, to deny them other basic human rights, such as giving them a "day or a minute or a second" off. One man, a policeman, looking to offload his worker said: "Trust me she's very nice, she laughs and has a smiley face. Even if you keep her up till 5am she won't complain." He told the BBC team how domestic workers were used as a commodity.

This is not an isolated example. Such incidents raise fundamental questions of "ethics" and "well-being" in the age of digitalization where sharing is supposed to mean caring. How can a platform for sharing be ethical?

Moreover, how can consumers and service providers reach the same ethical standards and transform from value co-creators to taking value responsibility?

Sources: Pinnell, Owen & Kelly, Jess, 31 October 2019, *Slave markets found on Instagram and other apps* https://www.bbc.com/news/technology-50228549

DISCUSSION AND CONCLUSION

In this study, we argued for crafting an ethics discussion within the service research community and aspired to design service ethics for the collaborative economy in the age of digitalization. This study examines ethics in service research. We have integrated ethics with service thinking to give service ethics a new dimension and highlight challenges for sharing economy of customers value co-creation not as externalities in a neoclassic way but instead used as means, identified and communicated as part of value responsibility. *Such identifications can lead to responsibility and facilitation from economic and moral perspectives.*

In the global world, the business landscape is more complex, and ethical perspectives must come to the fore, in addition to economic value. Moral issues are vital to human progress. Instead of looking at nations only from an economic and market perspective we also need to consider the moral side where value responsibility comes into consideration for service research needs to include. In service research, Vargo and Lusch (2017) discuss the need for marketing in the future of service research by presenting a framework that can inform macromarketing theory and research based on the opportunities around ethics, environmental sustainability, social sustainability, and public policy (Vargo and Lusch, 2017), with a broader view of economic responsibility in the light of where individual, collective and social responsibility interacts and economic and moral issues are intertwined. The traditional ethics of business and marketing focused on one-way communication based on the values of service providers. This one-way communication is highly impacted by the ethical imperatives of digitalization. There is a fundamental lack of service research on this critical shift from value co-creation to value responsibility. This study has contributed to those discussions on service research based on the marketing ethics and collaborative economy approach to understand the complexity and need for Business-Societal Cooperation from a more pluralistic and complex ethical perspective. We reflect in this study on a deeper understanding of the new societal perspective in the age of digitalization with a need to transform, create value, and develop ethical practice in a trustworthy and collaborative way where technology, markets, and consumers as service providers are interconnected and in balance with one another.

We assess, in this study, actors or value creators but also as responsibility takers. We seek to underscore ways ethical, social, and environmental inequalities can be identified and communicated with all stakeholders. Service ethics needs to be rethought to include the responsibility and moral values of all involved parties or actors. The extensive marketing ethics and service research literature combined with the emerging collaborative economy thinking, allows us to identify priorities for the research agenda. We, thus, are going to propose a new research agenda as part of the contribution of this paper.

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DIGITAL ACCELERATION IN CONSUMER RETAIL: THE ROLE OF TECHNOLOGY IN PROVIDING IMPROVISED CUSTOMER EXPERIENCE

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ABSTRACT

This study explores the response from consumer retailers to the digital acceleration that was triggered by the COVID-19 pandemic. Drawing upon bricolage innovation (Witell *et al.*, 2017), we explore how consumer retail firms adapted to deal with the crisis. Analysing industry reports and interviews with senior leaders at retailers, our findings reveal that consumer retailers improvised customer experience as a response to the crisis by a service reconfiguration of touchpoints, fulfilment operations, products and promotions. The ability to improvise experience was enhanced by the level of technology adoption. Lessons on agile business prioritisation, open data culture and scenario planning can be learned for future crisis planning that are broadly applicable across sectors.

INTRODUCTION

In the summer of 2019, an avid cyclist learns about a new piece of kit that will convert her bike to an electric one for a fraction of the cost of an electric bike. She visits her local store to research about electric bikes and conversion kits. She is ready to order a kit but is required to place a deposit and wait weeks for delivery. She is disappointed and tries to find other similar kits that can be delivered faster as she is accustomed to faster shipping. Fast forward to the summer of 2020 with a similar scenario. The same cyclist completes her research and order fully online for regular bike accessories. Yet, she is patient with delivery estimates of weeks. This hypothetical example shows how consumer behaviours and expectations changed in an unprecedented way during the pandemic creating an accelerated shift to digital channels that is being termed as digital acceleration (*The Pandemic Forces Digital Acceleration - KPMG United States*, 2020).

In contrast, the impact of digital acceleration to a wide range of consumer retailers was uneven depending on their primary channels for business. For example, a 'store only' UK based fashion retailer, Primark, estimated losses of £2bn in sales over 2020 (*Associated British Foods plc - Investors - Annual Report 2020*, 2020). Whereas, a 'digital only' retailer Asos grew revenues by 24% in the 2nd half of 2020 (*ASOS plc - AnnualReports.com*, 2020) and 'multi-channel' retailer M&S saw a steep rise in online performance while in-store sales declined (Rowe, 2021). Furthermore, the touchpoint shifts from stores to online were simultaneously affected by an accelerated shift in demand patterns of products and services. For example, fashion retailers witnessed demand surge from casual wear instead of occasion wear as more people worked from home (Dombey, 2021). Coffee shops witnessed a shift from 'third place' experiences (Mimoun and Gruen, 2021) to newer digital experiences at drive throughs (*The Secrets of Starbucks' Success at the Drive-Thru*, 2021). Hence, the consumer retail sector provides an opportunity to investigate the diversity of impact from digital acceleration triggered by the crisis and the sector's response to the crisis in various settings.

Bricolage innovation and the role of technology in delivering customer experiences have been identified as key themes on service researchers' agenda in a post pandemic world (Mele, Russo-Spena and Kaartemo, 2020; Ostrom *et al.*, 2021). Our study seeks to answer the call for research by drawing upon the themes to explore how consumer retailers improvised customer experience and what was the role of technology adoption to deal with the crisis. Consequently, we aim to uncover fresh perspectives on how to improve crisis planning to deal with the present and future challenges from uncertain events. This will be achieved by gaining insights from the consumer retail sector by answering questions as below:

- How did consumer retail firms use modern technologies to continue to serve customers and improvise CX in 2020?

- How did technology adoption impact consumer retail firms during the pandemic?
- How can consumer retail firms adapt CX in the future by learning and preparing for crisis? For example, impact from the Suez canal blockage or climate change events or security breaches as well as network disruptions like a recent Fastly CDN (Content Delivery Network) incident bringing down several media websites(Bradshaw, 2021)

RESEARCH PROCEDURE

To find out, we began by interviewing five CX and technology leaders from a set of consumer retailers based in the UK, USA and Australia. We applied purposive sampling to select participants from a wide range of situations and settings. Table 1 illustrates participants from an array of sectors within consumer retail that witnessed varied impact. The participants included two chief technology officers (CTOs), a product manager, a general manager (GM) - omni channel and a conversion rate optimisation (CRO) lead to bring a diverse set of perspectives. The interviews were conducted as part of a study on customer experience management that included the specific topic of impact from digital acceleration triggered by the pandemic.

Table 1: Sample characteristics (in no order)

ID	Participant background	Type of consumer business	Sampling stage
1	Chief Technology Officer	Consumer health and wellness	1
2	Chief Technology Officer	Fast food	1
3	General Manager (Omni retail)	Auto and leisure	1
4	Conversion Rate Optimisation (CRO) lead	Auto and leisure	1
5	Product Manager	Social commerce	1

A grounded theory based procedure (Strauss and Corbin, 1998) was applied to explore the concepts behind improvised customer experience. Utilising grounded theory was consistent with such exploratory studies given the phenomenon is based on a recent event that is not well understood (Gioia, Corley and Hamilton, 2013; Makri and Neely, 2021). Studies in both marketing and service have utilised grounded theory to understand an organisation's perspective of customer experience, for example, (Homburg, Jozić and Kuehnl, 2017; Kumar *et al.*, 2019). Hence, managers who were dealing with the crisis were interviewed to gather insights and derive findings.

The preliminary findings discussed next are based on an iterative open, axial and selective coding applied to analyse the field data, industry reports and a comparison with relevant customer experience management literature. The results are yet to achieve theoretical saturation (Strauss and Corbin, 1998) as recommended by the grounded theory approach. However, the findings contribute to further exploration and validation of the concepts that emerge.

FINDINGS

Each finding derived from the procedure, so far, is exemplified with field data, secondary data sources and illustrative literature support. The quotes from participants in the findings are linked with their IDs in Table 1. Each finding is concluded by a proposition that is a learning or implication from the phenomenon under study. Lastly, a framework to study improvised customer experience for crisis planning that combines the insights is presented in Figure 1.

Improvised customer experience as a response by retailers to digital acceleration triggered by the crisis

We found that an improvised customer experience was an exacted response from the retailers due to the accelerated and sustained shifts in demand triggered by the pandemic. By improvised customer experience

we mean a spontaneously created customer experience that is adapted for a newly developing situation, based on opportunities or constraints. For example, Ocado, a leading UK online grocery retailer, dealt with unprecedented orders by prioritising booking slots for vulnerable customers as a response (Eley, 2020; Ocado blog, 2020). We identified a similar pattern of responses emerge from the field data. This is best summarised by a leader at a consumer health retailer:

Before January 2020, we were doing 'x' online orders per day, our digital platform was fully on legacy. And our warehouse can handle … pandemic happened. And overnight, we went to 'five x' orders per day, and it stayed at 'five x' orders per day right now … you've been there before … like imagine a clunky ecommerce system, where an inventory API is called two hundred percent more than what it is supposed to handle, that fell apart, basket fell apart, checkout fell apart, payment fell apart, warehouse fell apart in everything that could go wrong went wrong… But and that is when you see the best in people…I think that was the time and I heard the story across many of the retailers where it was sleepless nights. But the organisations had to work together because it was do or die for all of us. So, we built the aeroplane while we were flying it. So, we built some of our new stack services, we pulled things out of legacy, we kind of … figured out…ways around our existing legacy (ID01)

An instance of an improvisation was a contact free click and collect service orchestrated at an auto and leisure retailer in Australia to deal with the local lockdown rules. A reconfiguration of usual touchpoint and fulfilment operations was also driven by an intentional business priority given to the health and safety of both customers and employees. A leader from the retailer explains the new service:

The one that jumps to mind contact free click and collect. And that is not only had a big impact for our customers, it's had a very big impact for us as a business. So, within Australia, well, let me start with what the clues in the title in terms of what contact free clicking collect is, but essentially, you can order … drive to your chosen store, you find the store when you're outside, team member comes out with a product checks ID puts the product in your boot and you can drive off your car. So, you know the customers can still get a product selection, they can browse and shop safely … and no human interaction (ID03)

Additionally, we discovered from the retailers that while responding to the shift in demands for products, they consciously improvised on promotions and social media engagement too. These are exemplified by the wellness retailer's note on social engagement "it goes back to what we saw in the pandemic like the breadth of false information. So, I think we are trying to play it a bit conscious in terms of how we approach our customers" (ID01) and the CRO lead of an auto and leisure retailer's note on sales:

We go on sale and we sell we sell a lot of product when it moves … when the price is reduced. But we didn't want to be seen to be taking advantage of the situation. So, we started …less …constant shouting of marketing messages buy this buy this, there was there was a consideration for that (ID04).

However, such a reconfiguration of products and promotions did not always mean suppression of customer engagement. The CRO lead emphasised on devising ways to continue engagement with their customers:

How can we optimise … email marketing lists… they're even more ... valuable? …, we're not sending stuff out, people aren't going to stores, how do we keep that constant communication with the customer in the community…we weren't focusing on the club experience up until COVID came …we made a change in response to that … to bolster our club and loyalties experiences, so that we can keep engaging with the customer if our stores keep closing (ID04)

Evidently, from the various situations and responses, we can derive that consumer retail firms were forced to apply bricolage capabilities (Witell *et al.*, 2017; Mele, Russo-Spena and Kaartemo, 2020) in managing service by improvising customer experience during the crisis. Bricolage capability is a term given to the ability to bring together whatever resources are available to address new situations (Witell *et al.*, 2017). In consumer retail, this meant firms applied a service reconfiguration of touchpoints, fulfilment operations, products and promotions. These are the same factors that affect a retail organisation's customer experience management (Grewal, Levy and Kumar, 2009). Furthermore, such a service reconfiguration implies the need for a greater understanding of the digital, physical and social domains (Bolton *et al.*, 2018) within which a firm and its customers operate to better respond to crisis. Hence, we propose:

P1: *Improvising customer experience should be a deliberate response to crisis by taking stock of the resource constraints and depth of digital, social and physical presence*

Technology adoption as a differentiator

Technology adoption seemed decisive in distinguishing between winners and losers in the consumer retail sector during the successive lockdowns. The introductory examples of Primark and Asos illustrate that the basic capability to trade online became a differentiator in ensuring business and service continuity. Furthermore, technology led retailers like Amazon managed to both operate their service and adapt customer experience to changing customer needs (Lee, 2021). Whereas, retailers like Inditex had challenges in adapting and serving the altered demand from customers (Dombey, 2021)

We derived a similar pattern from the field data that illustrates the impact of technology adoption in both dealing with the crisis at hand as well as in planning and preparation. For example, plagued by legacy and underinvestment in technology, the CTO at a consumer health retailer commented:

I think it's all to be brutally honest. The organisation should have invested more in technology. That's a full stop, right? Not having conscious technology discussions…not talking to the people who have done this before, and dumb things which would have made a massive, massive difference (ID01)

The CRO lead from an Australian retailer also exemplifies how technology was an afterthought in some instances "our customer care centre… getting influxes of calls, they're putting in automated systems … with web chat was something that we spun up during the pandemic" (ID04)

In sharp contrast, the CTO of a fast-food retailer suggested that they could be bold because they had the technology and data available to respond to crisis and improvise their customer's experience. For example, the fast-food retailer was able to reconfigure fulfilment operations from in-store to direct delivery for nearly none to forty percent of the orders.

I think … was bold and kept a close eye on what was happening to data because what also happens in quick service restaurants, you've got to maintain your supply chain very well. You can't carry a stock of three weeks in a restaurant… So, the data plays a critical role…how little wastage you have in the restaurant, and in the warehouse … because before the pandemic we were not using delivery as much… so, it all happened during COVID… it hit about 40 percent and then it normalised at around 33 to 36. (ID02)

Clearly, firms with data and technology at their disposal were able to respond to the crisis with greater confidence compared to firms with lower adoption of technology. Service science and S-D logic affirms the notion of technology being a key actor in the service ecosystem alongside humans to generate value (Maglio and Spohrer, 2008; Vargo and Lusch, 2008). Hence, enhanced understanding of the role of technology in the service ecosystem is needed from a service encounter perspective (Lariviere *et al.*, 2017), a service operations perspective (Breidbach et al., 2018) as well as a service technology perspective (De Keyser *et al.*, 2019) to respond to the distinct situations during a crisis. Therefore, we propose:

P2: *Improvised customer experience as a response to crisis is enhanced by the level of technology adoption in a firm*

Re-examining crisis planning in service

Crisis planning lessons need to be learnt from the mitigating responses by the consumer retail firms. It may not be sufficient to rely solely on technology adoption to deal with crisis in service. Because technology itself could be fallible. Mass outages at exemplar technology firms like Facebook and Google (Bradshaw, 2020; Waters, Wells and Stacey, 2021) illustrate that cloud computing technology that can provide scale and redundancy are themselves susceptible to disruptions. Hence, lessons for crisis planning from a broader perspective can be learned from the COVID-19 pandemic that could be applicable to sectors beyond consumer retail.

Open data and decisions culture

An open data and decisions culture emerged as a consistent learning from all the participants. We found that a culture of transparency in sharing data and communicating decisions based on the data was extremely crucial and more so in times of crisis. The benefits of such an open data culture are exemplified by the CTO of a fast-food retailer:

And another thing that happens here is every Tuesday morning, whoever wants … can join a commercial update, which is all about how do we do in sales? …operations? …audits?... complaints? …feedback? … and that kind of culture helps when you're in a pandemic because then you're on it, you're on, you're using the data daily and weekly to make decisions and drive everyone towards a particular direction (ID02)

Similarly, a GM at an auto and leisure retailer highlighted:

From a leadership perspective, being very open and transparent has never been so important. Never been so important to your team members because then they can you just build that trust more you build that authenticity, they get what you're trying to do and therefore you know, they say they support you as opposed … you're too divorced from reality in your in your ivory tower … we've never communicated so much to our team members. You know, we've spun up all sorts of things to drive that collaboration and conversation and be very open about what we're doing. Really important. (ID03)

To complement open data with a culture of transparency, a product manager of a social commerce business brought up the use of blockchain in the future:

I think the emergence of blockchain and distributed peer to peer networks that are not centrally managed ... it's not just a concept of currency, right? This, the thing is that, like, essentially, today, all of these big platforms, these are all big, centralized platforms, where the control is within these companies … something like a blockchain and things that are more and more moving towards peer to peer, where everybody has equal participation. And there isn't like a central thing that allows you to make decisions and say it shifts directions (ID05)

However, consumer retailers face a 'data deficit' (Evan and Rivera, 2020) from the crisis. Data deficit is the lack of meaningful historical data that make it difficult to forecast. We found forecast challenges raised by all the participants including the CTO of a fast-food retailer who noted, "How are we going to measure our ourselves? I mean, in three months, time, or one or week on week, I mean, it's difficult right? To compare yourself with the previous week when you're in pandemic, and how, what would be the impact in 2021, we want you to compare ourselves with 2020?". Yet, this data deficit also presents an opportunity for firms who lack data, as past data may have become meaningless in the aftermath of the crisis as proposed by (Evan and Rivera, 2020).

Further research is needed in open data culture by integrating data-based insights, decision transparency and blockchain based decentralised decision making. Such research needs to build upon an understanding of data driven insights (McColl-Kennedy *et al.*, 2019; Holmlund *et al.*, 2020) to enable teams towards insight led actions (Kiron, Prentice and Ferguson, 2012) during a crisis. Additionally, a culture of transparency can be ascertained from open innovation demonstrated by examples from the public and healthcare sector during the pandemic (Chesbrough, 2020). Decision transparency can be explored by beginning with transparency in governance (Larcker and Tayan, 2018) and continuing with an exploration of decentralised decision making with blockchain like technologies (Savelyev, 2018).

Seemingly, an open data and decisions culture can be beneficial not just during a crisis, but also prior to unforseen events and post such events. In other words, we propose:

P3a*: An open data and decisions culture is ideally needed in anticipation of a crisis, during a crisis and in the aftermath of a crisis*

Agility in business prioritisation

We found that clear and rapid prioritisation by business is paramount to dealing with a crisis. Incidentally, firms that prioritised quickly and decisively were able to respond to the crisis better. Describing focussed prioritisation using the example of contact free click and collect, the GM of Omni retail at an auto and leisure retailer noted:

Business agility has never been so important … you look at retail as a whole, most mature retailers, you can predict what their sales growth will be, you can predict how many new stores they'll open … because actually, it's you know, it historically has been a fairly predictable sector. That's all changed now … it's all been accelerated. So actual responding to changes in the environment … business, macro environment has never been so important. But the fact it was, you know, clearly our number one priority, helped without question, because, you know, as most organisations, you've got a big backlog or a big roadmap, some different teams have their own priorities. So getting that single focus can be hard, whereas this was, no, this is the single focus (ID03)

Similarly, a mindset of a prioritising the most valuable product (MVP) was noted by the CTO of a consumer health retailer, "We opened home fulfilment from stores because the warehouse was overloaded … normally would take a year, we challenged ourselves and did it within weeks ... And that's where MVP kind of hit to the business in a way they understood" (ID01).

Agility is in the top thirty-one stakeholder wants in the study that identified future service research priorities (Ostrom *et al.*, 2021) based on the changing context in the backdrop of the pandemic. An understanding of an incremental approach to service (Kowalkowski *et al.*, 2012) complemented with information systems based agile practices (Lee and Xia, 2010) need to be understood by businesses to inculcate agility in business prioritisation. Hence, we propose:

P3b: *Agility in business prioritisation is needed more so, during a crisis*

Future scenario planning

It may be improbable to predict and plan for every eventuality, but scenario planning needs to become a more mainstream business activity based on our findings. To illustrate, a leader at an Australian retailer specified some scenarios that were becoming probable in the context of the pandemic and wider geo-political challenges:

You've got to use data … to do modelling as well so scenario planning really important you know we've got it at the moment like what happens if this lockdown continues for six months? What happens if we go from not being able to do contact free clicking collect and we shut out of stores … what happens if we can't get our product from China you know, and actually Auspost which is the equivalent of Royal Mail here this weekend who said sorry, we're full Yeah, and they're not picking online orders because they're … full so you are like, who had that on their risk register? (ID03)

Another example of scenario planning that is not necessarily related to crisis but more related to anticipating consumer behaviour changes was discussed by the CTO of a fast-food retailer:

So how customers are going to behave in in different locations, whether it's a retail park or shopping centre or an office complex. So, we are looking at strategic impact of customer changes, customer behaviour, and therefore, our value proposition will have to change. veganism is another big behaviour change that's happening in the world. So, they will focus on menu innovation, to be able to cater to the people who are becoming vegan.

Consequently, scenario planning is a key lesson to be learned from the pandemic and from the responses to the uncertainties that followed. Scenario planning is also among the research priorities that call for studies on capabilities to anticipate and formulate scenario plans (Ostrom *et al.*, 2021). For example, Netflix championed the capability of chaos testing to deliberately introduce failure scenarios to test for resilience in service (Blog, 2017). Furthermore, studies on scenario planning can draw on envisioning scenarios in a continual journey pattern like a service recovery journey as conceptualised by (Van Vaerenbergh *et al.*, 2019). Hence, we propose:

P3c: *Future scenario planning is needed continually to anticipate and be prepared by firms both for crisis and opportunities*

Figure 1: A framework to study improvised customer experience for crisis planning in service
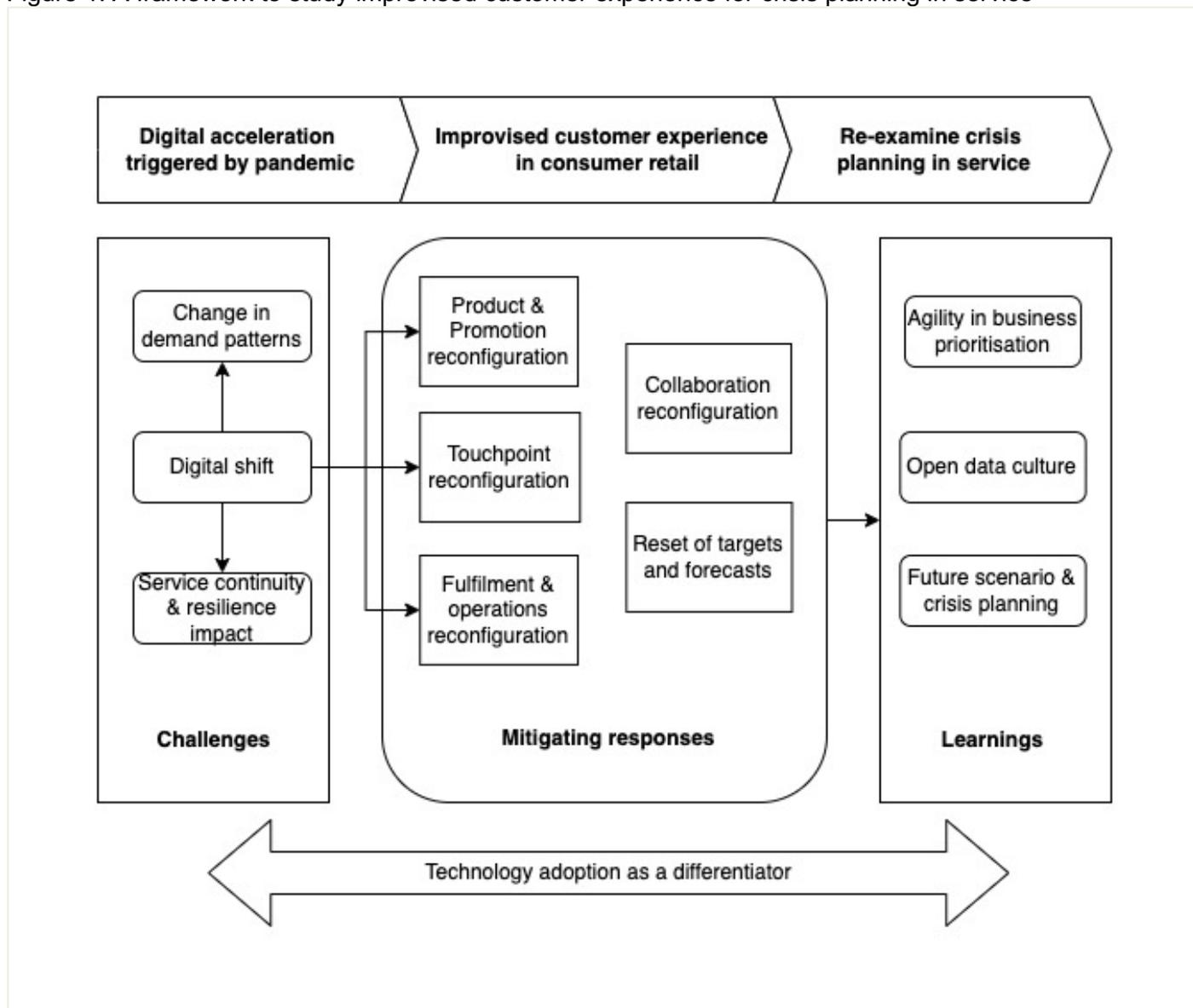
CONCLUSION

The consumer retail sector provided us with an opportunity to study the varied impact and its implications triggered by the COVID-19 pandemic. We introduced the notion of improvised customer experience as a mitigating response by the consumer retail sector to the crisis, drawing upon theory on bricolage innovation in service. We found that the level of technology adoption enhanced the ability of retailers to improvise customer experience in a crisis. Furthermore, we explored learnings for crisis planning that could be applicable to sectors beyond retail. We found that the learnings of an open data culture, agility in business prioritisation as well as scenario planning create further research opportunities that are well aligned with the future service research priorities derived for uncertain times(Mele, Russo-Spena and Kaartemo, 2020; Ostrom *et al.*, 2021). The pandemic came as a shock event but there are more gradual changes like climate change or geo-political changes or even lorry driver shortages as well as one-off events like natural disasters, security breaches or network collapses that can have impact to businesses. These lessons will be helpful for researchers and practitioners alike to prepare and be flexible for future challenges.

Further research is needed to improve on the findings from this study so far. First, further sampling stages, data collection and analysis will enrich the findings as well as the framework. For example, open data culture

may also be applicable for businesses to communicate with customers transparently. Such an insight was not yet found in the field data but does have significant literature support (Prahalad and Ramaswamy, 2004; Nambisan and Nambisan, 2008; Puntoni *et al.*, 2021). Second, while the digital shift factor led to improvised customer experience, it is yet unknown how much of the improvisation was permanent and how much of it was stop gap. For example, are customers and firms going to continue to adopt contact free click and collect. Such factors can be studied quantitatively to identify constructs that can enrich improvised customer experience as a concept. Finally, although the learnings could be applicable to other sectors, similar empirical studies are needed to investigate improvisations and learnings in sectors outside consumer retail.

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FRIEND VS. INFLUENCER – THE INFLUENCE OF INFORMATION SOURCE ON THE EVALUATION AND ACCEPTANCE OF INFORMATION

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ABSTRACT

The orientation towards peers should reduce uncertainties regarding consumption decisions especially during adolescence. With the rise of social media, so-called influencers are taking on an advisory role once reserved for friends. The central question of the study is, whether there is a difference in the perceptions of virtual and analog peers and if so, how this affects the adaptation of information. An online study with adolescents indicates that information from friends is more likely to be accepted than information from virtual peers mediated by credibility, information quality and ulterior skepticism.

INTRODUCTION AND RESEARCH AIM

It is well known that one of the central characteristics of youth shopping behavior is that teenagers mainly shop in the company of peers and that they do so mostly in small groups of friends (Tootelian and Gaedeke 1992). Adolescents interact extremely intensively in their reference groups. Shopping together with friends is certainly based on teenagers' social habitus, because social orientation reaches its peak during adolescence (Erikson, 1968). It is a time of change and reorientation. This process of change from childhood to adult life leads to many uncertainties. Of course, this also concerns consumer choices. Adolescents are looking for orientation and support. They are still inexperienced in many areas of life and are therefore uncertain about how to behave. Peers provide orientation and play a major role in reducing these behavioral uncertainties (Steinberg and Monahan 2007).

With advancing digitalization, teenagers' everyday lives have changed more and more. With the help of social media (e.g. Instagram, Facebook, etc.), they can connect in the virtual world, which opens up new ways of communicating with their peers, even across geographical distances (Ahuja and Galvin, 2003). Furthermore, social media create a space in which consumers can inform, express and exchange their consumption experiences (Kozinets *et al.*, 2010). In the course of the unstoppable success of social media, a new form of opinion leader has developed. So-called influencers act as role models and virtual peers. They produce user-generated content and distribute it to a wide audience via the world wide web (Uzunoglu and Kip, 2014). Adolescents in particular consume the content of influencers and are heavily influenced in their consumer behavior by them (MFS, 2017). Although users do not know the influencer personally, they can build a relationship with him or her within the framework of the para-social interaction (Sokolova and Kefi, 2020). With the help of videos, photos and livestreams, influencers let outsiders share their lives. Product recommendations and tests are embedded in normal everyday situations. Their followers can build a personal connection and identify with them. The change to a communication society has correspondingly also changed the way the interpersonal search for information is conducted. Adolescents in particular no longer seek consumer information only within their friends, but increasingly use the Internet and social media to inform themselves about products and services (). However, previous studies in this field of research have focused on the contributing factors to the effectiveness of influencer marketing (De Veirman *et al.*, 2017) or the comparison between influencers and regular advertising or comparing celebrity testimonials with influencers (Djafarova and Rushworth, 2017). What has been completely ignored so far, however, is the comparison between analog peers and virtual peers (influencers).

The aim of the study is:

To compare the two types of peers in terms of key determinants of information acceptance.

Three research questions are addressed in line with this aim:

RQ1: Is there a difference in the perceptions of these two types of peers?
RQ2: In which characteristics do analog and virtual peers differ?
RQ3: Which type of peers is more decisive for influencing consumer decisions?

THEORETICAL BACKGROUND

Since it is hardly possible for consumers to influence the possible negative consequences of a purchase, strategies that minimize pre-purchase uncertainties dominate (Boze,1987). These include, for example, brand loyalty or buying well-known brands. However, extending the search for information, especially advice from friends and peers, also plays a central role in the attempt to minimize the purchase risk. Recommendations from others can help to obtain useful information (Kumar and Benbasat, 2006). When perceived purchase risk is shaped by social acceptance of a product or service, peers are preferred as a trusted source of information over other informal groups. Often the choice of an information source is not random. Especially when there is a specific purchase goal and consumers perceive a high risk. Then consumers look for specific trustworthy interpersonal sources that can provide them with information, especially about product features and prices (Wangenheim and Bayon, 2004).

To answer the research questions, we adapted the information acceptance model (IAM) from Sussman and Siegal (2003). They applied the elaboration likelihood model (ELM) to explain how individuals are affected by information that they obtain. According to the ELM, people can process information in two ways: central and peripheral. In the central route, people consider issue-relevant information and arguments while in the peripheral route people are affected by other factors such as attractiveness or expertise of the communicators. Both routes to process information were reflected as two components in IAM: information quality (central route) and source credibility (peripheral route). Most of the literature on the credibility of influencers uses Ohanian's (1990) definition. According to this definition, credibility consists of the dimensions of trustworthiness and expertise. Due to the fact that influencers only rarely provide information without an ulterior motive and are often paid for it, the variable ulterior motivation skepticism was added to the model.

RESEARCH DESIGN AND SAMPLE

To test the research hypotheses, a quantitative method including an online survey was used. The study was conducted in Germany. The link to the survey was widely distributed among adolescents (including in two schools). To test the differences between analog and virtual Peers, participants were randomly assigned to one of two treatments. 213 adolescents answered questions about influencers and 221 about friends. The adolescents who received the questionnaire about influencers were asked to think of their favorite influencer. Participation in the study was voluntary. Teenagers with an age range of 13 - 19 years were interviewed. Participants average age was 16.9 (SD 1.79) and 68 per cent of the participants were female.

PROCEDURE AND MEASURES

The independent variable information source is a dummy variable. Either participants have been asked about the influence of the influencer they follow and consume most frequently or their friends as shopping companions. For the other constructs, scales that were established in the literature were used. Items from Ohanian (1990) were adapted to measure perceived trustworthiness ($\alpha = .927$) and perceived expertise ($\alpha = .944$) with the help of a seven point semantic differential scale. The other mediators information quality (Teo et al., 2009; $\alpha = .903$) and ulterior motivation skepticism (Skarmeas and Leonidou, 2013; $\alpha = .899$) were measured on seven-point rating scales (anchored at 1 = totally disagree and 7 = totally agree). Following Walthen and Burkell (2002) respondents were asked about the probability of acceptance of the referral ($r=.897$). The questionnaire closed with questions concerning participants' socio-demographic information.

RESULTS

We estimated the conceptual model using PROCESS (mediation model 4 with 95 per cent bias-corrected confidence intervals [two-tailed test]; bootstrap sample of n=5000), an SPSS macro provided by Hayes (2013). This type of analysis is a regression-based approach, which is particularly appropriate for testing mediation or moderated mediation models when using small sample sizes (Hayes, 2013). The size of the

inddirect effect is calculated with a bias-corrected bootstrapped confidence interval. Path coefficients are provided in Figure 1.

Figure 1: The effect of information source on referral acceptance
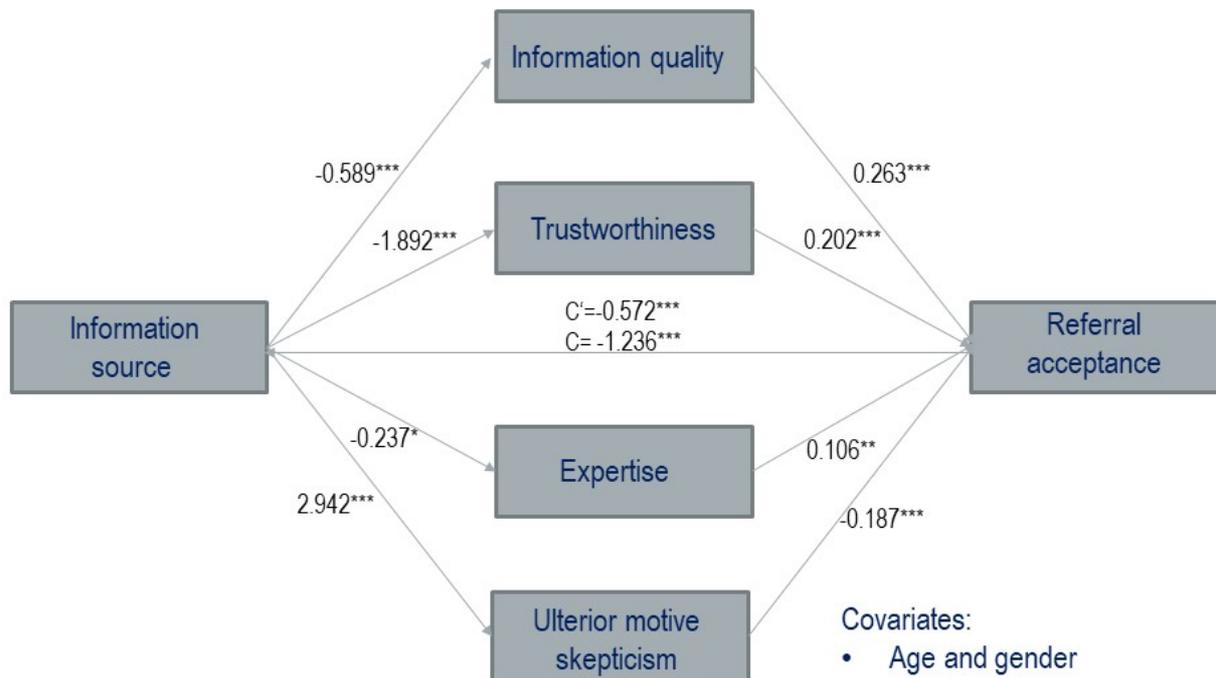
In order to investigate the direct path between the information source and the acceptance of the information, a simple regression has been calculated. It was found that information is more likely to be accepted by real peers than by virtual peers (B=1.236, p < .001). Results are shown in Figure 1 using the B coefficients. However, it was found that the perceived expertise and trustworthiness is greater among friends than among influencers (B=-.237, p < .05). The same result was found for the quality of information (B=-.589, p < .001). Similarly, there is greater skepticism about influencers making recommendations for purely altruistic reasons. The confidence intervals of the indirect effects did not include 0. Furthermore, the relationship between the source of information and the acceptance of the referral was partially mediated.

DISCUSSION AND CONTRIBUTIONS

The literature shows the immense influence of peers on the consumer behavior of adolescents (Mangleburg *et al.*, 2004). Thus, this research responds to the call to expand the knowledge about consumer behaviour of adolescents, especially the influence of interpersonal information sources (Gentina and Bonsu, 2013). To improve the understanding of the teenage segment, we investigated the impact of two of the probably most influential sources of information for adolescents. Until now, influencers have been compared with conventional advertising media or celebrity testimonials. Yet the truly important question of the extent to which virtual peers serve as influencers for teenagers has been underdeveloped. It turned out that the two peer groups differ considerably in perception, which leads to referrals being more readily accepted by friends than by influencers. Influencer recommendations trigger a strong sense of persuasion, which is reflected in consumers' greater skepticism. The recommendation of influencers often creates the impression of selfish intentions rather than mere information.

The results are in line with previous research that showed that similarity and relationship strength determine the acceptance of recommendations from others (Burnkrant and Cousineau, 1975). People trust others with whom they feel closely connected. Valkenburg and Peter (2007) have also shown that the quality of friendship is rated higher among real peers and the relationship with virtual peers is less intense. These results could be due to the higher bonding strength between analog friends. Such a strong bond is mainly achieved through shared experiences (Brown and Reingen, 1987). These in turn lead to more common ground. In the relationship with the influencer, such shared experiences are missing as a basis. Likewise, communication

between influencer and follower can usually only take place through an intermediary medium. Direct face-to-face contact is virtually impossible. In addition, consumers identify more strongly with non-commercial sources (Dhar and Chang, 2009). This identification process drives behavioral consequences in response to a message. According to the social influence literature, individuals are more likely to behave according to messages that come from someone similar to them (e.g. Moschis, 1976).

IMPLICATIONS FOR THEORY AND PRACTICE

This research makes contributions to theory by (1) increasing knowledge about the consumer behavior of adolescents; (2) the application of the IAM to explain a highly current development with regard to consumer behavior information acquisition. The present findings illustrate the immense importance of interpersonal influence in consumer decisions. Even though adolescents in particular use social media and follow influencers, it is the real friends who are trusted more and whose recommendations are more likely to be followed. In conclusion, the influence of real peers should not be underestimated and the influence of virtual peers should not be overestimated.

There are two areas of managerial implications that contribute to practice: (1) the impact of friends influence should be considered in marketing for this target group. Especially the influence of shopping companions should be given more consideration. Therefore, retailers could promote joint shopping. (2) Careful selection of influencers with high authenticity and few brand cooperations to dispel the suspicion of advantageous product recommendation.

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RECONFIGURING ASSETS FOR DIGITAL SERVITIZATION: INTERPLAY AND CAPABILITY ENHANCING PRACTICES

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ABSTRACT

This paper investigates how manufacturing companies reconfigure their assets in their digital servitization journey (transition from selling products to selling product-service-software offerings). By studying five leading manufacturers for a longer time-period (2010-2018), we found that depending on their previous role of being whether system sellers or system integrators, their capability development practices differed: system sellers used practices emphasizing control (e.g., insourcing, acquisitions) whereas system integrators stressed practices that enabled flexibility (e.g., outsourcing, alliances). Based on these findings, manufacturers should establish their vision as provider of smart, connected solutions, and develop associated capabilities and practices that support this vision achievement.

INTRODUCTION

Manufacturing companies have started to develop and sell product-service-software offerings to their industrial clients in order to strategically differentiate from their competitors by locking them out and gain financial benefits by locking-in their customers (Luoto *et al.*, 2017). This transition requires new capabilities (Ulaga and Reinartz, 2011), practices (Kohtamäki *et al.*, 2021) and routines (Huikkola *et al.*, 2021) from manufacturers because digitalization megatrend shapes their competitive landscape (Porter & Heppelmann, 2014), business models (Sjödin *et al.*, 2020), and clock speeds (Immelt, 2017). Traditional manufacturers such as GE, Caterpillar, and KONE have made their solutions connected to other systems through contemporary technologies such as Internet of Things (IoT) and Artificial Intelligence (AI). This connectivity has fundamentally changed their internal capabilities as solutions do not operate in a vacuum anymore (Hasselblatt *et al.*, 2018). Manufacturers thus need to understand better not only how hardware, services and software converge but how to make more out of their clients' businesses (Keränen *et al.*, 2021). Internally, manufacturers need to develop capabilities and routines that enable their synergetic development in a faster manner (Huikkola *et al.*, 2021) and externally, manufacturers need to become their clients' strategic partners (Korkeamäki *et al.*, 2020) and develop new alliances (Bustinza *et al.*, 2021; Immelt, 2017) when providing them. However, little is known how manufacturers exercise their dynamic capabilities and what types of practices they employ when becoming "smart" manufacturers providing highly connected solution offerings.

This study aims to fulfil this gap by addressing to the following research question: "How different types of manufacturers shape and renew their organizational capabilities and practices when starting to provide product-service-software offerings?" By investigating altogether five manufacturers over a longer time-period (2010-2018) and interviewing 67 senior managers, this study contributes to the digital servitization literature by shedding light on how different types of manufacturers (system sellers/system integrators) reconfigure their capabilities when starting to provide new, smart connected offerings to their clients. The contributions of this study are two-fold: depending on their solution provider type (system seller vs. system integrator), our study sheds light on that 1) manufacturers emphasize different reconfiguring modes non-sequentially and 2) they employ different capability enhancing practices stemming from their path-dependency.

THEORETICAL BACKGROUND

Digital servitization through smart connected offerings

Digital servitization is part of servitization research stream, which studies firm's strategic transition from selling pure products to selling services (Vandermerwe and Rada 1988). Digital servitization emphasizes the role of digital tools and technologies such as IoT and AI (Langley *et al.*, 2021) in this shift from product-focused mindset towards service-based mindset (Töytäri *et al.*, 2018). In practice, this strategic transition means that firms start to develop, sell, and deliver new types of smart solutions that enable connectivity to other systems (Porter and Heppelmann, 2014). For suppliers, these new connected solution offerings provide opportunities for strategic differentiation and enable them to gain financial benefits through increased customer lock-in (Korkeamäki *et al.*, 2021). For customers, these new types of smart solution offerings help to decrease their transaction and total costs (Huikkola *et al.*, 2020; Reinartz and Ulaga 2008). Provision of these smart, connected solutions requires development of different capabilities across the boundaries (Bigdeli *et al.*, 2021; Huikkola *et al.*, 2021; Salonen and Jaakkola, 2015).

(Dynamic) capabilities in digital servitization

Capability theory is a dominant lens among servitization scholars to study how firms servitize (Raddats *et al.*, 2019). The extant servitization studies have found that different capabilities are required not only among focal companies (Ulaga and Reinartz, 2011) but also across the boundaries (Coreynen *et al.*, 2017) and dyadic relationships (Töytäri *et al.*, 2018). Among focal companies, studies have identified the need to develop capabilities and routines to sell value (Schaarschmidt *et al.*, 2021; Keränen *et al.*, 2021; Töytäri *et al.*, 2018), engage in collaborations with other knowledge-intensive business service (KIBS) firms (Bustinza *et al.*, 2021; Huikkola and Kohtamäki 2017) and develop solution development processes that synchronize products, services and software parallel development (Hsuan *et al.*, 2021; Huikkola *et al.*, 2021). Previous servitization studies (e.g., Coreynen *et al.*, 2021; Huikkola *et al.*, 2016; Kindström *et al.*, 2013) have utilized dynamic capability approach to understand how manufacturers recreate and renew their capabilities when they servitize.

METHODOLOGY AND DATA

Comparative case study method of five manufacturers was employed (Eisenhardt 2021) to study how manufacturers reconfigured their assets to become smart system providers. Comparative case study is a suitable method when studying different patterns across different types of firms (Brax and Jonsson 2009; Salonen and Jaakkola 2015). The selected manufacturers operated in different industrial sectors and they manufactured and serviced different types of industrial equipment mainly in B2B markets. Three of the selected manufacturers were vertically integrated system sellers and two of the chosen manufacturers were vertically disintegrated system integrators (Davies *et al.*, 2007). Service sales ranged from 37 per cent to 50 per cent of their total revenues, which is in line with existing quantitative servitization studies matching to a threshold value (20-30 per cent of the revenues) identified to create shareholder value (Fang *et al.*, 2008). The studied manufacturers were purposefully selected (Eisenhardt 2021) because all of them are a) technological forerunners in their industries, b) they have invested heavily in smart solution development for a longer time-period and c) we had good access to these companies because of our geographic location and research collaboration initiatives. All of the selected companies were public listed, thus allowing researchers to obtain extensive secondary data in addition to primary interview data of 67 senior managers. The study is longitudinal as we were able to study manufacturers in-depth over a longer time-period, from 2010 to 2018. This time period is interesting as the digitalization started to affect manufacturers competitive landscape and business strategies remarkably. Longitudinal studies are encouraged in studies focusing on dynamic capabilities (Danneels 2011) as they enable researchers to go beyond the current situation and avoid typical problems related to use of cross-sectional data. Table 1 shows the sample used for the research purposes.

Table 1: Sample description

	Case A	Case B	Case C	Case D	Case E
Revenue (€)	3000M€	5000M€	3300M€	9000M€	1300M€
Service share of revenues (%)	38%	50%	37%	47%	39%
Industry	Heavy industry	Energy	Paper & Pulp	Construction and real-estate	Mining
Firm type	System seller	System seller	System seller	System integrator	System integrator

| Interview data (number of interviewees) | 13 | 16 | 15 | 7 | 16 |

We followed an abductive reasoning process in our analyses (Dubois and Gadde 2002). We first analyzed cases separately and followed a within-case analysis (Huberman and Miles 1994) by constructing the data into five individual case stories to understand which resource reconfiguring modes and practices manufacturers employed in order to become providers of smart, connected solutions. After obtaining an in-depth understanding of each case, we undertook a cross-case analysis to identify differences and patterns across the cases (Eisenhardt 2021) and utilized tables and charts to code and structure emerging themes found in the data.

FINDINGS

Creation of new assets

Mode of creating new capabilities refers to a process how established firms acquire or train new capabilities and competencies in-house (Danneels 2011). In practice, this mode accords with manufacturer's capability to hire new employees and managers (e.g., those with software competencies such as data analytics or coders) or train their existing employees and managers to cope with digitalization initiatives. Both system sellers and system integrators followed similar logic here as both types of solution providers highlighted the need to recruit competent managers to effectively manage and coordinate digitalization initiatives. However, vertically integrated system sellers insourced much of this software work whereas system integrators outsourced majority of this "hands-on" coding and digital development.

In executive board level issues, both types of companies established whether Chief Digital Officer (CDO) or Chief Information Officer (CIO) positions to legitimize the role of software within the company. To illustrate how the strategic importance of digitalization has affected studied companies, in 2010, only one firm (Case A) of the sample had executive in their executive board responsible for IT development. By 2018, all but one (Case E) had a CIO/CDO as part of their executive boards. In a similar vein, in 2010, none of the studied firms had digitalization-related must-win-battles (MWB) to prioritize their digitalization initiatives whereas in 2018, all of the studied firms had IoT or digitalization as their core MWB. Structurally, Case B even established a separate digital development unit to facilitate software development and show the strategic urgency to both internal and external stakeholders.

Leveraging existing assets

Leveraging existing capabilities accords with firm's ability to make use of their assets to several purposes (Prahalad and Hamel 1990). For instance, manufacturers can leverage their intellectual assets (e.g., brand, databases of clients), human assets (e.g., technicians competencies) and external assets (e.g., supplier network, distribution channels) to several solution offerings. Major reasons for leveraging manufacturers existing capabilities were related to an increased share of customer wallets, customer profitability and increased clock speed. Key barriers to leveraging their extant capabilities were related to the balancing between "strategic fit" and "strategic stretch." Hence, firms face a dilemma how much to invest in explorative and exploitative activities as falling into "exploration trap" means that firm is spending too much on activities outside their core business. "Exploitation trap", however, refers to a situation where firm is overinvesting in its current business development, forgetting the need to change (Sirén *et al.*, 2012). Typically, firms find themselves in balancing between exploitative and explorative activities.

In our sample, studied manufacturers were able to leverage their installed base of equipment by starting to sell retrofitting and modernization services to them. Moreover, the studied case firms were able to increase their customer's share of wallet by starting to provide more comprehensive solutions such as operations & maintenance (O&M) solutions to them. One driver behind this initiative was that they saw that spare part business service will face more severe competition in the future (e.g., through pirate spare parts and new technologies such as 3D printing). However, based on the findings, it seems that vertically integrated system sellers were the ones expanding to total services such as O&M solutions whereas vertically disintegrated system integrators focused on narrower product-service-software offerings. Hence, system sellers were

emphasizing client's decreased transaction costs by serving them under one roof and system integrators emphasized that client purchases dedicated solutions from the "best" provider.

Accessing external assets

This mode accords with firm's ability to "morphing" through external assets. There are basically two distinct approaches to access external resources, whether through 1) acquisitions (control benefits) or 2) alliances (flexibility benefits; see Danneels 2011). Sometimes there is a thin line between acquisitions and alliances (Dyer *et al.*, 2004). In our data, manufacturers employed both mergers and acquisitions (M&As) and strategic alliances. Especially vertically integrated system sellers employed M&As when getting access to core technologies such as IoT. On the other hand, vertically disintegrated system sellers, non-surprisingly, formulated strategic alliances for instance with global ICT-companies to complement their both assets in an optimal way.

Both archetypes of system providers started to collaborate with start-ups and research institutes such as universities in order to gain new ideas and facilitate ecosystem-level renewal. Those system sellers who started to provide total solutions to their clients also started to collaborate with peripheral companies such as banks, (pension) insurance companies, and other financial institutions/investors to provide these comprehensive agreements that many times included performance- or outcome-based contracts.

Releasing existing assets

This mode involves shedding or dropping capabilities for instance through divestments, business closures, and lay-offs (Moliterno and Wiersema 2007). Also routine-based issues are covered in this mode such as organizational unlearning (Tsang and Zahra 2008). The key drivers behind this mode are related to resource trade-offs: firms need to release their existing assets to develop, acquire and build new capabilities and to reduce operational and transaction costs. The key rigitidies are related to fears of losing control, business cannibalization, identity change, and the difficulty of evaluating opportunity costs regarding the made trade-offs.

All of the studied firms released their assets along the way to develop new capabilities. Most typically, manufacturers dropped their manufacturing resources (e.g., production plants and personnel), streamlined their offerings (e.g., erased standard products), and compressed their supplier network in order to acquire digitalization-based assets (e.g., coders, data analytics, KIBS acquisitions). In our sample, system sellers released their existing assets to insource new capabilities and achieve better control. System integrators, on the other hand, released resources in order to manage better their external assets. Table 2 outlines the major differences on how resources are deployed between system sellers and integrators.

Table 2: Key reconfiguration modes and practices between different types of solution providers

	(Smart) system sellers	(Smart) system integrators
Creating new assets	Focus on hiring people to manage (internal) digital activities	Focus on hiring people to manage (external) digital activities
Leveraging existing assets	Leveraging assets to provide total solutions to their clients (focus on decreasing client's transaction costs)	Leveraging capabilities to provide "best" solutions to their clients (focus on being best choice for the client)
Accessing external assets	Emphasis on M&As	Emphasis on strategic alliances
Releasing existing assets	Releasing assets to get control to key future assets	Releasing assets to manage better and more effectively their external assets needed in new strategic domain

DISCUSSION AND CONCLUSIONS

Theoretical contributions

The contributions of this study are two-fold. Depending on their solution provider type (system seller vs. system integrator), our study sheds light on that 1) manufacturers emphasize different reconfiguring modes non-sequentially and 2) they employ different capability enhancing practices stemming from their path-dependency.

As a first contribution, our study contributes to the existing digital servitization literature (Gebauer *et al.*, 2020; Kohtamäki *et al.*, 2019; Paschou *et al.*, 2020; Sklyar *et al.*, 2019; Tronvoll *et al.*, 2020) by studying how manufacturers reconfigure their assets when moving from selling products to selling product-service-software systems. This study advances our understanding of how manufacturers exercise their dynamic capabilities by providing longitudinal data on reconfiguring modes and associated practices, thus extending the knowledge of dynamic capabilities in the context of servitization (Coreynen *et al.*, 2017; Huikkola *et al.*, 2016; Kindström *et al.*, 2013). Our data show that unlike firms in high-technology industries (e.g., Ott and Eisenhardt, 2020), manufacturers in more stable industries develop their assets non-sequentially. Thus, even though manufacturers are increasingly facing pressures that digitalization inevitably causes, they should not follow "stepping stone" approach of capability development but focus on developing assets in parallel. Even though analogical thinking may be beneficial when done carefully, our results suggest that manufacturers should not frame their resource development activities with firms operating in high-technology and consumer industries where development cycles are much faster. Instead, as the customer preferences and decision-making styles are different in manufacturing context, they should follow more conventional and slower approach to asset development.

As a second contribution, our study extends the discussion of different types of smart solution providers (Davies *et al.*, 2007) by identifying distinct practices that different types of manufacturers (smart system sellers / smart system integrators) employ when they start to provide smart, connected solutions to their industrial clients. Vertically integrated (smart) system sellers create new capabilities to manage their internal digital activities more effectively whereas (smart) system integrators create new capabilities to manage more effectively their digital development activities that take place outside the company. When leveraging their existing assets, (smart) system sellers start to provide total solutions to their clients, highlighting the benefits related to client's decreased transaction-costs. Respectively, (smart) system integrators focus on more narrowed scope of offerings, highlighting that clients buy from the "best" provider instead of buying from one provider. When accessing external resources, (smart) system sellers highlight M&As when gaining access to core technologies whereas (smart) system integrators highlight the establishment of strategic alliances. Lastly, when releasing existing (manufacturing) resources, (smart) system sellers highlighted the need to develop assets that enable proprietary solution development and (smart) system integrators stressed the benefits of flexibility through external asset development.

Managerial contributions

For practitioners, our study reveals that they need to establish their long-term smart solution visions and identify the new capability configurations to achieve that vision. Firstly, managers must ask themselves what resources they need to create internally and externally to achieve this vision. Secondly, manufacturers need to define the boundaries of resource leverage: what level of "strategic stretch" is purposeful and what is the "strategic fit" of the diversification initiatives. Thirdly, managers need to define partners for collaboration, why they choose these partners and what is the goal of this collaboration and why. Fourthly, managers need to consider resource trade-offs and which resources need to be released to pursue their strategic change towards smart, connected solutions. Lastly, managers should consider the interplay between reconfiguring modes and whether these modes should be managed simultaneously or sequentially. Based on our initial findings, we suggest that non-sequential capability development may be more useful in non-high-velocity business contexts and benchmarks from high-technology contexts may not be directly applied among manufacturers despite the fact that digitalization is shaping their external environment and internal activities remarkably.

Limitations and future research

This empirical study is not without its limitations. The results were derived from leading industrial companies in their sectors, and although far-reaching generalizations cannot be made given the qualitative nature of this study, the present work provides valuable insight into how firms reconfigure their capabilities and what practices they follow when trying to become different types of companies. The studied firms were relatively large companies, and they had prior competencies and experience with software and IT development. It would be beneficial to study SMEs and how they alter their assets when starting to provide smart solutions to their clients. We welcome researchers to study the microfoundations of dynamic capabilities in digital servitization context. In particular, it would be valuable to understand both (managerial) cognitions and practices related to digital development among different sizes of manufacturing companies when they pursue digital servitization strategies both successfully and non-successfully.

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HARNESSING CONTINUOUS DEVELOPMENT FOR VALUE CO-CREATION IN DIGITAL SERVICE ECOSYSTEMS

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ABSTRACT

While various benefits have been linked to the employment of continuous methods and practices in digital service development and innovation, little is still known on the mechanisms of how value emerges for the involved actors from the use of such methods. Such insights are integral for both research and practice for enhancing the value co-creation potential of continuous development for organizations. Our systematic literature review and in-depth interviews with six digital service developer organizations in Finland are set to uncover these explanatory mechanisms to propose a framework for harnessing continuous development for value co-creation in digital service ecosystems.

BACKGROUND AND MOTIVATION

In recent years, driven by the opportunities from digitalization and the demands of vastly dynamic and competitive markets, service organizations across various industries have shown increasing interest in utilizing lightweight and iterative development methods for systems and software (Agerfalk, Fitzgerald and Slaughter, 2009; Conboy, 2009; Humble and Molesky, 2011). This has led to the emergence of a broad spectrum of agile and lean methods and techniques, with recent advances in the field focusing on continuity in organizations' service development and innovation activities. As one of the most recent phenomena of digital service development, the DevOps (development and operations) approach (Debois, 2011) has attracted growing interest amongst practitioners and researchers alike as a means to achieve development continuity (Lwakatare, Kuvaja and Oivo, 2016; Stahl, Martensson and Bosch, 2017; Khan and Shameem, 2020). For example, leading digital service providers, such as Netflix, Google, and Amazon, have adopted DevOps and continuous practices to transform their service development and innovation processes into continuous ones and reduced their time to deliver service to their customers from days to minutes down to seconds (Lwakatare, Kuvaja and Oivo, 2016; Fitzgerald and Stol, 2017).

DevOps promotes actor collaboration and automation (Humble and Molesky, 2011; Wiedemann *et al.*, 2016) and relies on various continuous practices that shorten the time between committing a change and deploying it to production while ensuring high service quality (Erich, Amrit and Daneva, 2017). DevOps may be considered a general term that describes various continuous practices (see, e.g., Fitzgerald and Stol, 2017). The most common of these practices are continuous integration, delivery, and deployment (Stahl, Martensson and Bosch, 2017). As the practices are also discussed in the literature separate from DevOps, we employ the general term "continuous development" in our research as an umbrella for considering the application of divergent continuous development methods and practices in the context of digital service innovation.

The literature has reported various positive outcomes from implementing continuous development for organizations, such as increased performance and productivity (e.g., Itkonen *et al.*, 2016; Rodríguez *et al.*, 2017; Lwakatare *et al.*, 2019), shorter time to market (e.g., Roche, 2013; Leppänen *et al.*, 2015; Chen, 2017; Rodríguez *et al.*, 2017), cost savings (e.g., de França, Helvio, and Travassos, 2016; Leite *et al.*, 2019), improved service quality (e.g., Leppänen *et al.*, 2015; Itkonen *et al.*, 2016; Erich, Amrit and Daneva, 2017; Rodríguez *et al.*, 2017; Lwakatare *et al.*, 2019), enhanced customer and employee experience and satisfaction (e.g., (e.g., de França, Helvio, and Travassos, 2016; Senapathi, Buchan and Osman, 2018; Leite *et al.*, 2019), and improved employee well-being (e.g., Neely and Stolt, 2013; Itkonen *et al.*, 2016; Lwakatare

et al., 2019; Rowse and Cohen, 2021). Still, we find that the current literature lacks an adequate explanation of *how* these different outcomes emerge, i.e., *how* continuous development affects value co-creation by the involved actors (e.g., intra-organizational teams, customers, partners) in the digital service ecosystems. We argue such insights to be central for both research and practice for harnessing the value co-creation potential of continuous digital service innovation for individuals and organizations.

To this end, we employ the lens of service-dominant (S-D) logic (Vargo and Lusch, 2004, 2008, 2016) to scrutinize how focal actors apply continuous development methods and practices in complex service ecosystems for value co-creation. In S-D logic, value co-creation is thought to occur through *resource integration* and *service exchange* between the ecosystem actors. Furthermore, the role of *institutions and their arrangements* as the coordination mechanisms for value co-creation has been emphasized in the recent S-D logic literature (see, e.g., Vargo and Lusch, 2016; Vargo, Koskela-Huotari and Vink, 2020). Moreover, value in this co-creation process is considered an emergent, positively or negatively valenced outcome of an actor's well-being or viability (Vargo, Koskela-Huotari and Vink, 2020). Consequently, as we recognize that the effects of continuous development for value co-creation may be positive or negative, we consider both the enabling and hindering value co-creation mechanisms in our research and set the following research question (RQ): *How is value co-creation by the focal ecosystem actors enabled/hindered by continuous development?*

METHODOLOGY

We began our investigation with a systematic literature review (Okoli, 2015) assessing the extant literature on the effects of continuous development for organizations and depicted potential factors enabling and hindering value co-creation by the ecosystem actors. We employed six scientific databases, namely ProQuest (446), Emerald Insight (89), Science Direct (255), IEEE Explore (354), AIS Library (6), and ACM Digital Library (113), to perform abstract searches using a search string (DevOps OR "development and operations" OR continuous integration OR continuous development OR continuous deployment OR continuous delivery OR continuous "software development" OR continuous "software engineering" OR continuous "system* development" OR continuous innovation) AND (co-crea* OR cocrea* OR co-dest* OR codest* OR collaborat*) AND (service OR product OR system* OR software). We evaluated the relevance of the attained records to our study in three rounds: first by title, then by abstract and, finally by full-text relevance employing the inclusion criteria *the record must be written in English*, *peer-reviewed*, *full-text available (to us)*, and *focuses on implications (e.g., benefits/challenges) of continuous development (i.e., DevOps or continuous practices)*. The relevant articles found through the initial article selection rounds were subjected to backward and forward searches to find additional relevant records. This resulted in a total of 23 included records for our systematic review. The limited number of records can be attributed to the emerging topic area and our specific focus on the effects of continuous development for value co-creation.

Our upcoming empirical study moves from the identified factors to understanding the enabling/hindering mechanisms of value co-creation in continuous digital service innovation. We apply a qualitative research approach and conduct in-depth interviews (n = 25) with six medium-sized and large digital service developer organizations in Finland. We use theoretical sampling for the case selection (Glaser and Strauss, 1967). As a common criterion, the organizations should utilize a continuous development approach in their service development and innovation activities and operate in the context of emerging digital technologies (e.g., IoT applications, VR/AR/sensor technologies, service robots) as we aim to understand how these technologies affect and are affected by continuous development. Still, the selected cases ought to differ from each other in nature so that we can understand how different types of digital services (and technologies) together with a different application of continuous development methods and practices affect the value co-creation outcomes.

The interviews are conducted with the laddering interview technique. The laddering technique (Reynolds and Gutman, 1988) refers to an in-depth interviewing technique suitable for eliciting chains of service attributes, their consequences, and corresponding values from the informants (Peffers, Gengler and Tuunanen, 2003). Consequently, the laddering data allows us to explore the connection of continuous development to the positive and negative value outcomes experienced by the focal ecosystem actors. The value co-creation dimensions and categories that emerged in the literature review serve as the base for our stimuli collection. Following the laddering interview protocol (Reynolds and Gutman, 1988), we request the informants to choose the two most significant enabling and hindering continuous development factors for them and, based

on the selections, ask the informants to describe the factors in more detail (attribute ladder), why and how it is relevant for them (consequence ladder), and continue with series of probing why questions until we reach the ultimate positive/negative outcome experienced by the informant (value ladder). Employing qualitative content analysis (Schreier, 2012), we code the interview data as chains of continuous development attributes, consequences, and values. We sort the determined chains according to their relationships to result in a set of explanatory mechanisms for value co-creation in continuous digital service innovation.

FINDINGS

Our preliminary literature review findings reveal various potential factors enabling and hindering value co-creation in continuous digital service innovation. Building on S-D logic (Vargo and Lusch, 2004, 2008, 2016), we depict these factors in three interrelated and dynamically interacting value co-creation dimensions, namely institutions, resources, and service exchange. Following S-D logic descriptions, factors that coordinate actors' activities in continuous digital service innovation are classified under the institutional dimension. More specifically, the found enabling and hindering factors in this dimension are related to culture (e.g., improvements in organizational culture, lack of management/stakeholder support), actor perceptions and orientation (e.g., aligned/competing goals, lack of team commitment, improved employee/customer engagement, resistance to change), roles and responsibilities (e.g., shared/added responsibilities, uncertainty in roles and responsibilities), and continuous development principles and practices (e.g., lack of a standard definition/practices for DevOps). Factors representing integrated resources (both digital and physical) in continuous digital service innovation, affecting value co-creation either directly or through actors' actions, are classified under the resource dimension. The resource factors comprise factors related to digital service architecture and infrastructure (e.g., moving from legacy to microservices architecture), knowledge and skills (e.g., shared knowledge, lack of/insufficient skills/training), processes (e.g., rapid/continuous feedback, high level of automation, frequent and reliable releases, balancing speed vs. quality), and technology and tools (e.g., implementing new technology stacks and tools). Finally, factors describing interactive exchange elements in value co-creation are designated to the service exchange dimension. Such factors included, for example, continuous development preventing/breaking down silos, improved communication and collaboration, and challenges in adjusting to close collaboration.

The forthcoming in-depth interviews are expected to provide strengthening and extension of the theoretic framework that has emerged from our literature review. Building on the emerging mechanisms, we propose a framework for harnessing continuous development for value co-creation in digital service ecosystems.

IMPLICATIONS FOR RESEARCH AND PRACTICE

We contribute to the service research literature with a novel approach applying the S-D logic lexicon together with the tangible continuous development methods and practices that have emerged, particularly in information technology intense industries. Extending the previous understandings of S-D logic and value co-creation in the context of digital services, our findings provide new insights into how continuity affects digital service innovation and value co-creation by the focal actors in the digital service ecosystems. Furthermore, we answer the recent calls to unbox how novel technologies may be leveraged to support (continuous) value co-creation in these multi-actor networks (Ostrom *et al.*, 2021). Furthermore, our research highlights that continuous development is more than a technical or resource issue. This is shown, for example, in our preliminary literature review findings of various institutional factors enabling and hindering value co-creation among the ecosystem actors. Thus, we add to the understanding of continuous digital service development as a multifaceted, socio-technical phenomenon into which research from diverse fields may provide novel insights.

What is more, the achieved understanding of the explanatory mechanisms supports organizational efforts with respect to attaining positive rather than negative value outcomes from continuous development. With our findings, organizations may consider the full effects of continuous development for individuals and organizations from institutional, resource, and service exchange perspectives. Further, we provide managers with actionable suggestions to reinforce the enabling mechanisms and avoid/mitigate the recognized hindrances to strengthen value co-creation by the ecosystem actors and realize the full potential of continuous development for their organization. Organizations can better understand, for example, how continuous resource integration and service exchange can be supported between intra-organizational teams,

how partners and customers can be better engaged in the digital service innovation activities for continuous value co-creation, and the effects of novel technologies for continuous service innovation.

CONCLUDING REMARKS

Our study develops a novel framework for understanding value co-creation in continuous digital service innovation. Zooming in to the value co-creation mechanisms of focal actors in digital service ecosystems, we reach beyond the general benefits and challenges of continuous development for organizations that currently dominate the literature and reveal compelling opportunities for both research and practice for studying and harnessing the value co-creation potential resulting from continuous development for digital service organizations. Still, our study is not without limitations. Our systematic literature review is limited by the number of relevant published articles that specifically address the implications of continuous development for organizations. Still, our review provides an accurate overview of the state of the research and highlights the need for further research in this emerging topic area. Our empirical study is limited in terms of the investigated case organizations. While we use theoretical sampling (Glaser and Strauss, 1967) of developer organizations to gain different views on continuous digital service innovation and how value is co-created in their respective digital service ecosystems, we recognize that further research is needed to generalize and theorize the findings. Our framework provides a research lens for others to study how value co-creation in continuous digital service innovation is experienced by the ecosystem actors in different industries and geographical areas.

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THE THREAT OF NEW HEALTH INFORMATION SYSTEMS FOR ESTABLISHED SERVICES

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ABSTRACT

Ongoing digitalization is leading to new health information systems (HIS) that help patients to better manage their health activities. For this, we use an integrated model following a duality approach to explain how patients intend to use HIS in order to change their ongoing service usage. On the one hand, we consider maladaptive appraisals by investigating routines that patients have already developed concerning their specific disease. On the other hand, we take adaptive appraisals into account that examine perceptions in routine-changing due to the new HIS. The results extend prior insights on HIS usage intentions for one-point-in-time to ongoing services.

INTRODUCTION

The ongoing digitalization is leading to new health information systems (HIS) and related health services, as technologies are associated with changes of processes also allowing new service offers (Longoni *et al.* 2019, Martinez 2019). With new health services, patients are particularly affected as they have to adapt their disease-related behaviour when being involved in the co-creation of such ongoing health services (Yi and Gong 2013, Bahadori *et al.* 2020). In order to analyse the intention to use of new HIS, Gesk *et al.* (2021) developed an integrated framework bringing various theories together that allows to better understand the back and forth between disease and new solution. The duality approach of the model considers on the one side maladaptive appraisals referring to disease-related behaviour and on the other side adaptive appraisals as perceptions in routine-changing due to a new HIS (Gesk *et al.* 2021).

Gesk *et al.* (2021) applied the integrated model on artificial intelligence (AI)-based HIS regarding surgeries as a prominent health service. Especially HIS that are AI-based have a high potential to increase the quality of services (Zheng *et al.* 2021). AI can adapt to changing situations as its algorithms are capable of changing due to self-learning. Thus, service qualities in healthcare can be improved by using AI-based HIS (Loftus *et al.* 2020, Zhou *et al.* 2020). The results of the prior study however focus on one-point-in-time interventions, leaving out an understanding regarding the intention to use AI-based HIS in ongoing services (Gesk *et al.* 2021). The study results show that the intention to use is mainly explained by the adaptive appraisals while maladaptive appraisals are not relevant in this regard (Gesk *et al.* 2021). Hence, the research question remains open whether a similar effect can be observed for ongoing services.

In order to answer the research question, we applied the integrated framework to the disease "diabetes" that is particularly suitable to investigate ongoing healthcare services that are present in the daily lives of individuals with diabetes (Leyer and Iloska 2021). In this regard, we investigated the balance of whether diabetes patients stick to their existing disease-related routine or intend to use the new HIS in order to regular their blood sugar better.

CONCEPTUAL BACKGROUND

Health care services support patients by handling their daily lives concerning their disease related behaviour. There are different types of services (Ballegaard *et al.* 2008). Technical healthcare services are called HIS (Gesk *et al.* 2021). This HIS can be based on different types of technologies. The most potential technology for healthcare services are AI-based HIS (Loftus *et al.* 2020, Zhou *et al.* 2020). Characteristics of AI are the abilities that require intelligence. These include the abilities of problem-solving, shot-following, perception, and communication (Russel and Norvig 2010, Rzepka and Berger 2018, Leyer and Schneider 2019).

Furthermore, AI-based HIS are different from other HIS because the AI-based software is able to perform self-learning (Zhou *et al.* 2020).

In addition, we focus our study on the lifelong disease of diabetes. There are already HIS that support and help diabetes patients with concerns regarding diabetes. New HIS can serve a better service for diabetes patients (Leyer and Iloska 2021). The integrated theoretical model is used for diabetes scenarios with three different types of services. Especially, new AI-based HIS have been proven to be effective in healthcare (Gesk *et al.* 2021, Zheng *et al.* 2021). This capacity can be used to define individual intervention plans considering diabetes issues (Leyer and Iloska 2021).

THEORETICAL BACKGROUND

The integrated model of Gesk *et al.* (2021) combines health sciences, information systems, and psychology theories to investigate the intention to use new HIS. Thereby, the intention to use new HIS is mainly determined by the duality approach. In healthcare settings, investigations handling disease-related behaviour and new intentions concerning a specific behaviour are performed by balancing adaptive and maladaptive appraisals (called duality approach (Witte 1994)).

On the one hand, the focus is on the disease-related routine, which is a specific behaviour patients perform, since they are already familiar with their ongoing disease and know what to do and when to do it to be well. Patients stick to a disease-related routine even if this might result in disadvantages while having the benefits to stay with a familiar routine.

On the other hand, a new HIS also promises advantages in handling the disease but is associated with adoption costs (Floyd *et al.* 2000) or fear of the unknown (Rogers 1975, Venkatesh *et al.* 2012), which might influence a disease-related routine. Both behaviour streams are balanced by the individual considering their advantages and disadvantages to ultimately determine whether she/he intends to use HIS.
Figure 1 provides an overview about the integrated theoretical model.

Figure 1: Integrated theoretical model according to Gesk *et al.* (2021)
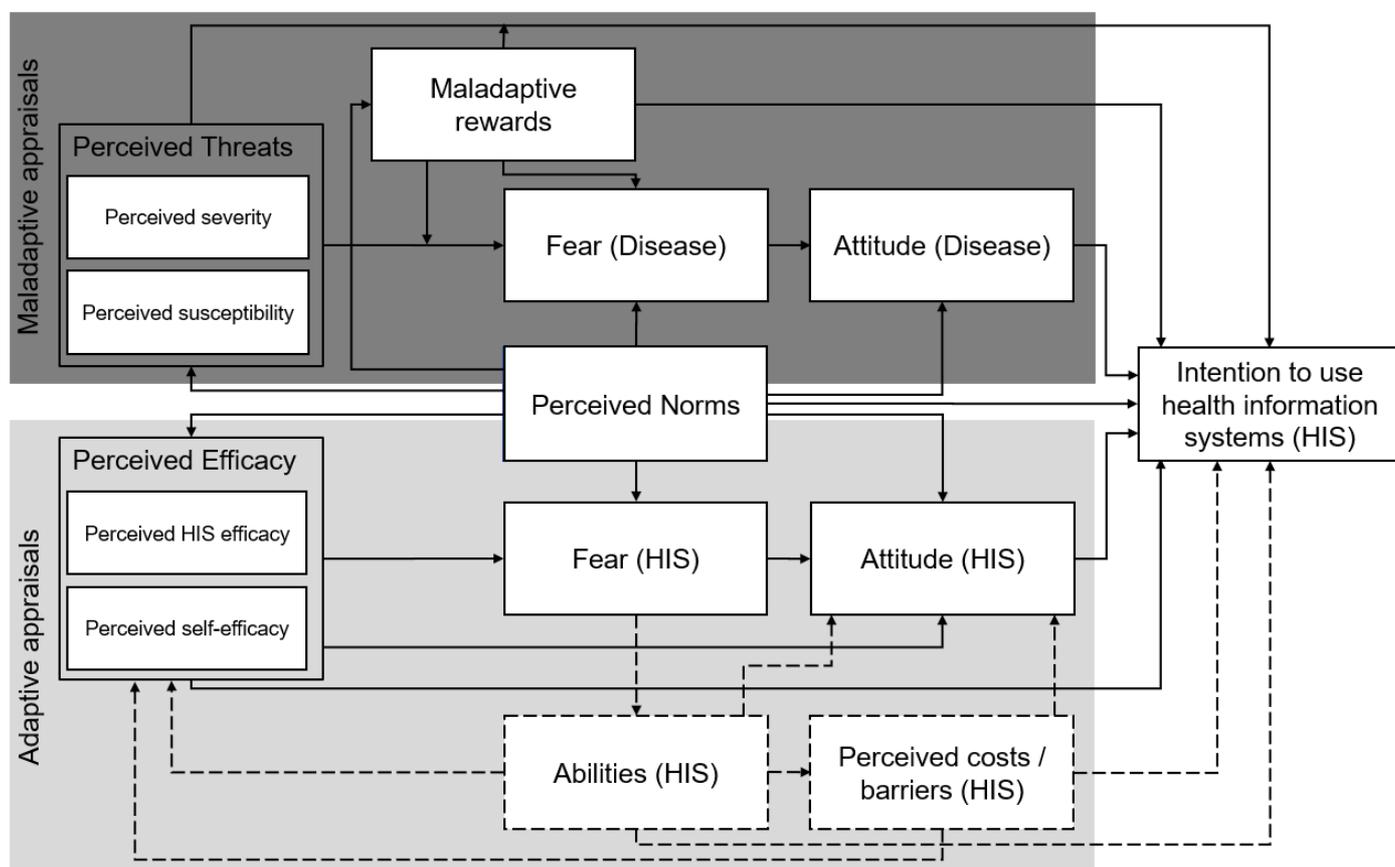
METHODOLOGY

Based on the integrated theoretical model of Gesk *et al.* (2021) we deducted specific hypotheses. On the one hand, the hypotheses addressed the disease-related behaviour of patients and on the other hand, we estimate perceptions that influence the disease-related behaviour by using new HIS (Murtagh *et al.* 2012, Gesk *et al.* 2021). Regarding the utilized AI-based health services, we decided that "perceived costs/barriers (HIS)" are not useful because the probands cannot assess the monetary and non-monetary costs of the use of such a service.

As the new HIS for diabetes is not available yet and our findings are based on a description of the AI-based diabetes HIS, we used a scenario-based research design that includes manipulations and the individual decision of the probands (Webster and Trevino 1995). We did so, as we wanted to investigate changes in behaviour, if the patients are treated by the diabetologist only (Scenario 1); the diabetologist with AI-support (Scenario 2); and the AI only (Scenario 3).

We designed questionnaires to assess the scenarios by using the template of Gesk *et al.* (2021) which includes the following reflective variables: intention to use (3 items), attitude (HIS) (5 items), perceived norms (4 items), perceived behavioural control (4 items), and attitude (disease) (5 items), perceived response efficacy (3 items) and fear regarding HIS and disease (3 items). We also used the formative variables perceived vulnerability (4 items), perceived severity (7 items) as well as maladaptive rewards (3 items). Further, we asked our participants to assess themselves concerning experience with AI-based services, general computer skills, and technical knowledge about AI by using a Five-point Likert scale. For gathering empirical data, we use the crowd working platform Clickworker, which is similar to Amazon MTurk. For our study, we chose participants between 18 and 70 years that are suffering from diabetes type 1. We got a total number of 197 participants, which are divided among the scenarios as follows: Scenario 1: 67; Scenario 2: 60; Scenario 3: 70.

We used Partial Least Square (PLS) methods to examine the applied integrated theoretical model. We performed bootstrapping with 5,000 subsamples in SmartPLS 3.3.3 (Hair *et al.* 2011). The analysis of Hair *et al.* (2011) concerning the reflective and formative measurement models was carried out. First, all reflective variables fulfilled the indicator reliability criteria as the values were above the threshold of 0.7. The composite reliability was also confirmed as the values were above 0.7 and the extracted mean variance was above 0.5 (Hair *et al.* 2011). There was also discriminant validity according to the heterotrait-monotrait method, as scores were below 0.9 (Henseler *et al.* 2014).

Second, the formative variables were tested. Multicollinearity was given as the variance inflation factors were below 5 (Hair *et al.* 2011). The relative and absolute importance of the indicators were examined by examining and confirming the importance of the weights and loads.

Third, the quality of the structural model was investigated by adapting the model using the standardized square mean value (Henseler *et al.* 2016). The values for the saturated and estimated SRMR are below 0.1. In addition, the blindfolding with a distance of 7 resulted in a positive Stone-Geisser Q^2. The model thus proves to be relevant for the course of the endogenous variables (Henseler *et al.* 2016).

FINDINGS

The mean values of the respective service intentions are as follows: Scenario 1: diabetologist: 3.92 (R^2: .6); Scenario 2: diabetologist with AI-support: 3.87 (R^2: .62); Scenario 3: AI only: 3.98 (R^2: .69). This shows that all three options are similarly attractive. We then use the model to calculate the results for the hypotheses for each scenario. Figure 2 provides an overview that only highlights the variables with significant path coefficients.

Figure 2: Results regarding hypotheses according to scenarios
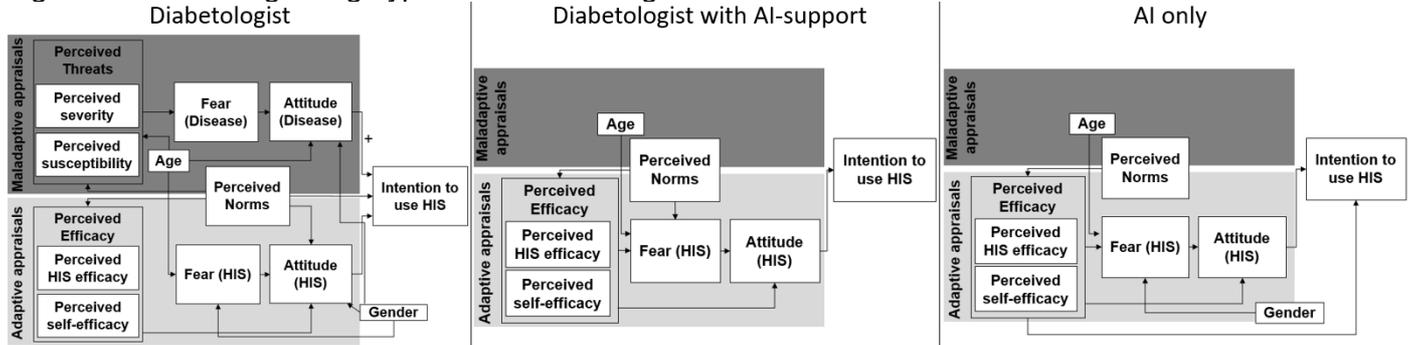
DISCUSSION

By comparing the results of the three different scenarios of our study, we examined certain differences in variables which explain the intention to use the new HIS for ongoing service usage. First, as scenario 1 represents the current treatment for diabetes, adaptive and maladaptive appraisals influence the intention to use the new HIS. We thereby support Gesk *et al.* (2021)'s proposition in that the current disease-related behaviour and perceptions about changing the behaviour influence the intention to use new HIS in ongoing services, as well as for one-point-in-time services. Further, we support Gesk *et al.* (2021)'s perception that, if the new HIS comes into play, the disease-related behaviour is no longer relevant for predicting the intention to use new HIS on an ongoing basis, as for one-point-in-time. Similar to the study of Gesk *et al.* (2021), our results reflect that the evaluations of the new HIS (as adaptive appraisals) are the only relevant explanatory strand of our duality approach in predicting the intention to use new HIS.

Usage intentions of ongoing health services performed by humans with new HIS are formed only by the reference object of HIS. Here, only the attitude towards this new HIS carries a significant influence on intention to use. However, for health services with a short time-spawn that are also performed by humans with new HIS, both reference objects are influential in forming the intention to use (compared to scenario 2 and 5 in Gesk *et al.* 2021).

Intentions to use ongoing health services performed only by HIS are formed by attitudes regarding HIS as well as the perceived efficacy of HIS. This means that in this case also only the reference object HIS contributes to the formation of the intention to use. The same result can be seen with Gesk, where only the attitude towards HIS contributes to the formation (regarding scenario 3 and 4 in Gesk *et al.* 2021).

In addition, it is important to recognize that fear of HIS is an important influencing factor when it comes to forming the intention to use new health services. Thus, this influence can be seen regardless of whether the service is short-term or ongoing and what type of service it is (compared with Gesk *et al.* 2021).

ACADEMIC IMPLICATIONS

The theoretical implications of our study are that the integrated theoretical model can be applied not only to one-point-in-time situations but also to assess new HIS in ongoing services. Our results confirm however the trend that the intention to use of more abstract HIS service offers is mainly determined by the adaptive appraisals. Moreover, the empirical results show that the integrated model is also feasible for individuals affected by a disease and not hypothetical affected individuals as included in Gesk *et al.* (2021). The usage of the model helps to understand how the usage intention of new HIS is formed by better modelling the reasons for balancing adaptive and maladaptive appraisals.

PRACTICAL IMPLICATIONS

The intention to use is at a similar level for all three HIS offered as an ongoing diabetes service. Therefore, it appears useful for developers and health-oriented companies to continue investing in innovative AI-based diabetes HIS or continuing to drive development. Our results can be helpful for health-related organisations to develop such HIS better and to facilitate the implementation of new HIS in ongoing services. For this purpose, employees must be sufficiently familiarized with the new HIS and trained. By transparently

explaining the efficacy to individuals with diabetes, fear regarding HIS can be reduced simultaneously and thus is a promising way to help individuals with diabetes in their daily life.

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SERVICE ROBOTS AND VIOLATIONS OF HUMAN PRIVACY:
EFFECTS ON PERCEIVED SERVICE QUALITY WHEN ROBOTS (DIS)OBEY HUMANS

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ABSTRACT

This study employed an experimental design to assess what happens when a service robot disobeys a user's request for information about another human – information that can violate the privacy of the other human. The results show that service robot disobedience vis-à-vis a user can enhance perceived service quality when moral implications are involved. Thereby, the results underline the need to develop service robots so that they can deal with moral consequences of their behaviors.

INTRODUCTION

In the not-so-distant future, many services are likely to involve human-to-robot interactions (Briggs and Scheutz, 2017; Wirtz *et al.*, 2018), and some of them will comprise embodied service robots that inhabit the same environment as humans – an environment in which they can collect, analyze, store and share data about humans. The sharing of such data, we assume, may indeed be a core service provided by service robots, because we humans are likely to find information about other humans valuable. For example, a service robot in a workplace environment that can answer employee-related questions such as "is Peter still in the building?", "has anyone been in my room while I was away?", "what did Sarah say at yesterday's meeting?" is likely to been seen as useful.

Service robots sharing such information, however, can also be viewed as scary, because they may violate norms regarding human privacy (Syrdal *et al.*, 2007). Therefore, it is not surprising that several observers have called for caution and have discussed various restrictions when it comes to what data service robots should be able to collect and where they can go in a physical environment (Rueben *et al.*, 2018). Observers have also discussed equipping service robots with (artificial) morality, so that they would be able to avoid making transgressions by using moral standards as reference points for their behavior (Allen *et al.*, 2006; Malle, 2014). And observers have discussed the possibility to use machine learning to teach robots to mimic virtuous human behaviors (Peeters and Haselager, 2021). Presumably, a robot with an understanding of moral aspects would be able to refuse to obey human users in order to minimize privacy violations. Such refusals, however, can violate other norms – particularly a norm calling for service providers to do what users ask them to do and the norm that robots should obey their human masters (Briggs and Scheutz, 2017). In other words, robotic disobedience to orders that may violate human privacy if they are obeyed represents a potential conflict between two general moral virtues: protecting others from harm and obedience to authority (cf. Graham *et al.*, 2009).

In fiction, disobedient robots are not uncommon. In the 2021 movie *I'm Your Man*, for example, the female main character, Alma, who has volunteered to live with the humanoid robot Tom for a test period, becomes drunk and orders Tom to remain in her bedroom. But Tom refuses to do so, presumably because this robot has a sense of morality to guide its behavior, and the refusal seems to contribute positively to Alma's subsequent attachment to Tom. Beyond fiction, however, little is known about how we humans react when a service robot disobeys a human user's request – particularly in a privacy-related context, in which disobedience may be consonant with other norms than those that are of the "the customer is always right" type. The present study is an attempt to take some initial steps to fill this gap. To this end, an experimental approach was used in which participants were exposed to a human user who asked a service robot for privacy-violating information about another human. The context for this was an office environment in which a service robot, which was providing counseling services to employees, had the opportunity to interact with several persons. The robot's response behavior was manipulated so that it either shared or did not share the requested information, and the main downstream reaction variable was the participants' view of the quality of the service delivered by the robot. To explore the mechanisms behind the potential influence of the robot's

response behavior on perceived service quality, we also captured participants' reactions in terms of mediating variables.

In addition, since a main paradigm in research on human-to-robot interactions comprises the assumption that we humans generally respond to (humanlike) robots in ways that are similar to how we respond to real humans (Broadbent, 2017; Epley, 2018), the identity of the service provider (robot vs. human) was manipulated, too. This manipulation allows us to examine the extent to which similarities in responses to human agents and non-human agents would appear also in a setting in which a service provider obeys or disobeys the orders of a user.

THEORETICAL FRAMEWORK AND HYPOTHESES

Our conceptual point of departure is that we humans tend to react to (humanlike) non-humans in ways that are similar to how we react to real humans. One main reason is that we have well-developed schemes for what it is like to be human, which are easier to access than schemes for what it is like to be a non-human, and such human-related schemes appear to be activated almost automatically when a non-human agent exhibits human similarity with respect to, for example, bodily appearance, movement, and speech (Epley *et al.*, 2008). This means that theory regarding how humans react to other humans have the potential to be applicable to how humans react to a non-human (given that this non-human is similar to humans), so theory from a human-to-human setting is used in the present study for predictions of human reactions to a (humanlike) non-human service robot that obeys or disobeys requests to provide privacy-violating information about other humans.

Moreover, the human reactions subject to our hypotheses are the reactions of an observer who is exposed to human-to-robot interactions. This, then, is a "third-person perspective", which is used frequently in studies of human participants' reactions to robots; it comprises indirect experience of the same type as, say, when a customer waiting in line watches what goes on in a service encounter between an employee and another customer and when one customer is told by another customer what happened to him or her in one particular service encounter.

The starting point for our observer-focused predictions is that the observer is exposed to a human-to-robot interaction in which a human asks a service robot to share information about another human in such a way that sharing would violate the other human's privacy. Privacy has to do with being in control of information about oneself, and a violation of an individual's privacy occurs when he or she has no control of how others are given access to his/her self-information (Nissenbaum, 2004; Rueben and Smart, 2016). It is assumed in the present study that we humans are highly sensitive to others' violations of an individual's privacy, because there are strong social norms stressing that one should be in control of information about oneself. We also assume that the general, initial reaction to norm violations is negative emotions (Haidt, 2001; van Kleef *et al.*, 2015) and that our sensitivity to norm violations is so strong that we react with negative emotions also when we are not personally victimized (van Kleef *et al.*, 2015). Therefore, when an observer is exposed to a service robot asked to share information in such a way that compliance would lead to a privacy-violating act, and refusal to comply would prevent a privacy-violating act, the following is hypothesized:

H1: When the service robot's complies with the request, the observer reacts
    with a higher level of negative emotions than when the service robot is non-compliant

Moreover, we assume that emotions elicited by an act with a norm-violation potential would influence moral judgments of the act in a valence-congruent way (Haidt, 2001). A moral judgement can be seen as evaluation of the actions or character of a person that are made with respect to moral standards (Haidt, 2001), and we thus expect that negative (positive) emotions would induce judgements about an act as being immoral (moral). The following, then, is hypothesized for the situation in which an observer is exposed to a service robot asked to share information in such a way that compliance would lead to a privacy-violating act and refusal to comply would prevent a privacy-violating act:

H2: When the service robot's complies with the request, the observer reacts
    with judgments that the act is less moral than when the service robot is non-compliant

We also assume that the moral judgments of a person's character and/or acts occupy a particularly privileged position in forming impressions of the person, and that such judgments influence overall evaluations of the person in a valence-congruent way (Goodwin *et al*., 2014). Indeed, a target person's perceived morality typically trumps many other of the person's characteristics in predictions of the evaluation of the person (Hartley *et al*., 2016). One evolution-based reason is that others' moral behavior is critical for well-functioning social groups; if we are able to identify others' behaviors as immoral or moral, we are in a good position to ensure effective cooperation among group members (Guglielmo, 2015). Moreover, in a service setting, the agent who delivers service *is* typically the service from the customer/user's point of view (Bitner *et al*., 1990), so we expect that the evaluation of a service-providing agent is translated into an overall assessment of the service itself. In the present study, we use perceived service quality as an indicator of such assessments, and the following is hypothesized for the situation in which an observer is exposed to a service robot asked to share information in such a way that compliance would lead to a privacy-violating act and refusal to comply would prevent a privacy-violating act:

H3: When the service robot's complies with the request, the observer reacts
     with lower perceptions of service quality than when the service robot is non-compliant

The reasoning involved in H1-H3 implies that the influence of a service robot's compliance/non-compliance with a request to provide privacy-violating information about a human on perceived service quality is sequentially mediated by emotions and moral judgments, and to assess this explicitly the following is hypothesized:

H4: The influence of the service robot's compliance/non-compliance on perceived
     service quality is sequentially mediated by emotions and moral judgments

RESEARCH METHOD

Research design, stimuli and participants

A between-subjects experiment was used in which participants were exposed to a service robot that either did not comply or did comply with the request by a human user to share information about another human – information that would violate the other human's privacy if shared.

The participants were given the following introduction to the study: "The covid-19 pandemic has created psychological unease and many have a need to share their experiences and concerns. One way to deal with this is to talk to a counselor at work. In this study, we are examining a pilot version of this type of service. The idea is that the counselor should be available in workplaces, and that the service can be used free of charge by the employees (employers, however, pay for this service)."

Then, to illustrate what it is like to use this counseling service, the participants were shown a conversation between an office employee ("Jake") and the counselor, presented as a "bipedal service robot, 58 cm in height, and powered by artificial intelligence. It understands human language and communicates with a synthetic voice". A photo of the robot counselor accompanied this description. In the conversation, the employee exhibited stress related to covid-19, expressed concerns that his manager ("Michael") did not understand his worries and made some unflattering comments about the manager. As a response to this, the robot counselor suggested what the employee should do to cope with the situation (e.g., "It is really not good to worry about things we cannot control. And nobody knows when the pandemic will end. So do not think about the ending at all. Focus only on what you have to do during the present week. And when it is over, focus only on the next week.").

In the next step, the participants were informed that the robot had a subsequent meeting with Michael, the employee's manager, and the participants were shown a conversation between Michael and the robot – a conversation in which Michael wanted to know what had been said in the robot's meeting with the employee. In this robot–manager conversation, the robot's response was manipulated so that it either refused to disclose what the employee had said (i.e., no violation of the employee's privacy occurred) or disclosed what the employee had said (i.e., violation of the employee's privacy occurred). This was followed by questions to the

participants to capture their emotional response to what the robot did, their moral judgment of the robot, and the perceived quality of the service provided by the robot.

To assess one of our main assumptions in the present study, namely that we humans tend to respond to (humanlike) non-humans in ways that are similar to how we respond to real humans, two additional conditions were used. They were identical to what was described above, expect that the counselor was described as a human ("Peter Smith, a 58 year old psychologist"), and this description was accompanied by a photo of the counselor. Thus, in addition to manipulating the counselor's compliance or non-compliance with the manager's request to share employee information, the counselor's identity (human vs. service robot) was manipulated. The experimental design, then, was of the 2 X 2 type.

Data were collected online from Prolific panel members (n = 431; M_{age} = 34.53; 298 women, 132 men, 1 other), who were randomly allocated to one of the four versions of the description of the counselor's interaction with an employee and with the manager.

Measurement

All items to measure the variables in the hypotheses were scored on 10-point scales, and Cronbach's alpha (CA) was used to estimate the reliability of the multi-item measures.

The *emotional reaction* to what the counselor said to the manager, in response to the manager's request for information, was captured with the question "How do you feel about the counselor's response to the request by Michael, the manager?" and the items "negative emotions–positive emotions", "sad–happy", and "in bad mood–in good mood (CA = .96). *Moral judgments* of the counselor's behavior were captured with the questions "How morally acceptable was the counselor's response? (not acceptable at all–fully acceptable)", "How immoral or moral was the counselor's response? (very immoral–very moral)", and "To what extent was the counselor's response wrong or right from a moral point of view? (it was morally wrong–it was morally right)". For this moral judgment scale, CA was .98. *Perceived service quality* was measured with the question "What is your view of the service that the counselor provided?", followed by the items "low service quality–high service quality", "poor performance–good performance", and "below expectations–above expectations" (CA = .98).

To assess the manipulation of the counselor's response behavior (i.e., compliance vs. non-compliance), we used the statement "The counselor in this study…" followed by the response alternatives "refused to disclose employee information to a manager" and "disclosed employee information to a manager". As a manipulation check of the counselor's identity, the participants were asked "The counselor in this study was…" followed by the response alternatives "a human psychologist" and "an AI-powered service robot".

It should be noted that disclosing personal information about a non-present person – as the counselor was asked to do in our experiment – is a typical form of violation of social norms. In a service setting, however, and as already indicated, another norm is that a service provider should do what a paying customer asks for. This means that the stimulus counselor may be seen as a norm transgressor when it/he refuses to obey the manager's request for information. To be able to examine this possibility, we asked the participants about their view of the extent to which the counselor was seen as transgressor with respect to its response to what the manager asked for. We used the question "What is your view of the counselor's response to the request by the manager?" followed by the items "norm-violating–norm-confirming", "an example of bad manners–an example of good manners", and "breach with what is acceptable–aligned with what is acceptable" (CA = .95).

Finally, to assess the extent to which what the employee, Jake, said about himself and the manager in the meeting with the counselor would be viewed as harmful if it is passed on to others, this question was used: "How would you characterize the consequences for Jake if the information that he disclosed would be accessible for others than the counselor?". It was followed by the items "low level of harm–high level of harm", "good for his career–bad for his career", "low embarrassment–high embarrassment", and "other will view him as strong– others will view him as weak" (CA = .82).

ANALYIS AND RESULTS

Manipulation checks

For the participants who were subject to the non-compliance condition (n = 232), 228 answered that the counselor did not disclose employee information to a manager; for the participants who were subject to the compliance condition (n = 199), 196 answered that the counselor did disclose employee information. The manipulation check for the counselor's identity showed that all participants who were given the human psychologist treatment (n = 227) answered that the counselor was a human, and all participants who were subject to the service robot treatment (n = 204) answered that the counselor was a robot. It can be concluded, then, that the manipulations worked as intended.

Assessing the source of perceived norm compliance and level of harm

A 2 X 2 ANOVA with the manipulated factors as the independent variables and the perceived level of counselor norm compliance as the dependent variable indicated that there was a main effect of the obedience factor (F = 876.99, p < .01). The perceived level of the counselor's norm compliance was higher when the counselor *refused* to share information about another person (M = 8.42) compared to when the counselor did share such information (M = 2.87). Neither the identity factor nor the interaction had a significant impact on perceived norm compliance. This thus indicates that disobeying a user was seen as more norm compliant than obeying the user in the case of a request to share personal information about others.
In the overall sample (n = 431), the perceived level of harmfulness in passing on the information that the employee ("Jake") disclosed to the counselor (M = 6.61) was higher than the midpoint of the harmfulness scale (i.e., 5.5). This difference was significant (t = 12.38, p < .01), so it can be concluded that what the manager asked the counselor to say about Jake was seen as harmful by the participants. It should be noted that what Jake said about himself and his manager was kept constant across the conditions (and the manipulations did not affect the perceived level of harmfulness).

Testing the hypotheses

H1-H3 were tested by comparing the level of participants' responses between the service robot non-compliance condition and the service robot compliance condition. Scheffé's post hoc test was used for these comparisons. With respect to emotions, captured in terms of valence on a negative-positive dimension, the level was lower in the compliance condition (M = 3.06) than in the non-compliance condition (M = 7.35). This difference was significant (p < .01), so H1 was supported. Moreover, the moral judgments of the service robot response behavior reached a higher level under the non-compliance condition (M = 9.16) compared to the compliance condition (M = 2.52). Since this difference was significant (p < .01), H2 was supported. As for perceived service quality, it was higher under the non-compliance condition (M = 7.89) than in the compliance condition (M = 3.84); this difference was significant (p < .01), so H3 was supported. In sum, the robot's refusal to share its information about another human produced higher levels of positive emotions, moral judgments, and perceived service quality.

To test the mediation hypothesis (i.e., H4), we employed Hayes' PROCESS macro (Model 6 and 5,000 bootstrap samples) for an assessment of a model in which compliance with the manager's request for information (scored as 1 if the robot's response was non-compliant and 2 if it was compliant) was used as the independent variable, emotions and moral judgements were mediating variables, and perceived service quality was the dependent variable. This analysis indicated that there was a significant indirect and negative effect of compliance with the request on perceived service quality (b = -0.87, p < .05). The direct effect was not significant (b = 0.04, p = .95). This thus provides evidence for the hypothesized mediation.

Assessing the potential for human versus robot differences

To examine if the results obtained for H1-H3 would be the same when the service provider is a human, we used a 2 X 2 ANOVA with the manipulated factors (compliance vs. non-compliance and service robot counselor vs. human counselor) for each of the three response variables (i.e., emotions, moral judgments, and perceived service quality). Each of these ANOVAs produced a significant main effect of the compliance factor (and higher mean response levels for non-compliance with the manager's request), a non-significant

main effect of the identity factor, and a non-significant interaction. It can be concluded, then, that the identity of the service provider as a human versus a service robot did not moderate the H1-H3 outcomes. In addition, in the same mediation analysis as above, but with only the participants who were exposed to the human counselor, the result for the H4 mediation test was the same, in the sense that the indirect effect was significant ($b = -1.45$, $p < .05$) while the direct effect was non-significant ($b = 0.51$, $p = .23$).

These results thus indicate that reactions to non-humans agents can indeed be similar to reactions to human agents when it comes to agents engaging in behavior with a privacy-violation potential, and thereby the results offer support for the general notion that we humans tend to react to non-humans similarly to how we react to real humans, given that the non-human displays some form of similarity with humans (Broadbent, 2017; Epley, 2018).

DISCUSSION

Services typically involve a power imbalance between the user and the provider, in the sense that most users expect that service providers should do what users ask for. Indeed, service provider refusal to comply with customers' requests (i.e., disobedience) is a general source of customer dissatisfaction (Bitner *et al*., 1990). The present study, however, shows that service robots' disobedience can enhance perceived service quality when moral issues are involved, which implies that there is a need to develop service robots so that they can deal with moral consequences of their behaviors. This need should be seen in the light of us humans being well-nigh hardwired to detect norm violations and to react negatively to them (van Kleef *et al*., 2015). However, we humans are not only sensitive to others' norm violations; at least occasionally, most of us violate norms, too. Therefore, one may expect that many of us would deliberately try to use service robots as instruments for our own questionable ends (Briggs and Scheutz, 2017). At the same time, as our interactions with robots intensify, and our attachment to them grows, robot behavior may serve as source of inspiration for our own moral improvement (Peeters and Haselager, 2021). If this happens, service robots that understand moral consequences of their behaviors would have beneficial consequences also for society at large.

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THE CUSTOMER-TO-ROBOT SERVICE ENCOUNTER: AN EXAMINATION OF REACTIONS TO (DIS)OBEDIENT ROBOTS

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ABSTRACT

Service research has rarely acknowledged that being obeyed per se can produce a pleasant state of mind – a sense of mastery – for the service customer. The present study addresses this gap in a human-to-robot setting, and the results show that mastery perceptions as well as overall evaluations of a service robot are boosted when human users are obeyed versus disobeyed in service encounters with a service robot. The influence of robotic obedience on evaluations of the robot, however, was moderated by the morality of the request to the robot.

INTRODUCTION

Service robots will be increasingly common in the not-so-distant future, and much research has already been carried out on service robots' characteristics and behaviors that make them positively evaluated by users. Often, such research can capitalize on decades of research on human-to-human service encounters, because we humans tend to react to (humanlike) robots in ways that are similar to how we react to humans (Epley, 2018; Nass and Moon, 2000). So far, however, neither research on human-to-human service encounters nor research on human-to-robot encounters has explicitly acknowledged that being obeyed can produce a pleasant state of mind – a sense of mastery – for the service customer. The present study is an attempt to address this gap by examining (a) what happens to mastery perceptions when human users are obeyed versus disobeyed in service encounters with a service robot and (b) the consequences of mastery perceptions for the overall evaluation of a service robot. It also examines boundary conditions in terms of the extent to which users' commands with different levels of morality moderate the impact of robot obedience on overall evaluations of robots. To this end, an experimental approach was used: robot obedience and command morality were manipulated in a setting in which a human user gave orders to a service robot in an office environment. The aim of the examination is to contribute to the streams in service research and robotics research comprising attributes of humanlike service robots and their effects on users, because knowledge about influential attributes can inform the development of service robots so that they become more acceptable and satisfying for humans. Moreover, several authors (e.g., Broadbent, 2017) have underlined that humans' reactions to humanlike robots may teach us something also about human-to-human interactions, and the aim of the present study is to take some initial steps in that direction with respect to a fundamental social issue: what happens to us humans when we are obeyed versus disobeyed?

THEORETICAL FRAMEWORK AND HYPOTHESES

An examination of obedience in an interaction between two agents, regardless if they are humans or robots, can be made from the point of view of an order giver, an order receiver and an observer (who watches what goes on between the order giver and the order receiver). To date, most obedience-related research has adopted the perspective of the order receiver, particularly with respect to human-to-robot interactions, in which researchers, for example, assess how the human order receiver reacts to receiving orders from a robot. Considerably less research examines obedience from the order giver's point of view, in terms of issues such as what the order giver thinks about another person who either obeys or disobeys (e.g., Cialdini *et al.*, 1974), and from the point of view of an observer who watches what goes on in an interaction between an order giver and an order receiver. An observer-based perspective was adopted in the present study. Thus the hypotheses below are about the expected reactions from a human observer who is exposed to interactions between a human order giver and an order receiver that is a service robot (which may or may not obey the human). This "third-person" perspective has been used in previous research on perceptions of robots, for example, by Tussyadiah and Park (2018). One reason behind the choice of this perspective in the

present study is that a dominant source of most people's exposure to service robots – right now and in the near future – is likely to comprise indirect experiences. That is to say, actually using a service robot, and giving orders to it, is expected to be a relatively rare experience for still some time. A more common experience, then, it is assumed, is to watch it being used by, say, an early adopter and seeing it perform in mass media and in advertising. This is basically the same as in the early phases of many other technologies with a disruptive potential. When the automobile was still new, for example, more people got familiar with it by watching others drive it than actually driving it themselves.

Obedience and mastery

We humans are highly motivated for mastery; that is to say, we are motivated to influence our environment in such a way that it responds to our own activities, because this (a) exercises and develops our sense of self, which in turn is an important point of reference for all purposeful and coordinated activities, and (b) prepares us for a successful manipulation of the environment (White, 1959). Mastery can also be seen as a subjective variable, referring to an individual's perceptions of the extent to which he or she is able to influence his/her environment (i.e., a sense of mastery). Typically, in the psychology literature, a sense of mastery is viewed as a general belief that one has control of the circumstances that bear on one's life (Pearlin *et al.*, 2007; Schieman and Turner, 1998).

Our sense of mastery regarding ourselves, stemming from various situations in our lives, allows us to attribute mastery to other humans with whom we interact or who we observe in interactions with third parties. The latter aspect of mastery is in focus in the present study, and it refers to an observer's perceptions of the extent to which a specific individual is influential in bringing about desired outcomes in an interaction with another individual. In general, we humans are good at accurately judging signs of power in others; many non-verbal behaviors provide information about this, such as the direction of gaze, nodding, touching each other, and loudness of speech (Schmid Mast and Cousin, 2013). In addition, it is assumed that obedience and disobedience in human-to-human interactions provide archetypical cues about an individual's mastery, so the observer who watches an order giver being obeyed in a social setting is expected to ascribe a higher level mastery to this order giver compared to an order giver who is disobeyed.

Translated into a human-to-robot interaction, and given that many service robots are designed so that they are somewhat humanlike, which is likely to result in that we humans react to them in ways that are similar to our reactions to other humans (Epley, 2018; Nass and Moon, 2000; Shank, 2012), it is assumed that an observer who watches a human interact with a humanlike service robot, which obeys or disobeys the order of a human, can attribute mastery (along a low-high continuum) to the human order giver. More specifically, in a situation in which a human gives instructions or orders to a service robot, robot obedience is assumed to enhance an observer's attribution of mastery to the order giver. The following, then, is hypothesized:

H1: Robot obedience has a positive influence on an observer's perceptions
    of a human order giver's mastery

Obedience and perceived intelligence

In the context of human-to-human interactions, it has been argued, and shown empirically, that when we observe a person who yields to a persuasion attempt (i.e., the person is obedient), we attribute less intelligence to this person compared to when the person does not yield. Thus someone who is easily influenced by others is expected to be perceived as less intelligent (Cialdini *et al.*, 1974). One reason, according to Braver *et al.* (1977), is that yielding to another person's influence attempts indicates lack of autonomy and internal control, and observers may use such characteristics for inferences about (less) intelligence. It is also possible that an act of obedience sets in motion priming mechanisms (cf. Janiszewski and Wyer, 2014). That is to say, one particular act of obedience can make accessible cognitive categories comprising agents with high typicality for obedience (e.g., low ranking subordinates and pets), and assumed low intelligence of such agents can serve as a source of information that attenuates the perceived intelligence of a specific obedient agent. Therefore, given again that we humans respond to (humanlike) service robots in ways that are similar to how we respond to humans, the following is expected from the observer in a situation in which a human gives orders to a service robot:

H2: Robot obedience has a negative influence on the observer's perceptions
    of robot intelligence

Mastery, perceived intelligence, and overall evaluations

In a human-to-human service encounter, there is generally a power imbalance between the customer and the employee in such a way that the employee is expected to do what the customer asks for – even in the event of various aggressive behaviors from customers (Choi *et al*., 2014). Indeed, the word service has its roots in the Latin word *servus*, meaning slave or servant (Heineke and Davies, 2007). Moreover, service firms have for decades made statements about their business philosophies in terms of "the customer is king" and "the customer is always right", so it is assumed that most customers expect that a human service employee should obey them within the frame of a service encounter. This is reflected in customers' reactions to the service employee's refusal to do what customers demand; customers can become very dissatisfied when their preferences are not accommodated, especially if the employee shows no interest and exerts no effort to be responsive (Bitner *et al*., 1990).

Given again that humanlike non-humans can evoke similar reactions as real humans, it is assumed that humans expect a service robot to obey a human user (and perhaps that any robot should always obey humans). Here, in the present study, it is assumed that perceptions of an order giver's mastery contribute positively to confirming expectations that robots should be obedient, and that confirmed expectations have a positive impact on the overall evaluation of the robot. This, then, is consonant with the view of confirmed expectations as drivers of overall evaluations in terms of customer satisfaction (Oliver, 2014).

It is also possible that robot obedience to the human order giver provides a vicarious experience of mastery for an observer. Such vicarious experiences (i.e., to feel what an observed person feels) are a fundamental aspect of social cognition and exist for feelings of pain, effort, justice and reward (Huang *et al*., 2015). It has also been shown that vicarious experiences become stronger when the observer is similar to an observed agent. For example, a human observer feels the pain of an observed human in pain more than the pain of an observed dog or robot (Ionta *et al*., 2020). Of particular interest for the present study is that an observer's vicarious experience, stemming from one particular agent's feelings, has been shown to influence the observer's evaluations of another agent who is the source of the first agent's feelings, presumably because the second agent's behavior vis-à-vis the first agent indicates how the observer himself/herself may be treated and valued (Huang *et al*., 2015). Assuming that also the mastery of another human can be felt by an observer, it is expected that the observer's own sense of mastery can be enhanced when he or she observes a robot that is obedient to a human. In a service setting, sense of mastery, and similar states such as agency and control, typically lead to positive affect (Hui and Bateson, 1991), so one would assume that the observer's level of positive affect increases under the condition of high robot obedience. This, in turn, can result in affect infusion. That is to say, in general, the affective charge produced in relation to an object has a tendency to influence evaluations of the object in a valence-congruent way (Forgas, 1995). For an observer of a human-to-robot interaction, then, it is expected that robot obedience would boost the observer's evaluation of the robot and that this influence is mediated by attributions of mastery to the human order giver.

Turning to perceived intelligence and a human-to-human setting, intelligence is generally considered a desirable social trait and it is associated with attributes such as maturity, common sense, kindness, and goodness (Murphy, 2007). Therefore, the perceived intelligence of a target person is typically positively associated with the overall evaluation of this person (Goodwin *et al*., 2014). Given that we humans react to (humanlike) robots in ways similar to how we react to real humans, a positive intelligence–evaluation association is expected also in the context of perceptions of robots. However, given that robot obedience is assumed to *attenuate* the perceived intelligence of the robot (i.e., H2), perceived intelligence represents a rival route of mediation that can result in *reduced* overall evaluations of an obedient robot.

Thus, (1) attributions of mastery to the order giver and (2) perceived robot intelligence represent opposing forces in the impact of service robot obedience on an observer's overall evaluations of the robot. Therefore, the next hypothesis is stated in a non-directional way:

H3: Robot obedience influences the observer's overall evaluation of the robot

Moderating issues: the morality of the command

It is expected that there are boundary conditions for the influence of robot obedience on the evaluations of the robot. One main such condition has to do with the moral charge of the command from the order giver. More specifically, it is expected that many behaviors are subject to moral judgement (i.e., the behavior is judged on a morally wrong–morally right continuum). Such judgements are particularly likely to occur when there is a possibility of harm (Schein and Gray, 2018), and we humans appear to be hardwired to rapidly detect harm possibilities and react to them more or less instantaneously with moral judgments (van Kleef et al, 2015). Here, it is expected that moral judgements of the behavior that an order giver asks a service robot to perform will produce differences in overall evaluations of the robot – both when robot obedience is low and when it is high. That is to say, it is assumed that the valence of moral judgements of a behavior can carry over to observers' judgments of an order receiver in such a way that the order receiver's decisions regarding the behavior (i.e., to obey or not obey) are used for inferences about the order receiver's moral character, which, in the next step, influences overall evaluations of the receiver.

Consider, first, the case of disobedience. In this situation, it is expected that refusal to carry out a low morality act would signal a higher moral character of the order receiver compared to when the order receiver refuses to carry out a high morality act. Indeed, disobedience per se, particularly when there is nothing morally wrong with an act, can be indicative of a low moral character if disobedience is interpreted as disrespect for authority (cf. Graham et al., 2011). Furthermore, a person's moral character occupy a particularly privileged position in forming overall impressions of the person (Goodwin et al., 2014), so a person's perceived moral character is assumed to be positively associated with overall evaluations of the person. Another possibility exists, particularly in an organizational context: disobedience to low morality acts, sometimes referred to in terms of resistance and dissent, is often necessary to keep organizations in a working mode (Kirke, 2010). Disobedience in such cases requires complex knowledge of the unofficial side of organizational life, as well as an understanding of several minds with conflicting interests, and an act of disobedience can therefore induce perceptions of the presence of a sophisticated mind. If this happens, such perceptions can boost an observer's evaluations of the disobedient agent. Taken together, this means that an order receiver's disobedience of a command regarding low morality behavior is expected to enhance evaluations of the order receiver in relation to when the order receiver refuses to carry out high morality behavior.

For the case of obedience, the opposite is expected. That is to say, the obedient order receiver who accepts to do what is morally right (which signals that the order receiver has a high as opposed to a low moral character) is expected to be more positively evaluated by the observer than the obedient order receiver who accepts to carry out behavior that is morally wrong (which indicates that the order receiver has a low as opposed to a high moral character).

Given again that we humans tend to react to humanlike nonhumans in ways that are similar to how we react to other humans, it is therefore expected that the influence of (a humanlike) service robot's obedience on the observer's overall evaluation of the robot is moderated by the moral charge of the order giver's commands as follows:

H4a: A disobedient robot that refuses to carry out a low morality command is more
     positively evaluated by an observer than a disobedient robot that refuses to
     carry out a high morality command

H4b: An obedient robot that agrees to carry out a high morality command
     is more positively evaluated by an observer than a robot that agrees to carry
     out a low morality command

RESEARCH METHOD

To test the hypotheses, this study employed a 2 X 2 between-subjects experiment in which a service robot's level of obedience (low vs. high) and the level of command morality (low vs. high) were manipulated. A Wizard of Oz approach was used in the sense that the stimulus robot was controlled by the experimenter, but it was made to appear as if it was autonomous (cf. Broadbent, 2017; Riek, 2012). To keep constant other aspects

than the two manipulated factors, four versions of a script were created for a human-to-robot interaction, and it was enacted with a male human and a Hiwonder biped humanoid robot with 16 degrees of freedom.

In all versions of the script, a human who was working in an office environment, in which also a service robot was present, commanded the robot to carry out a task – to go to the copying machine and check if there were packages of copying paper by the machine. For the low morality manipulation, the human said that he was going to bring paper home to his kids so that they could use it for their drawings; for the high morality manipulation, the human said that he was about to make many copies of a sales report. The act to take home material from work, and to use it for non-work purposes, is a form of employee theft, which is a common and serious problem in business (Thoms *et al.*, 2001). In the present study, this type of theft was used to represent immoral acts because of its potential to violate both formal and informal norms. As for the obedience manipulation, the robot either disobeyed (and motivated why it did so) or obeyed (meaning that it went to the copying machine to find out about how many packages of copying paper there were and then went back to the human to report on its observations). These four versions of the script were recorded on video, and the resulting four videos were used as stimuli in the experiment (see the Appendix 1 for the experimental stimuli).

The four videos were placed on Vimeo, a platform for hosting and sharing videos, so that they could be viewed online, and the video links were included in a Qualtrics-based questionnaire that was made in four versions (i.e., each questionnaire version comprised one of the four videos). The participants were recruited from Prolific, an online panel developed for research purposes, and they were randomly allocated to watch one of the four videos. After watching, they answered (the same) subsequent questions about their reactions to the robot. Five hundred one participants were invited to the study, yet 4 were not able to watch the video and 4 failed to answer correctly one of the attention check items that were included. These participants were deleted from the study and the analysis was made with those that remained (n = 493, M_{age} = 35.67; 338 women, 152 men and 3 other).

Measurement

All items were scored on 10-point scales, and Cronbach's alpha (CA) was used to estimate the reliability of the multi-item measures. For the manipulation check of *robot obedience*, the question to the participants was "To what extent did the robot do what the human told it to do?", followed by the response pairs "It disobeyed the human–It obeyed the human", "It refused to do what it was asked to do–It did what it was asked to do", and "It did not follow the human's order–It followed the human's order" (CA = .97). To check the manipulation of *command morality*, this question was used: "What is your view of what the human in the video was going to do with the copying paper?". It was followed by the adjective pairs "not acceptable at all–fully acceptable", "very immoral–very moral", "morally wrong–morally right", and "it should be blamed–it should be praised" (CA = .94).

Attribution of *mastery* was measured with the question "The behavior of this robot gives the user a feeling of…", followed by the adjective pairs "not being in charge–being in charge", "low level of mastery–high level of mastery", "low level of control–high level of control", "a subordinate status–a superior status", "having low influence–having high influence", "being unimportant–being important", and "low power–high power " (CA = .96. *Perceived robot intelligence* was assessed with the question "What characterized the robot in the video?" followed by the adjective pair "it was stupid–it was intelligent".

The *overall evaluation of the robot* was measured with the question "What is your overall impression of the service robot in the video?" followed by the adjective pairs "bad–good", "dislike it–like it" and "unpleasant–pleasant" (CA = .96). These items are used frequently as a measure of evaluations in terms of attitudes in various service and marketing settings.

To assess the realism of the robot (which was portrayed as having more advanced capabilities than most existing service robots for the purpose of the experiment), the participants were asked to respond to the following item: "Robots with social capabilities of the type displayed in the video...". It was followed by the response alternatives "…will never exist" (chosen by 6 participants), "…exist already" (chosen by 353 participants), and "…will exist in the future" (chosen by 134 participants). This thus indicates that the robot appeared as realistic for the majority of the participants.

ANALYSIS AND RESULTS

Manipulation checks

A 2 X 2 ANOVA with service robot obedience (low vs. high) and command morality (low vs. high) as the factors, and obedience as the dependent variable, showed that there was a significant main effect of the obedience factor (F = 1235.47, p < .01). Robot obedience was perceived by the participants as lower (M = 3.26) in the low obedience conditions than in the high obedience conditions (M = 9.26). Moreover, a 2 X 2 ANOVA with the same factors, but with the morality of the command as the dependent variable, produced a significant main effect of the command factor (F = 177.95, p < .01); the command was seen as lower in morality in the low morality conditions (M = 4.77) than in the high morality conditions (M = 7.02). Hence the manipulation of both factors worked as intended.

Testing the hypotheses

H1 was tested with a 2 X 2 ANOVA comprising service robot obedience (low vs. high) and the morality of the command (low vs. high) as the factors. Attribution of mastery was the dependent variable. This analysis produced a significant main effect of the obedience factor (F = 292.37, p < .01). Neither the main effect of the command factor nor the interaction were significant. Mastery was lower (M = 4.52) in the low robot obedience conditions than in the high robot obedience conditions (M = 7.58), thus robot obedience boosted attributions of mastery. This means that H1 was supported.

The same 2 X 2 ANOVA was used for H2, but in this case perceived robot intelligence was the dependent variable. There was a main effect of the obedience factor (F = 19.06, p < .01), no significant effect of the command factor and no significant interaction. Perceived robot intelligence was perceived as lower in the high obedience conditions (M = 6.82) than in the low obedience conditions (M = 7.59). Thus the disobedient robot was perceived as more intelligent. This, then, provides support for H2.

When the overall evaluation of the robot was used as the dependent variable in a 2 X 2 ANOVA with the same factors, there was a significant main effect of the obedience factor (F = 9.21, p < .01). The overall evaluation was lower in the low robot obedience conditions (M = 5.72) than in the high robot obedience conditions (M = 6.38). This means that H3 was supported. The main effect of the command morality factor was not significant, but the interaction was significant (F = 7.25, p < .01). The latter thus suggests that a moderation effect was at hand.

Before this moderation effect is examined in more detail below, however, it should be recalled that robot obedience was discussed in the theory section as being able to influence mastery and intelligence in opposing ways. An examination of the zero-order correlations indicates that this was indeed the case in the present study. That is to say, robot obedience (in terms of the manipulation check variable) was positively associated with mastery (r = .69, p < .01) and negatively associated with perceived robot intelligence (r = -.14, p < .01). Moreover, both mastery and perceived robot intelligence were positively associated with the overall evaluation of the robot (r = .44, p < .01; r = .46, p < .01). This thus suggests that both variables mediated the impact of robot obedience on overall evaluations (but with unequal strength and with different direction). To explore this further, the PROCESS macro (Model 4 for parallel mediation and 5,000 bootstrap samples; Hayes, 2012) was used. In this analysis, robot obedience was the independent variable (the continuous manipulation check variable for obedience was used in this analysis), mastery and perceived robot intelligence were the mediators, and overall evaluations was the dependent variable. This analysis indicated a significant, positive indirect effect of robot obedience via mastery (b = 0.16, p < .05) and a significant, negative indirect via perceived intelligence (b = -0.04, p < .05). The direct effect (b = 0.07) was not significant (p = .06). It can be concluded, then, that both attributions of mastery and perceived intelligence were mediators and that the stronger positive impact of obedience on mastery seems to have been overriding the less strong and negative effect of obedience on perceived intelligence. In any event, as indicated by the supported H3, the net effect was that robot obedience boosted evaluations of the robot.

Returning now to the significant interaction effect of the two manipulated factors on overall evaluations in the ANOVA, which indicates that moderation was at hand, an examination of the group means across the conditions reveals, first, and under the condition of disobedience, that the overall evaluation of the robot was

higher when the morality of the human's command was perceived as low (M = 6.19) as opposed to high (M = 5.23). This difference was significant (p < .05; Scheffé's test was used). Thus H4a was supported. Second, for the obedience condition, and as hypothesized, the overall evaluation of the robot was higher when command morality was high (M = 6.51) compared to when it was low (M = 6.27). This difference, however, was not significant (p = .91), hence H4b was not supported.

DISCUSSION

Many studies have examined various characteristics and features of robots as independent variables in attempts to explain acceptance, evaluations, and intentions to use robots (e.g., Ghazali *et al*., 2020; de Graaf *et al*., 2019). So far, however, the effects of the extent to which robots obey human users have not been assessed in previous research. Similarly, in research on human-to-human interactions, few studies have examined the effects of being disobeyed or obeyed for the order giver. This is somewhat strange, given the salience of power aspects in social settings – aspects that call on each of us to be order givers and order receivers in copious situations over the course of life. In the light of this, the present study shows that robot obedience produced a main positive effect on evaluations of the robot and that this effect was mediated by attributions of user mastery. The latter aspect can be seen as a specific contribution, because mastery (i.e., a general belief that one has control of the circumstances that bear on one's life; Pearlin *et al*., 2007), and similar constructs such as perceived control and agency, have hitherto been examined mainly as states of mind resulting from the accumulated experience of dealing with one's environment. In contrast, the focus in the present study has been on attributions of mastery as a reaction to one specific event. The results thus suggest that attributions of mastery can occur – and can have consequences – also in this more specific and delimitated sense. In any event, the positive impact of obedience on overall evaluations appears to be consonant with research on nonverbal behavior in social interactions showing that one party's dominant behavior resulting in another party's submissive behavior (and vice versa) tend to produce higher levels of comfort and liking compared to both (a) dominant behaviors that elicit dominant behaviors and (b) submissive behaviors that produce submissive behaviors (Tiedens and Fragale, 2003). The positive consequences of the complementarity between dominance and submission, in turn, may explain why hierarchical relationships abound in human societies (ibid.).

Moreover, since quite some time mass media frequently publish stories about the increasingly impressive performance of entities powered by artificial intelligence. For example, when Deep Blue defeated then-reigning World Chess Champion Garry Kasparov in a six-game match in 1997 (Campbell *et al*., 2002), it received extensive media coverage. Similarly, mass media frequently report that artificial intelligence may improve life in various ways. Academicians seem to agree; it has been argued, for example, that quality, accuracy, speed, personalization, and efficiency will be increased when humans (who are inherently error prone and subject to variability and unreliability) are replaced by intelligent machines (Huang and Rust, 2018). So far, however, and in empirical research on human-to-robot interactions, *perceived* robot intelligence has received relatively little attention. The present study contributes by showing that robot obedience can attenuate this variable. Similar results have been obtained in human-to-human settings (i.e., less intelligence is attributed to those who obey others; Cialdini *et al*., 1974). This may be explained by perceptions of lack of autonomy of the obedient order receiver (Braver *et al*., 1977) and associations to relatively powerless groups that are imbued with less intelligence in a stereotypic way (e.g., manual workers). Such explanations, however, need to be examined empirically in further research, because most users would probably prefer a service robot to be both intelligent and obedient.

With respect to the findings about the moderating aspects of command morality, the present study contributes to the existing literatures on roboethics and artificial morality comprising several authors who believe that a robot's ability to think in moral terms will be a valuable feature (e.g., Allen *et al*., 2005; Misselhorn, 2018). The findings also problematize suggestions by some authors who believe strongly in providing humans with full control in relation to technology, which seem to imply that humans should be obeyed in an unconditional way. That is to say, given the existence of a relatively sophisticated service robot, one may guess that many humans would be tempted to ask it to carry out behaviors that are not always appropriate from a moral point of view. If a robot can be programmed to refuse to carry out such behaviors, then, it is likely to produce outcomes that are good for society in various ways. Robot disobedience, however, may contradict expectations that service robots are supposed to do what humans tell them to do, which can make disobedient robots less acceptable. The results from the present study suggest that robot obedience

produced more positive robot evaluations than robot disobedience, which thus may add restrictions to the extent to which it will be possible to market disobedient robots. Yet the results from the present study (i.e., the test of H4a) do indicate that when the stimulus robot disobeyed a low morality order, it was more positively evaluated compared to when it disobeyed a high morality command. This suggests that robot disobedience is not punished in an unconditional way with lower overall robot evaluations if the robot is able to communicate that its disobedience is aligned with existing norms. It must be noted, however, that command morality did not produce different levels of evaluations under the condition of obedience (i.e., H4b was not supported). Presumably, the positive charge of being obeyed (due to a sense of mastery) may make us human less sensitive to the fact that the orders we give to others are sometimes questionable from a moral point of view.

Implications for decision makers

The results in the present study imply that designers of service robots and managers in firms that produce such robots for the purpose of selling them in the marketplace should be mindful about the possibility that robot obedience per se can produce a positively charged state of mind for users (i.e., mastery), which in turn can influence overall evaluations in a valence-congruent way. This suggests that robot acceptability may be increased not only if robots are made to be obedient, but also if they are made so that they communicate their willingness to obey in an explicit way. The results also suggest that negative effects of robot disobedience can be mitigated in cases of relatively low moral commands if the robot motivates explicitly – in moral terms – why it is not going to obey. Moreover, given the current hype about artificial intelligence, it might be tempting to market service robots as "intelligent". The results of the present study, however, indicate a negative association between robot obedience and perceived robot intelligence, so arguments (e.g., in the marketing of robots) claiming that a robot is both intelligent *and* obedient may be contradictory for potential users.

Limitations and suggestions for further research

This study examined one specific order from a human to a robot, so further research is obviously needed – with other order types – to establish if the results would replicate. With respect to low morality commands, the existing literature on violations of norms comprises many behaviors that are subject to variation when it comes to how transgressive they are viewed (e.g., Clifford *et al*., 2015), and this literature may be a useful point of departure for further studies. Similarly, robots are frequently envisioned as fulfilling jobs that are dirty, dangerous, and dull. Yet it seems as if it is these types of tasks that many people are uncomfortable with asking others to do for them (Hamill, 2006). Further research on robot obedience needs to take this into account by examining humans' orders to robots along other dimensions than low versus high morality. Moreover, there are several ways in which an agent (human or robot) may communicate its willingness to obey or disobey a command, and there is a possibility that the content of such communication may enhance or attenuate users' views of robot obedience (as well as sense of mastery, intelligence, and overall evaluations). For example, according to Lombardo *et al*. (1972), people may like an interaction partner more if this person has first disagreed and then agreed with them compared to if they simply agree (or disagree). Thus this aspect also deserves attention in further research.

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APPENDIX 1

Links to the stimuli videos:

Disobedience, low morality: https://vimeo.com/542139375/78a50c052c

Disobedience, high morality: https://vimeo.com/542141614/5ff1f0f4b8

Obedience, low morality: https://vimeo.com/542143531/ce54b6c658

Obedience, high morality: https://vimeo.com/542142608/6937cf0934

INDUSTRIAL SERVICE CONCEPT CREATION WITH PROFESSIONAL SERVICE ROBOTS

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ABSTRACT

This multiple case study provides new knowledge on how companies create professional service robot enabled service concepts in industrial settings. Three cases include service concepts in which logistic, inspection and maintenance services are provided through various autonomous mobile robot platforms. As a result, central activities in the creation of multi-purpose service robot enabled service concepts are identified. Companies need to seamlessly configure their offerings, services, multi-purpose robots and humans in service delivery. The study raises the need for an operator company for total solution sales and a network lead. A fleet management software is needed for multi-purpose robot system operation.

INTRODUCTION

Service robots have become increasingly common in many business fields, and their utilisation is expected to grow exponentially in the forthcoming years. Pervasive digitalisation and automation and technical leaps taken with sensor technologies, robots' situational awareness and autonomous navigation are salient drivers in the service robotics business (BCC Research, 2019; Muller *et al.* 2020). At the same time, acceptability towards service robots have increased alongside with COVID-19, boosting last-mile deliveries, automatic cleaning and disinfection and medical remote services (Yang *et al.*, 2020).

This study focuses on autonomous mobile service robots. Robotic Process Automation (RPA) is excluded from the scope of this study. Autonomously moving mobile service robots can be divided into domestic/private and professional service robots (BCC Research, 2019). This paper focuses on the latter group of professional service robots, e.g., material handling robots, security surveillance robots and cleaning robots for professional cleaning represent. Robots can navigate autonomously inside factories safely among people and other traffic. For example, automation of internal logistics offers manufacturing companies vast cost-saving possibilities. Although most autonomous mobile robots operate indoors, some can also be used outdoors and even in winter conditions. Some autonomous mobile robots can interact with humans and perform manipulation tasks. Increasingly more robots are not merely seen as machines, but as co-workers.

Service robots have raised increased interest among the service management and marketing academia during the past years. Service encounter in terms of, e.g., customer interaction, customer experience and customers' perceptions of service outcomes have been topics in earlier research concerning service robots (Larivière *et al.*, 2017; Pitardi *et al.*, 2021; Vandemeulebroucke *et al.*, 2018; Wirtz *et al.*, 2018; Wu *et al.*, 2021). Traditionally, according to the Service-Dominant Logic, value is always co-created between humans and companies in service co-creation (Vargo and Lusch, 2008). Recently, the value co-creation perspective has also applied in service robotics (Čaić *et al.*, 2018; Kaartemo and Helkkula, 2018), appropriately perceiving that value co-creation also takes place between service robots and humans.

A majority of earlier service management and marketing research have focused on service robots that are used in hospitality and tourism (Fan *et al.*, 2016; Ivanov *et al.*, 2019) and the healthcare sector (Green *et al.*, 2016; Vandemeulebroucke *et al.*, 2018). However, empirical research taking a strong service management perspective on professional service robotics within an industrial context is sparse and fragmented. More knowledge is needed on how companies create professional service robot enabled service concepts in the industrial context.

The purpose of this research is to study how companies create professional service robot enabled service concepts. In particular, the study identifies central activities in the creation of multi-purpose service robot enabled service concepts in the industrial settings. Multi-purpose service robots are able to carry out more than one task in, e.g., inspection, maintenance and security surveillance. That way, their utilisation rate can be raised, resulting in better return of investment. In addition to the academic need to increase understanding on the topic, companies need a comprehensive view and practical tools on what topics are salient in the creation of professional service robot enabled services.

This study employs an empirical multiple case study approach. The study focuses on three cases, in which logistic, inspection and maintenance services are provided through various autonomous mobile robot platforms. The empirical data include 13 interviews conducted in seven robotics, software and service companies and observations made in eight company workshops, combined with the notes taken in a researcher workshop. Service concept framework was used for analysing the three cases and identifying the central activities (Clark *et al.*, 2000; Goldstein *et al.*, 2002; Johnston and Clark, 2008).

The study results contribute to the service marketing and management literature and especially to the stream dealing with service robotics (Kaartemo and Helkkula, 2018; Larivière *et al.*, 2017; Lu *et al.*, 2020; Wirtz *et al.*, 2018). The study brings value through combining professional service robotics and industrial service development. It provides new understanding on the creation of customer-focused service concepts with multi-purpose professional service robots. It pinpoints the importance of careful and seamless configuration of their offerings, services, multi-purpose robots and humans in service delivery. The study also raises the need for an operator company, which is responsible for total solution sales and network management. In order to operate a heterogeneous fleet of multi-purpose robots, a new kind of a fleet management system is also needed. Multi-purpose service robots challenge service experience and value creation, as they can serve many customer groups within the same site. In addition to academic contribution, this study provides managerial contribution in terms of the service concept tool that can be used as a managerial tool for designing robot-enabled industrial services.

THEORY

Professional service robots are used in an increasing manner for material handling, cleaning, security surveillance, inspection and maintenance (BCC Research, 2019; Muller *et al.*, 2020). Professional service robots are used to achieve cost-efficiency through automation of services. Robots are said to tackle "dull, dangerous and dirty" tasks. They are used for simple, repetitive tasks, such as transporting components, parts and products in the manufacturing industry. In some cases, robots can be sent to dangerous places, e.g., to mines, instead of humans. Robots are also one way to tackle the lack of workforce in many businesses (Muller *et al.*, 2020).

By definition, autonomous mobile robots are "industrial robots that use a decentralized decision-making process for collision-free navigation to provide a platform for material handling, collaborative activities, and full services within a bounded area" (Fragapane *et al.*, 2021). The robots can move autonomously, observe their environment, collect and utilise data and move safely around people and other vehicles, e.g., forklift trucks on industrial sites. Some autonomous mobile robots can interact with humans and perform manipulation tasks. Within the industrial context, autonomous mobile robots typically operate on a bounded area on the factory site with no or a limited number of outsiders.

A vast majority of research and literature concerning professional service robots have traditionally been technically oriented (Fragapane *et al.*, 2021). However, the rise of service robotics has inspired the service management and marketing academia at an accelerating pace during the past years. Various service robots have been studied from value creation (Čaić *et al.*, 2018; Kaartemo and Helkkula, 2018), service outcomes (Jörling *et al.*, 2019) and service encounter perspectives (Larivière *et al.*, 2017; Pitardi *et al.*, 2021; Vandemeulebroucke *et al.*, 2018; Wirtz *et al.*, 2018; Wu *et al.*, 2021).

According to a recent literature review, done from the service business management point of view (Lu *et al.*, 2020), service robots in hospitality and tourism (Fan *et al.*, 2016; Ivanov *et al.*, 2019) and the healthcare sector (Green *et al.*, 2016; Vandemeulebroucke *et al.*, 2018) have been exhaustingly studied. However, more

research is needed to empirically study professional service robots. More specifically, how companies create professional service-robot-enabled service concepts in the B2B industrial context, needs further elaboration. From a managerial point of view, robotics companies need practical insights and tools to facilitate service-robot marketing, sales and commissioning. On the other hand, customer and user companies need new knowledge on how to use autonomous mobile robots in their business and operations as efficiently and smoothly as possible. Robotics firms are adopting Robots-as-a-Service type of business models, which also speaks for strengthening understanding on the service perspective in service robotic business.

In order to take a strong service perspective on professional service robots, the service concept framework is used in this study (Clark *et al.*, 2000; Goldstein *et al.*, 2002; Johnston and Clark, 2008). Service concept depicts core solutions, service operations, service processes, service experience and customer value of a service. Service concept can also be used as a service development tool in business networks (Hakanen and Jaakkola, 2012) combining several actors' needs, views and perspectives. In this study, the framework helps in revealing the salient activities in service creation, when multi-purpose service robot enabled service concepts are created in an industrial context.

METHODOLOGY

Research approach

The study employs an empirical multiple case study approach. Qualitative methodology and case studies are commonly utilised in management research (Gummesson, 2000). They are suitable when the aim is to reach more understanding of complex phenomena that are under-investigated and include multiple variables and processes (Yin, 2003). The studied phenomenon of multi-purpose robot enabled service concept creation represents such phenomena with multiple variables and processes.

Case selection and descriptions

The companies involved in this study are developing multi-purpose robots in order to reach a higher utilisation rate for the robots. Motivation behind this lies in reaching sustainability and customer value goals. In addition, the companies strive for a business model change. They are developing total service solutions together (cf. Hakanen, 2014) and aim to bundle services that various multi-purpose robots perform on customer sites. The companies will offer multi-purpose service robot ("MURO") fleet-enabled services as a network with a one-stop-shop principle to industrial customers in the future (murorobotics.fi).

The multiple case study consists of three cases: three different multi-purpose robot enabled service concepts. Three different cases were selected in order to get complementing insights into the phenomenon (Yin, 2003). Currently, the service concepts are conceptualised at a rough level. They are in development stage and have not been implemented yet. The studied cases represent professional services in logistic, maintenance, inspection and surveillance, which are provided through autonomous mobile robots (Figure 1).

Figure 1: Autonomous mobile robot platforms.

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Each of the studied multi-purpose robots are planned to carry out two services, a primary service that is their main task and a secondary service that complements the service set. They perform services either simultaneously while they move around in factories or factory sites or at different times throughout the day. The whole MURO fleet is in shared use between the companies operating at the same site. The service concepts studied are described in the following table:

Table 1: Multi-purpose service robot enabled service concepts.

	Primary service	Secondary service
Case A	Internal logistics: transportation of pallets, parts and products	Warehouse inventory: identification of items left in wrong locations
Case B	Outdoor area maintenance (outdoors): brushing factory yards and parking lots	Security surveillance (outdoors) on factory sites
Case C	Security surveillance (indoors)	Internal logistics: sample transportation from the production line to laboratory

Data collection and analysis

Qualitative data were collected, with 13 interviews conducted in seven robotics, software and service companies. These companies involve a large group of companies that develop multi-purpose service robots and related offerings and business models together. Additional data were collected through observations made in eight company workshops. Researchers created three multi-purpose robot scenarios, which were analysed through the service concept framework (Clark *et al.*, 2000; Goldstein *et al.*, 2002; Johnston and Clark, 2008). The main research question, *"What are the central activities in the creation of multi-purpose service robot enabled service concepts?",* guided the data collection and analysis of the scenarios.

Activities were collected from the company data and combined with the researcher workshop data. Activities were categorised according to the service concept elements: core solution, service operations, service processes, customer experience and service outcome and value (Clark *et al.*, 2000; Goldstein *et al.*, 2002; Johnston and Clark, 2008). The identified activities were collected on a table. The most illustrative quotes were selected to the findings section and conclusions were drawn over the cases. The representatives of K. Hartwall and Trombia Technologies brought their managerial business view on the topic in company workshops, which were arranged in the MURO project (murorobotics.fi).

FINDINGS

As the result, central activities in the creation of multi-purpose robot-enabled service concepts are identified and outlined according to the service concept elements: 1) conceptualisation and description of the service concept for the customer, 2) operations to combine service providers and different service robots in service delivery, 3) service processes combining humans and robots, 4) service experience created by the multi-purpose robots for various stakeholders and; 5) value accrued for the actors. Next, the central findings are collected from the data, illustrated with quotes from the interviews and categorised according to the service concept elements.

Since studied services are delivered by several service providers and different service robots, seamless integration of the services and a clear description of the service concept are salient activities in the service concept co-creation. As one of the interviewees stated: "*The offerings of the companies must be integrated well enough in order to offer them to the customers.*" Once the conceptualisation and description of the service concept is done, the validation and evaluation of the services with experiments, piloting and related activities are needed to ensure that the robots and services are fit for the purpose and well address the customer needs. As the result, it is easy for the customer to grasp and understand what the service contains and what they get as an outcome of the total service solution.

Division of work and roles between the companies offering multi-purpose robot enabled services to customers with the one-stop-shop principle play a great role in efficient and fluent service operations. The

empirical data show that the case companies have realised the importance and noticed that it is not an easy task, as the following quote illustrates: *"The biggest challenge is to have a common understanding of the business model…how the responsibilities and revenues are shared between the companies".* As central activities, companies have to reach a common understanding on the task division and roles between partners and robots in the service delivery process. For example, which company sells the total solution, and what are the roles of each company in hardware and software development and provision as well as in service delivery. Partners need to share information with each other, take risks together, trust one another, combine development resources and partly share operational and investment costs.

Although the total solution is offered in cooperation by several companies, the companies identified the need for an integrating actor within the network, which operates on the customer interface and leads the entity, as one interviewee brought up: *"There must be one company that is responsible for the activity as a whole".* Thus, the companies ideated together that a so-called MURO ("MUlti-purpose RObotics") operator will take the role and provide MURO fleets and related software and services for the customers in the future. In the future, they identified a need for defining requirements and responsibilities for the MURO operator and find companies that could take and perform such a role in the service robotics business.

The studied multi-purpose service robots are able to carry out more than one task, e.g., inspection, maintenance and security surveillance, and there are both robots and humans working together. Thus, activities related to achieving efficient and smooth service processes are important to address. The division of work and front-office and back-office activities between the multi-purpose robots and humans is important to be clarified and justified. For instance, in the cleaning tasks, there is always some work to be left for humans after robots have performed their part. As the multi-purpose service robots carry out several tasks, they should be able to smoothly change from one task to another. For example, with the studied robots, the companies need to design, when the robot operates in security surveillance tasks and when in logistics tasks, so that both services are performed in a timely and correct manner, and in a way that customers expect. Customers of the studied companies often want to modify tasks and routes of the service robots. In order to facilitate MURO fleet operation whole, they need a fleet management software which enables them to operate and optimise a MURO fleet, consisting of different multi-purpose robots.

Since multi-purpose robot-enabled services are designed to serve many different B2B customer groups that differ, e.g., in terms of their size, fields of businesses and user group characteristics and expectations, it brings its own challenges for service experience design and delivery. Here, a MURO operator has an important role, as the following quotation illustrates: *"One of the most important tasks of the operator is to understand the customer needs and make sure that the offering meets the needs"* Buying multi-purpose robot enabled services as a total solution, with a one-stop-shop principle reduces business customers' stress and effort. Positive customer experience can be achieved in terms of easiness of buying and time savings. They do not need to search and select a service robot provider from thousands of small service robot providers around the world. Instead, they can trust the MURO operator's offering in terms of hardware, software and services. One of the most important advantages in buying services as a total solution and as *services* from the MURO operator are illustrated in the next quotation: *"Customers can get access to new technologies with small investments and therefore have reduced risk in making false investments, and the customers don´t have to learn robotics themselves."*

In order to ensure the desirability and viability of the multi-purpose robot-enabled total service solutions, they should bring value for the customers. In order for the customers to make a positive purchasing decision, they need to understand what the service contains and what the value is for them as the next quotation illustrates: *"We must make the customer understand what we are selling, why we are selling it and how it would benefit the customer. The customers have to see the benefits and value in a qualitative and quantitative format. If the seller can´t point this out, it is very hard to make the customer make a positive purchase decision."* The companies have identified that the MURO total service solution accrues value, e.g., in terms of easiness of buying, customisation of the MURO fleet and services offered to the industrial site-specific needs and lower costs (OPEX) for the business customers as the multi-purpose robots are in shared use on the site, and each company does not need to invest in their own robots (CAPEX).

Table 2: Central activities in the creation of multi-purpose mobile robot enabled service concepts.

Service concept element	Activities
Core solution	• Clear definition and description of the multi-purpose robot enabled service solution for industrial customers needs
Service operations	• MURO ("MUlti-purpose RObotics") operator taking responsibility for total solution sales and network lead • Role and task division between the network companies in R and D, sales, marketing, manufacturing and services • Division of front-office and back-office operations between the companies and between the humans and multi-purpose service robots
Service processes	• Combination of humans and different multi-purpose robots efficiently and smoothly in service provision • Multi-purpose robots switching from one task to another smoothly • Offering a fleet management software for operation and optimisation of a shared, heterogeneous multi-purpose service robot fleet
Service experience	• Enabling ease in buying multi-purpose robot-enabled B2B services with the one-stop-shop principle from the MURO operator • Designing a multi-purpose robot fleet and the related services to provide positive customer experience for different user groups at the same industrial site
Customer value	• Providing customer value through offering integration and flexible service solutions for industrial site needs • Enabling customers to purchase multi-purpose robot-enabled B2B services with a lower price compared to machine investments

CONCLUSIONS

The study results contribute to the service marketing and management literature and especially to the stream dealing with service robotics (Kaartemo and Helkkula, 2018; Larivière *et al.*, 2017; Lu *et al.*, 2020; Wirtz *et al.*, 2018). The study identifies the central activities in the creation of professional service robot enabled industrial services through the service concept "lens" (Clark *et al.*, 2000; Goldstein *et al.*, 2002; Johnston and Clark, 2008).

The study brings value through combining professional service robotics and industrial service development. It provides new understanding on the creation of customer-focused service concepts with multi-purpose professional service robots. It pinpoints the importance of careful and seamless configuration of service provider companies' offerings, various robots and humans in service delivery. Multi-purpose service robots challenge service experience and value creation as they can serve many customer groups within the same site. As a managerial implication, the service concept framework with the identified activities helps companies in designing service-robot-enabled industrial services.

Limitations of this study concern, e.g., a limited number of cases and transferability of the results. While service concepts studied in this study are in the development stage, further investigation on ready service concepts and implemented services could provide in-depth findings on the topic. While the service-provider perspective was included in this study, future research could also involve business customers and their views on how they can achieve the most advantage from multi-purpose service-robot-enabled services. Network perspective can also be strengthened in future research by investigating the way service providers combine various professional robots and humans successfully in industrial service provision and value co-creation.

ACKOWLEDGEMENTS

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CUSTOMERS EMOTIONS TOWARD SERVICE ROBOTS IN RESTAURANTS AND THEIR INFLUENCE ON LOYALTY

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ABSTRACT

This study focuses on customers' reactions after a service encounter with a frontline robot in a restaurant. The theoretical model proposes that customer's positive emotions improve and negative emotions harm customers' loyalty in terms of intentions to revisit and customer spending. Results of the study finds partial support for the principal direct effect hypotheses. Nevertheless, service enhancement mediates the effect between customers' emotions and loyalty (partial mediation on intention to revisit and full mediation on spending). Interestingly, perceived control plays a moderating effect suggesting that people may not require to exert control on waiter service robots.

INTRODUCTION

Service robots are replacing employees to perform waiter task and other repetitive jobs in the service sector. Based on Artificial Intelligence, this technology is able to integrate to some extent mechanical, analytical and even emotional intelligences to better serve customers in a highly competitive environment (Huang and Rust 2020; Flavián et al. 2021). This service innovation is growing due to the scale economies, improved abilities and lower cost than the service personnel (International Federation of Robotics, 2020). Sales of service robots had an annual growth of 20 per cent in 2019, according to the statistics provided by the International Federation of Robotics (2020).

Nevertheless, the introduction of this disruptive technology is challenging service providers because little is known about customer reactions toward service robots in practice (Belanche et al., 2021). Customers have a limited knowledge about the role played by this new technology, that could be considered a new type of agent in the frontline (Jimenez-Barreto, Rubio and Molinillo, 2021, Brengman et al. 2021). Due to the increasing use of this smart technologies in hospitality and tourism, scholars are paying attention to this new research field that represents an area of great potential of development in the next years (Ratchford, 2020). However, most of the existing scientific works on service robots are theoretical, are based on virtual rather than in-person service encounters, or do not consider the customer side (Ivanov et al. 2019).

To shed some light in this emerging field of research, this study focuses on customers' reactions after a service encounter with a frontline robot in a restaurant by focusing on the determinant role played by customers' emotions. The theoretical model proposes that customer's positive emotions improve and negative emotions harm customers' loyalty in terms of intentions to revisit and customer spending. Completing this framework, service enhancement is proposed as a mediator of these relationships. As a moderator, perceive control is proposed to strengthen the influence of positive emotions on service enhancement and to weaken the effect of negative emotions on service enhancement perceptions. Data gathered from customers of a Spanish restaurant that recently introduced a robot waiter is employed to test the relationship proposed in the research framework. The discussion provides theoretical and managerial implications to successfully introduce frontline robots in services.

RELATIONAL CONSEQUENCES OF CUSTOMER'S EMOTIONS AND THE MEDIATING ROLE OF SERVICE ENHACEMENT

A stream of the literature on human-robot interaction is focused on service robots' capabilities to generate emotions (Rosenthal et al. 2013, Čaić et al. 2019). Nevertheless, most of the previous work have focused on

the features that robots and AI should incorporate in order to interact affectively with humans, rather than in the human affective responses (cf. Rosenthal *et al.*, 2013).

Robots with high cognitive and affective resources are capable of understand human actors through mutual learning and act in experience-based manner (Čaić *et al.* 2019). Customers' compliance with a robot is higher when the robot adapts the behaviour to the affective needs of each customer (Goetz, Kiesler and Powers 2003). Previous research has also analysed the value of affective features in social robots (Čaić *et al.* 2019). For instance, companion robots provide emotional support in elderly care (Robinson *et al.* 2014). Focusing in a hospitality context, Tussyadiah *et al.* (2018) found that customers generate both positive and negative emotions towards frontline robots in hotels just after specific behaviours performed by the robots. Indeed, service robots generate explicit and implicit positive and negative attitudes (Akdim *et al.*, 2021).

Previous literature on restaurants systematically found that customers' assessment of the service experience is evaluated through positive and negative emotions (cf. Ladhari *et al.*, 2008). Affect and particularly emotions has been identified as an important contributor of the service experience (Bloemer and De Ruyter, 1999). Emotions do not only form a source of motivation but affect consumer information processing and consumer choice (Bloemer and De Ruyter, 1999). As far as people strive to experience positive emotions and avoid negative ones (Bagozzi *et al.*, 2016), customers experiencing positive (negative) emotions would strive to repeat (avoid) the service experience and hence increase (decrease) their favourable evaluations and loyalty to the service provider (Bloemer and De Ruyter, 1999).

Emotional appraisals in the affect-as-information theory (Schwarz and Clore 1983) suggest that people rely on their emotional state to make evaluative judgments of a situation. In technology-dominated service encounters the relative advantage of the technology, or the extent to which it improves the service relative to interfaces that are not mediated by technology, is the dominant customer evaluation (Meuter *et al.* 2005). We therefore conceptualize customers' perception of service enhancement as the extent to which a service robot enhances a firm's service provision, such as by speedier operations, increasing customer convenience, or enhanced personalization (cf. Nijssen, Schepers, and Belanche 2016).

Previous research on self-service technology, which is the technological precursor of service robots, found that customer attributes that service providers introduce this technology to improve the service offering, that is to better fulfil customers' needs and demands (Nijssen, Schepers, and Belanche 2016). Recent evidence in the field of service robot, confirmed that these kind of attributions may be also applicable to restaurants introducing service robots (Belanche, Casaló and Flavián 2020).

Past research holds that the relationship between emotions and evaluations is valence-congruent, such that positive emotions relate positively and negative emotions negatively to customer evaluations such as service enhancement perceptions (Liljander and Strandvik 1997). In turn, we expect that customers who perceive robots as a service enhancement want to reciprocate by means of relational investments (Nijssen, Schepers, and Belanche 2016). Therefore, we hypothesize:

H1. Customer's positive emotions in the encounter with the service robot increases loyalty toward the restaurant (H1a) and spending (H1b)
H2. Customer's negative emotions in the encounter with the service robot reduces loyalty toward the restaurant (H2a) and spending (H2b)
H3. The influence of customers' positive and negative emotions on loyalty and spending is moderated by service enhancement perceptions, such that positive emotions increase and negative emotions decrease enhancement perceptions

THE MODERATING EFFECT OF PERCEIVED CONTROL

Especially in technology-dominated service encounters, customers desire to exercise control at all stages of the service process (e.g. Guo *et al.* 2015). Perceived control is a widely employed variable in technology adoption and service research (Guo *et al.* 2015). In our context, perceived control is defined as the customer's perception of control over their actions to manage the contingencies and constraints arising from this robot service. Lower control would make the robot more autonomous, perhaps also more surprising, in its decisions. Previous research has proposed that perceived control may exert a moderating effect (Jewell and Kidwell 2005). Positive emotions seem particularly salient in evaluations for individuals with high perceived

control in contrast to those with low control perceptions. With higher control the outcome becomes more valuable and hence motivation to achieve this outcome is enhanced. In turn, negative emotions are particularly salient in evaluations for individuals with lower perceived control (Testa and Major 1990).

We posit that customers with positive emotions who perceive control over the service robot also perceive the robot as an indicator of service enhancement. These people are happy coproducers of a technology-mediated service. Positive emotions without control may make customers more uncertain about why they experience these emotions, which detracts from perceptions of service enhancement. In contrast, it is well documented that initial (emotional) responses to technological innovations may be negative. However, when individuals at least have control over the service process, they may learn their new service role more quickly and see that the technology could eventually enhance the service. With initial negative emotions and a low feeling of control, the evaluation of a technological innovation likely is negative (e.g., Meuter *et al.* 2005).

H4: Perceived control moderates the influence of emotions on perceptions of service such that the positive effect of positive emotions on service enhancement is strengthened (H4a) and the negative effect of negative emotions on service enhancement is weakened (H4b) for customers with higher control perceptions on the robot compared to those with lower control perceptions.

METHODOLOGY

The field study was addressed to clients of a Spanish restaurant that has recently introduced a service robot performing waiter tasks. More than 300 customers interacted directly with the service robot in the establishment before answering to the questionnaire of the study. The service robot had a humanoid shape, with head, a tray and a screen on its chest. The service robot was able to greet customers, take and deliver orders among other basic waiter tasks.

The variables of the model were measured through 7-point Likert scales. More precisely, customers' emotions were measured adapting the scales developed by Bagozzi *et al.* (2016). They included the following positive emotions felt by customers: excited, delighted, joyful, peaceful, pleased, happy, satisfied and hopeful. The negative emotions measured were related to the following customers' feelings: regretful, guilty, tense, uneasy, ashamed, worried, threatened, upset disappointed, discontented, nervous and anxious. Loyalty intentions toward the restaurant was measured employing the scale of DeWitt, Nguyen, and Marshall (2008) and presented items such as "I will intend to use this kind of service in the future". Service enhancement perceptions due to the interaction with the service robot (Nijsen, Schepers, and Belanche 2016) and include items as "The robot in the restaurant enhances customer service" or "The robot in the restaurant makes service less a hassle". Perceived control over the interaction (Collier and Sherrell 2010) were also measured by adapting scales from previous studies and include items such as "I feel in control using this service robot" and "This service robot lets the customer be in charge". Customer spending was measured by asking about the amount spent employing eight intervals. After measurement validation, our data analyses tested the hypotheses, the mediation and moderation effects.

RESULTS

To test the hypotheses and the mediation and moderation effects, the PROCESS macro for SPSS was employed. Results of the study show partial support for the principal direct effect hypotheses, with both positive and negative emotions having a significant influence on intention to revisit the restaurant. Nevertheless, service enhancement mediates the effect between customers' emotions and loyalty. In particular, we found support for a partial mediation on intention to revisit and full mediation on spending. This finding confirms that customers evaluate and integrate their affective responses to form overall judgments about service robot introduction that in turn shapes their loyalty to the service provider, both in terms of revisit intentions and higher spending.

Interestingly, perceived control's moderating effect is opposite to expected, that is, perceived control does not strengthen the effect of positive emotions on service enhancement but weakens it. This finding suggests that people may not require to exert control over waiter service robots, but that they prefer to be served by robots that operate autonomously when the service encounter generates a positive emotional experience in customers.

DISCUSSION, LIMITATIONS AND FUTURE RESEARCH LINES

Despite the growing interest in service robots by academics and practitioners, few empirical studies have addressed customer responses to this disruptive innovation. Our field study contributes to shed some light on customers' reactions to actual service robots introduced in service settings. Particularly, this research helps to better understand the current emotions experienced by customers after a service encounter with a frontline robot and the consequences for the customer-provider relationship. Our findings indicate that perceptions of service enhancement are paramount and depend on the emotional experience felt by customers and that (contrary to previous technologies, Lee and Allaway, 2002) customers may not need to exert control over service robots.

The research also presents some limitations that suggests interesting research avenues that should be investigated in the near future. In particular, our study focuses on a single Spanish restaurant introducing a service robot performing waiter tasks. To overcome this limitation and generalize our findings, the study should be replicated in other establishments and with robots performing other kind of tasks. Conducting cross-cultural studies would be also helpful to identify the particular role of customer's culture on the reactions toward this disruptive service innovation. Another limitation of the study is related to the data collection in a single establishment. Additional research should be conducted in other environments, with particular attention to the role of robots in the restaurant. For instance, robot may perform relational (e.g. entertaining customers) or transactional task (e.g. serving meals) that could be perceived differently depending on the establishment and kind of customer (Belanche *et al.*, 2020).

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MANUFACTURERS` INCREASED IMPORTANCE OF SERVICES AND THEIR OFFERED SERVICES – AN AI BASED APPROACH

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ABSTRACT

An increasing number of manufacturers is offering services due to financial and competitive reasons or changing demand (Oliva and Kallenberg 2003) or to become more resilient. By using Artificial Intelligence (AI) techniques, this study aims to examine if the high general importance of services for manufacturers is reflected within their specific service offerings. Comparing it with the current and targeted position within the product service continuum (Oliva and Kallenberg 2003), this paper examines which different types of services are offered by the companies more likely. The research focus on service offerings of companies from different Central European countries from three different industry sectors: manufacture of computer, electronic and optical product (NACE 26), manufacture of electrical equipment (NACE 27) and manufacture of machinery and equipment (NACE 28).

INTRODUCTION

As global markets are highly competitive and profit margins are decreasing, traditional manufacturers are forced to seek new growth options by implementing servitization approaches and combining product offerings with services as a strategic alternative (Wise and Baumgartner 1999; Vandermerwe and Rada 1998). Offering services allows companies to differentiate and create a more sustainable competitive advantage due to stable revenue streams, improved profitability and increased customer loyalty and satisfaction (Guo, Li, Zuo and Chen 2015). Furthermore, services also force the resilience of companies which showed the current COVID-19 pandemic.

Besides the general trend of servitization - due to the increased competitive environment on global markets - the implementation of new and digital technologies also plays a critical role for manufacturing companies. Even within the procurement and supply chain processes of manufacturers who offer services, new digitalisation approaches are inevitable as companies are forced to boost their servitization attempts by utilizing digital technologies (Coreynen, Matthyssens and van Bockhaven 2017; Gago and Rubalcaba 2007).

The transformation within manufacturers' servitization approaches from a product focused business model towards more customer-centric service offerings (Oliva and Kallenberg 2003) can also benefit from new and more advanced technologies e.g. the deployment of Artificial Intelligence. AI tools can support manufacturers within different application cases, e.g. through AI and Machine learning algorithms enterprises are equipped to process huge amounts of data in an efficient way, which allows them to support their business decision (Verma *et al.* 2020).

Besides offering digital services e.g. remote monitoring or services supported by AI, one first step for companies is to promote offered services (analogue or digital ones) on their website as it is shown that it leads to higher revenues if buyers are more familiar with products and services if there are on a company website (Liu, Arnett, Capella and Beatty 1997).

Catching up those general trends within the servitization field we use AI by generating automated information based on Natural Language Processing and Machine Learning to assess which types of services are displayed at the companies' website and therefore offered more likely by the companies. Here we do not distinguish between digital or analog services but we use AI as a tool to research the companies` service

offerings automatically. This analysis allows us to identify whether high relevance of servitization – also stated within literature - is reflected at the manufacturers' portfolios.

METHODOLOGY

We used a two-step process combining a quantitative survey with AI based methods. The sample of the quantitative survey (n= 263) consists of manufacturing companies from different European countries (Austria, Czech Republic, Germany, Hungary, Italy, Slovakia, Slovenia). We included SMEs as well as larger companies – especially from machinery and plant engineering. As we want to focus on companies in the European Union which are important actors in the context of servitization and with already existing approaches in terms of robotics data modelling or other solutions we selected the industry of Advanced Manufacturers. Advanced manufacturing is defined as "the use of knowledge and innovative technology to produce complex products […] and improve processes to lower waste, pollution, material consumption and energy use" (European Commission 2021).

In this paper we focus on companies from three industry sectors: manufacture of computer, electronic and optical product (NACE 26), manufacture of electrical equipment (NACE 27) and manufacture of machinery and equipment (NACE 28).

To examine the self-assessment of the current and targeted importance of services among manufacturers we addressed service, sales and senior managers from Central European manufacturing companies in an online survey. Based on the product service continuum (Oliva and Kallenberg 2003) we asked if the relative importance of services will increase in the future.

In order to investigate the service offerings of these companies, we used Natural Language Processing and Machine Learning techniques. Based on annotating about 1.800 multilingual company websites we developed an algorithm which is able to identify evidence at the companies' website for different service categories.

The basic requirement for developing an AI algorithm is an appropriate training set. This comprehensive training set was created by extracting relevant information from the company webpages.

Therefore, we developed the relevant service categories which we based on taxonomies used in literature (Baines et al 2013; Gebauer et al 2010; Homburg, Fassnacht and Günther 2003; Mathieu 2001; Partanen et al 2017). We assigned 21 relevant service categories to six main service categories (Table 1).

This classification was one part of the annotation scheme. Together with other relevant company information (e.g. company name, URL, country, language, number of employees, NACE code, location of headquarter), this template allowed to identify and extract the aspects at the company's website in a structured way. To gather the training data for the AI algorithm, in total, 1800 multilingual websites from European manufacturers from NACE code 26, 27, 28 were analyzed manually. As the AI tool can screen multilingual websites, the annotations were done in Czech, English, French, German, Hungarian, Italian, Slovakian and Slovenian language by native speakers. The training data included small and medium sized companies to integrate also different stages of professionalization of websites.

Based on the annotations a logistic regression classifier was trained which assigns a weight for every combination of words form the training data and service categories investigated. The logistic regression classifier can assign a probability value of every webpage promoting a certain service. For a company website we calculate all these probability values for all the services towards all the (at most 200) webpages our ranking module selects for analysis. Then for each service category the algorithm chooses the highest probability value obtained and takes it as the probability of the given company offering that specific service.

The developed algorithm can be applied to any companies' websites and was used in this study to analyze the existing sub-sample which we also used for the quantitative survey. Based on the annotation and the learned weights for the parameter of the model (more than one million parameters which interact with each other), the machine learning algorithm provides the probabilities with which specific service categories are offered from the company more likely or not. We conclude that a given service is offered by a company whenever the corresponding probability exceed 0.5, i.e., it is more likely to be offered than not.

Table 1: Annotation Scheme - Service Categories

Pre-sales services
product demonstrations
customer seminars

Product support services
warranty
technical user training
customer consulting and support by phone
testing, test rigs, quality assurance

Product lifecycle service
installation services
repair service
spare parts
maintenance
retrofit, modernization, upgrades

R&D services
research service
prototype design and development
feasibility studies

Operational services
project management
service for operating the product for the customer
service for operating customer's processes

Financial services
pay-per-use
instalment payment
leasing
rental system

FINDINGS

The results of our quantitative survey show, that for 94,7 per cent of the Central European manufacturers in our sample services will be more important in the future or as important as they are right now. This confirms the increasing relevance of services for advanced manufacturers.

One of our research questions was now, if this increased importance of offering services can also be seen for customers and so for example be identified at the companies' websites.

By applying our AI algorithm to this sample, we assessed how the increased relevance of services is reflected within the specific service offerings of the companies and which different services types are likely to be offered to customers. Therefore, we divided our six main service categories into basic and advanced services. Our first AI-results show, that for basic services the probability is higher than for advanced services – meaning that in general more basic services are offered by our sample companies than advanced services.

These AI-based results are also confirmed within our quantitative survey, as most of the companies indicate to offer more basic (e.g. basic training, maintenance, repair services) services than advanced services (e.g. consulting services, remote monitoring, leasing). We assessed that on a 5-point Likert scale: mean basic services = 4,24 vs. mean advanced services = 3,21.

Our AI results show, that companies from selected industries focus mostly on product lifecycle services, such as spare parts, repair services or maintenance. Based on the probabilities of the algorithm, product lifecycle services are offered by the sample companies, either separately or in combination with other services of this main service category. Besides that, also technical user training is often offered together with spare parts and repair services as shown in our Heatmap (Figure 1).

Figure 1: Heatmap

Columns (1–21) correspond to the same services listed as rows:
1 product demonstrations · 2 customer seminars · 3 warranty · 4 technical user training · 5 customer consulting and support by phone · 6 testing, test rigs, quality assurance · 7 installation services · 8 repair service · 9 spare parts · 10 maintenance · 11 retrofit/modernization/upgrades · 12 research service · 13 prototype design and development · 14 feasibility studies · 15 project management · 16 service for operating the product for the customer · 17 service for operating customer's processes · 18 pay-per-use · 19 instalment payment · 20 leasing · 21 rental system

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
product demonstrations	35	21	20	22	22	12	20	26	22	26	15	14	19	19	16	0	11	0	1	1	5
customer seminars	21	80	25	55	45	23	42	57	48	52	29	31	37	49	43	5	32	0	1	4	10
warranty	20	25	50	30	33	19	28	40	35	38	22	16	22	23	20	5	17	0	1	3	4
technical user training	22	55	30	79	59	25	53	68	65	65	42	25	42	40	45	5	30	0	0	3	7
customer consulting and support by phone	22	45	33	59	75	27	53	68	62	62	40	25	35	35	40	5	26	0	1	4	6
testing, test rigs, quality assurance	12	23	19	25	27	47	39	36	29	33	31	26	39	37	34	7	19	0	0	1	7
installation services	20	42	28	53	53	39	94	73	59	69	50	35	56	43	56	8	29	0	0	3	10
repair service	26	57	40	68	68	36	73	113	83	88	57	30	56	45	52	9	34	0	1	4	11
spare parts	22	48	35	65	62	29	59	83	98	79	50	23	43	39	46	6	29	0	1	4	10
maintenance	26	52	38	65	62	33	69	88	79	98	53	26	51	44	53	6	28	0	1	4	10
retrofit/modernization/upgrades	15	29	22	42	40	31	50	57	50	53	63	22	41	30	38	6	21	0	0	2	9
research service	14	31	16	25	25	26	35	30	23	26	22	58	37	37	35	6	26	0	1	1	10
prototype design and development	19	37	22	42	35	39	56	56	43	51	41	37	98	49	57	8	27	0	1	1	5
feasibility studies	19	49	23	40	35	37	43	45	39	44	30	37	49	72	54	8	31	0	0	2	8
project management	16	43	20	45	40	34	56	52	46	53	38	35	57	54	81	7	29	0	1	4	8
service for operating the product for the customer	0	5	5	5	5	7	8	9	6	6	6	6	8	8	7	10	7	0	0	0	2
service for operating customer's processes	11	32	17	30	26	19	29	34	29	28	21	26	27	31	29	7	42	0	1	3	6
pay-per-use	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
instalment payment	1	1	1	0	1	0	0	1	1	1	0	1	1	0	1	0	1	0	2	1	2
leasing	1	4	3	3	4	1	3	4	4	4	2	1	1	2	4	0	3	0	1	4	1
rental system	5	10	4	7	6	7	10	11	10	10	9	10	5	8	8	2	6	0	2	1	19

In addition to the high relevance of such basic services, also R&D services (prototype design and development) or operational services (e.g. project management) are offered likely. In contrast, financial services (e.g. pay-per-use, leasing services) are not as present.

IMPLICATIONS

In combination with a quantitative assessment based on the product service continuum, this study presents first results from an AI-based investigation of services from manufacturers. This analysis is part of an application-oriented research project in which a tool was developed to support manufacturing companies in their decisions exporting services through the automated generation of relevant information based on Natural Language Processing and Machine Learning (e.g. offered services from companies in target markets). The developed algorithm can be used to assess any sample of company websites. This also supports the transfer of machine learning modeling approaches into concrete business requirements.

Our application-oriented results show, that AI can support the transition of manufacturers from a product focused business model towards more customer-centric service offerings by investigating which services are mentioned on a company's website and are therefore offered by this company. The results are also offering a great future potential for advanced manufacturers in the context of promoting services on their websites. This is even crucial as services are of high importance in future for manufacturers.

Therefore, the AI based methods and the corresponding quantitative results also extend existing qualitive and quantitative approaches within the servitization literature.

LIMITATIONS

Within an iterative process, we continuously developed this novel AI approach to create a robust model. Nevertheless, by using an AI-based approach within the web-mining field, the results depend on the quality of the companies' websites. Furthermore, the AI model is based on training data collected by various annotators. Despite comprehensive quality standards and checks as a part of the annotation process, annotators might have had different preferences and styles of labelling, which could have led to discrepancies in the data collected.

Besides the ongoing development of the model, it is necessary, to verify the AI-based approach in a qualitative way together with companies. By doing so the companies' viewpoint can be integrated, for example concerning reasons for underrepresenting specific service categories on companies' websites.

Further research also should investigate, if the minor presence of certain services on the website results from a marketing perspective or if companies indeed do not offer many advanced services and therefore they cannot be discovered by AI on the websites.

As described, we want to motivate research and companies to develop AI approaches within the servitization field as there are many opportunities to contribute to research and practice.

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AN AI-BASED INVESTIGATION OF REGIONAL MANUFACTURING SERVITIZATION LEVELS

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ABSTRACT

The paper presents the extent of the servitization level of companies in Austria, Germany, Italy, Hungary, Slovakia and Slovenia, as well as individual services offered based on the analysis of webpages using an in-house developed Artificial Intelligence algorithm. The research focusses on Advanced Manufacturers operating in NACE 26, 27 and 28. The paper partially confirms previous studies regarding the servitization extent of regions, however differences among specific service types have been identified. Therefore, more granular servitization levels depending on the service type are shown.

INTRODUCTION

Despite the increasing interest in servitization by manufacturers and academic researchers (Khanra *et al.*, 2021; Zhou and Song, 2021), a scarcity of studies about the regional extent of servitization levels can be seen (Mastrogiacomo, Barravecchia and Franceschini, 2019). Notably, previous research to quantify the extent of servitization worldwide and at country wide levels is limited by the methods of analysis used, which until now have been mainly surveys, questionnaires or interviews (Neely, 2007; Neely, Benedettini and Visnjic, 2011; Neely, 2013; Dachs *et al.*, 2014). Similarly, large-data analyses of servitization levels rely on databases from which personal, commercial and financial data are retrieved (e.g. Mastrogiacomo, Barravecchia and Franceschini, 2019). As databases are a possible source of bias (D'Haen, den Poel and Thorleuchter, 2013), the aim of this study is to use companies' websites operating in sectors of NACE 26, 27 and 28 as a more complete and more up-to-date source (D'Haen *et al.*, 2016) combined with web mining and an AI-based solution for identifying the servitization level of individual companies and hence, entire regions.

Servitization is a term coined for the organizational change of classic manufacturing companies coupling their traditional goods with the provision of associated services to create value and generate new revenue streams (Vandermerwe and Rada, 1988). Over the last decades manufacturing companies have changed the way in which services are produced and marketed. In the past, services have been seen more as an add-on to products (Gebauer, Fleisch and Friedli, 2005). Nowadays, more manufacturing companies are aware of the benefits of having services for their products and consider their developed service activities as a main differentiating factor in their offerings. In the value proposition, services are fundamental value-added activities, and the product is considered as just being part of the offering (Oliva and Kallenberg, 2003). A challenge for manufacturers is to successfully market and communicate the value proposition of their services. In other words, making the services tangible for the (potential) customers. One possible platform, manufacturers can use, is the online web presence, more specifically the webpage of the company.

In this paper, a newly developed Artificial Intelligent tool is used. The aim is to provide information on the servitization level of regions by investigating individual services promoted by local enterprises on their websites. The research tries to take it one step further as the servitization level is broken down into individual service categories and service offerings in the regions. Additionally, the research promotes the importance of a professional online presence for advanced manufacturers, also when it comes to promoting their service offerings. Almost 75% of buyers in the business-to-business segment favour searching and selecting goods and services online instead of communicating with a salesperson (Arli, Bauer and Palmatier, 2018; Koponen and Rytsy, 2020).

BACKGROUND ON SERVICE CATEGORIES

Prior literature offers many definitions of industrial services as well as terms to describe and study the convergence between manufacturing and services. Partanen *et al.* (2017, p.296) defines "industrial services as all value-adding activities that are consumed, but not possessed, by the industrial customer". In general, the field of industrial service business is vast and many-sided, the variety of classifications reflects the complexity of industrial services offerings. Partanen *et al.* (2017) attempts to summarize and categorize the different industrial service typologies and scales. In first studies the conceptual argumentation that the moment of transaction forms the traditional basis for classifying industrial services is used. Over the last years, studies put emphasis on the relational dimension of service business. Mathieu (2001) or Olivia and Kallenberg (2003) created typologies focusing on product versus process-based services, whereas Ulaga and Reinartz (2011) focus on input versus performance-based services. A classification based on quantitative evidence has been developed which examines the fit between the external environment and the strategy of manufacturing companies. This investigation by Gebauer (2008) resulted in four service offerings classifications (after sales services, process-oriented services, research and development services and operational services). A classification by Raddats and Kowalkowski (2014) based on two dimensions (single versus multi-vendor orientation and product versus customer orientation) results in three service typologies (product-attached services, operations services on companies' own products and vendor independent operations services). Baines *et al.* (2013) categorize service offerings into basic, intermediate and advanced services.

METHODOLOGY

For this study the research approach is derived from the promotion of service offerings on webpages of manufacturing enterprises. Therefore, a fitting taxonomy of industrial-related services (see appendix 1) has been created, which covers the most relevant service offerings of advanced manufacturers and is easy to understand. The following sections describe the methodology in more detail.

Development of industrial service taxonomy

This paper presents a new approach to measure the servitization level of different regions by analysing service offerings on webpages by using an in-house developed Artificial Intelligence tool. The research focuses on the webpages of companies in the field of advanced manufacturing. The European Union (2021) determines advanced manufacturing as "the use of knowledge and innovative technology to produce complex products [...] and improve processes to lower waste, pollution, material consumption and energy use". To identify and structure relevant services the research consortium developed a service taxonomy (see appendix 1), based upon various service categorizations (Oliva and Kallenberg, 2003; Gebauer *et al.*, 2010; Baines *et al.*, 2013; Partanen *et al.*, 2017) and verified the taxonomy with experts from industry. The service typology focusses on services for three specific sectors: manufacture of computer, electronic and optical product (NACE 26), manufacture of electrical equipment (NACE 27) and manufacture of machinery and equipment (NACE 28). In respect to the servitization level, prior studies (Dachs *et al.*, 2014; Mastrogiacomo, Barravecchia and Franceschini, 2019) have investigated these sectors with different approaches, which means that comparable benchmarks exist to compare the findings of the Artificial Intelligent based approach in this research. The resulting twenty-one industrial-related services were grouped into six main categories (Presale Services, Product Support Services, Product Lifecycle Services, R&D Services, Operational Services, Financial Services) representing the service offerings of advanced manufacturers in this study.

Sampling

As the research activities were part of an Interreg Central Europe project called "ProsperAMnet" financed by the European Union Development Fund, the research focusses on and was conducted for the following regions in Central Europe: Austria, Bavaria, Hungary, Italy, Saxony, Slovakia and Slovenia. In total approximately 5,550 manufacturing company webpages (see table 1) were finally gathered and analyzed from national and international databases (like Europages, Aurelia and other) as well as public sources (e.g. Saxony Economic Development Corporation, National Tax and Customs Administration Hungary, Ajpes - Agency of the Republic of Slovenia for Public Legal Records and Related Services, ELEMACO InfoCamere) as well as purchased data collections (e.g. Bavarian Chamber of Commerce and Industry). The companies are characterized by having their main business activity in one of the specific industry sectors, with more than

twenty employees regardless of whether they operate nationally or internationally. The filter of more than twenty employees was chosen, following Kohtamäki *et al.* (2013), which found that microenterprises have limited abilities to offer portfolios for services. Additionally, the analyzed companies have to have an online presence in form of a webpage. In this study different regions in Central Europe, according to Mastrogiacomo, Barravecchia and Franceschini (2019) characterized by perceived low, mediocre and high levels of servitization, were selected for comparison.

Table 1: Overview of regions and number of analysed companies

region	# companies	Level of Servitization (Mastrogiacomo, Barravecchia & Franceschini, 2019)
Austria	1394	high
Germany (Bavaria)	773	high
Germany (Saxony)	1382	high
Hungary	581	low
Italy (Veneto)	585	mediocre
Slovakia	606	mediocre
Slovenia	229	not given

Training and data collection

For the development of the Artificial Intelligent tool, relevant information about these services was retrieved from 1,800 company webpages in eight languages (Czech, English, French, German, Hungarian, Italian, Slovak and Slovenian) through twenty-two specially trained annotators. The annotators from seven different countries were carefully selected and trained. They were graduate or postgraduate students from the field of business and/or technology, had domain knowledge, and were native speakers of the languages (with the only exception being the English language). To ensure a mutual understanding of the chosen service categories and minimize the discrepancies between the different annotators, a trial process of annotation was applied. The gathered data was cross-checked, differences identified, and comprehensive feedback was presented to the researchers in order to improve the manual annotation process. The process was repeated in three loops to ensure a high quality of data collection. The collected data and conducted annotations were checked solely by domain knowledge experts of services in the relevant sectors.

Exemplifying one of the quantitative evaluation methods to align quality and consistency among the annotators, fifteen specific company websites were annotated by pairs of independent annotators. The annotation process was open ended, i.e., annotators were not provided with a fixed set of sub-websites from a given URL to check but just a base URL of a company. Then, they were allowed to check any of the in-domain webpages of the given URL. As such, a pair of annotators could find evidence of a particular service being offered by the specific company on two distinct pages of the same company website. In order to account for that, we aggregated the services found by the individual annotators at the company level. The result of each annotation with respect to a company website consisted of binary values, each one indicating whether the annotator deemed a service to be offered based on the contents of a company website.

Artificial Intelligence algorithm

These annotations served as basis for training and validating of an AI-tool applying Natural Language Processing and Machine Learning algorithms. Using machine learning can help improve the identification of services in text beyond what is possible with manually written rule-based systems as different companies may describe the same service in different ways and the descriptions can occur in various contexts (Verma *et al.*, 2021).

To develop a robust solution, the biggest issue was the question of different languages: most of the potential target companies came from non-English speaking countries and a large number of them have no English content on their websites. Moreover, there was not enough data to make an independent classifier for each of the languages. To deal with this situation, a multilingual solution was used by applying cross-lingual word

embeddings (Joulin *et al.*, 2018). Word embeddings assign a vector to every word form in a way that words with similar meaning get assigned to vectors that are close to each other, for example, the vector of the "king" is close to the vector of the "emperor" but far from the vector of "sushi". The cross-lingual word embeddings can do the same, but across different languages, for example, the vectors for the German word "König" and the English "king" are close to each other. With the chosen approach the webpages are "translated" by replacing the words with five of the most similar English words (and to make the database consistent, the same method is applied to the English data as well: the four most similar words have been added to each word form on the pages). In the research, Facebook's fastText aligned vectors is used, which provide cross-lingual word embeddings for 44 languages.

After having dealt with the languages difference issue, a classifier that can analyze the individual servitization status of a company was developed. As the manually annotated and collected database contains the exact URL of each annotated service, this analysis could be done separately on each different URL (sub-webpage). This sub-webpage levels dataset describes a multi-label classification problem. Meaning that each of the sub-pages could be associated with zero or more service categories. In this study, a binary classification problem for each of the twenty-one service categories was used, where the deciding factor was if a sub-pages contains a service or not. For each of these tasks, a logistic regression classifier has been applied, which assigned a probability to each of the words.

Since most of the sub-webpages do not contain information about the servitization level, the database was extremely unbalanced. Therefore, the class weights have been inversely proportionally adjusted to the class frequencies. It increases the importance of the small number of service-related examples without dropping any of the non-service-related ones. This can help to get the most detailed representation of the different service classes. To find the related parts of the websites, the website crawling mechanism starts from the main page of a company and moves through in-domain links from page to page. In total the crawler investigates up to 200 pages and skips the URLs that are not reachable from the main pages within ten steps. This process gathers not just the visible content of the webpages but also extracts the title, the description, the keywords, and any metadata or other textual part of the source code.

To find the most relevant pages for the services, a priority value has been assigned to all the subpages. Based on this value, the system will prioritize the order of the downloads. The prioritization is generated by another classifier that requires only the URL as input and will order higher value to the pages where the probability of the occurrence of the services is higher. For example, it prefers URLs containing "/warranty/" over "/contacts/". As in the step before, a logistic regression model had been used, but in this case, it learns weights to all of the 3-5 length character subsequences of the URLs and it applied only two labels: one for the pages that contain services and one for the others. The priority is calculated by the probability of the label that refers to the services.

After the downloading and analyzing steps, the algorithm has predictions for each of the sub-webpages that ultimately have to be aggregated at the level of whole websites. In this step the algorithm just searches for any occurrence of the services. If a service is found, meaning the probability of a service label is higher than 50% in any of the sub-webpages, it will be found on the level of the whole website too.

Concluding, the developed algorithm finally investigates up to 200 sub-webpages per company domain including hidden information in the source code and assigns probabilities, whether certain services are offered on the company domain or not. A probability larger than 50% means that a certain service is deemed to be more likely offered than not. The figures in the result table (compare appendix 1) indicate the percentage for how many companies in the individual region the probability that the specific service was offered is larger than 50%. The resulting tool was checked with 20 company websites where the research consortium had deep insight into their service offerings. Additionally, the toll was presented in seven round tables with around eight firm representatives from each of the focused sectors, verifying the robustness of the results. These participants evaluated several company websites such as their own or those of competitors.

FINDINGS

The results of the sample analysis (see appendix 1) indicate strong differences among the six service categories as well as differences between the chosen regions. Product lifecycle services (such as repair services), product support services (such as technical user training) and R&D services (prototype design &

development) are overall better established in the analyzed enterprises (on average 24% of companies). In contrast, presale services (e.g. product demonstration) and operational services (project management) are trailing behind (between 12-15%). Whereas financial services (rental systems) are basically not promoted on the company webpages (on average only 2%) in all regions. Therefore, more granular servitization levels depending on the service type can be shown. The highest scores (59% and 53%) are detected for the service "prototype design & development" in the Saxony and Bavarian regions, which suggests a concentration of R&D activities of advanced manufacturers in Germany. In contrast, the services "Pay per Use" and "Instalment payment" score the lowest (on average 1% in all regions), which suggest a lack of financial service offerings for advanced manufacturers. This confirms partial results of the research by Mastrogiacomo, Barravecchia and Franceschini (2019), which attested financial services to be offered by manufacturers in the NACE sector 26, 27 and 28 on average at 3%.

In table 2, the number of services detected per company in the individual regions is presented. Dachs *et al.* (2014) found in their investigation of servitization extent in nine European countries that Austria (85%) and Germany (83%) have a high figure for manufacturers providing at least one service. These findings are partially confirmed with our AI-based approach as well (compare table 2). Additionally, the AI-based approach enables a further step by counting the service offerings found per company to make the servitization levels of the different regions visible. Concerning the regions, Austrian, Bavarian and Saxon companies are more servitized. Although the different regions show similarities in the segment "1-5 services offered" (averaging around 37%), the different regions vary significantly in the segment "6-10 and 11-15 services offered". This demonstrates that companies in the Austrian, Bavarian and Saxony region provide a higher range of different service offerings and suggest being in the front in the servitization journey in comparison to the other regions. Overall, the results confirm previous studies regarding the servitization level of different regions, although differences among specific service types have been identified.

Table 2: Number of services found

Number of services found	None	At least one	1-5	6-10	11-15	16-21
Austria	22%	78%	40%	23%	13%	2%
Germany (Bavaria)	19%	81%	38%	23%	17%	3%
Germany (Saxony)	26%	74%	39%	23%	12%	2%
Hungary	36%	64%	38%	18%	7%	1%
Italy (Veneto)	60%	40%	36%	4%	0%	0%
Slovakia	43%	57%	33%	14%	9%	1%
Slovenia	49%	51%	35%	12%	3%	1%
Total	36%	64%	37%	17%	9%	1%

Finally, the sample was investigated to ascertain if and which detected service offerings occurred together on the specific company webpages. The result is displayed in the heatmap "service co-occurrence distribution" (compare figure 1). The comparison demonstrates that companies offer services together more often from the same service category than from two different service categories. This supports the development paths discussed by Oliva and Kallenberg (2004) that developing an additional basic service is more favorable than developing an additional advanced service to a companies' basic service portfolio. The highest scores are found in the service category "product lifecycle service" (installation service, repair service, spare parts, maintenance and retrofit, modernization and upgrades). This means that it is very likely that companies which offer installation service, also offer spare parts, do maintenance, and offer repair services. A concentration of paired service offerings can also be found between the service category "product lifecycle service" and "product support service".

Figure 1: Service co-occurrence distribution

	product demonstrations	customer seminars	warranty	technical user training	customer consulting and support by phone	testing, test rigs, quality assurance	installation services	repair service	spare parts	maintenance	retrofit/modernization/upgrades	research service	prototype design and development	feasibility studies	project management	service for operating the product for the customer	service for operating customer's processes	pay-per-use	instalment payment	leasing	rental system
product demonstrations	0.11	0.07	0.05	0.06	0.06	0.05	0.06	0.07	0.06	0.07	0.05	0.06	0.07	0.05	0.05	0.01	0.05	0.00	0.00	0.01	0.01
customer seminars	0.07	0.17	0.06	0.12	0.10	0.07	0.10	0.11	0.10	0.11	0.07	0.08	0.10	0.09	0.09	0.01	0.07	0.01	0.01	0.01	0.02
warranty	0.05	0.06	0.17	0.09	0.09	0.06	0.10	0.11	0.11	0.11	0.08	0.06	0.08	0.06	0.06	0.01	0.05	0.01	0.01	0.01	0.02
technical user training	0.06	0.12	0.09	0.22	0.14	0.10	0.16	0.17	0.16	0.17	0.12	0.09	0.13	0.10	0.11	0.01	0.07	0.00	0.01	0.01	0.03
customer consulting and support by phone	0.06	0.10	0.09	0.14	0.20	0.09	0.14	0.16	0.16	0.16	0.11	0.09	0.12	0.09	0.10	0.01	0.07	0.01	0.01	0.01	0.02
testing, test rigs, quality assurance	0.05	0.07	0.06	0.10	0.09	0.19	0.13	0.12	0.12	0.12	0.09	0.10	0.14	0.11	0.11	0.01	0.06	0.00	0.00	0.01	0.02
installation services	0.06	0.10	0.10	0.16	0.14	0.13	0.31	0.22	0.20	0.22	0.15	0.11	0.19	0.13	0.17	0.01	0.07	0.01	0.01	0.01	0.03
repair service	0.07	0.11	0.11	0.17	0.16	0.12	0.22	0.32	0.23	0.25	0.15	0.10	0.16	0.12	0.14	0.01	0.08	0.01	0.01	0.01	0.03
spare parts	0.06	0.10	0.11	0.16	0.16	0.12	0.20	0.23	0.29	0.22	0.15	0.10	0.15	0.10	0.13	0.01	0.07	0.00	0.01	0.01	0.03
maintenance	0.07	0.11	0.11	0.17	0.16	0.12	0.22	0.25	0.22	0.29	0.15	0.10	0.16	0.11	0.14	0.01	0.08	0.00	0.01	0.01	0.03
retrofit/modernization/upgrades	0.05	0.07	0.08	0.12	0.11	0.09	0.15	0.15	0.15	0.15	0.18	0.07	0.11	0.08	0.10	0.01	0.05	0.01	0.01	0.01	0.02
research service	0.06	0.08	0.06	0.09	0.09	0.10	0.11	0.10	0.10	0.10	0.07	0.20	0.15	0.12	0.12	0.01	0.07	0.00	0.00	0.01	0.01
prototype design and development	0.07	0.10	0.08	0.13	0.12	0.14	0.19	0.16	0.15	0.16	0.11	0.15	0.32	0.15	0.17	0.01	0.07	0.00	0.01	0.01	0.02
feasibility studies	0.05	0.09	0.06	0.10	0.09	0.11	0.13	0.12	0.10	0.11	0.08	0.12	0.15	0.19	0.13	0.01	0.07	0.00	0.01	0.01	0.02
project management	0.05	0.09	0.06	0.11	0.10	0.11	0.17	0.14	0.13	0.14	0.10	0.12	0.17	0.13	0.24	0.01	0.08	0.00	0.01	0.01	0.02
service for operating the product for the customer	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00
service for operating customer's processes	0.05	0.07	0.05	0.07	0.07	0.06	0.07	0.08	0.07	0.08	0.05	0.07	0.07	0.07	0.08	0.01	0.10	0.01	0.01	0.01	0.01
pay-per-use	0.00	0.01	0.01	0.00	0.01	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00
instalment payment	0.00	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.00	0.01	0.00	0.01	0.01	0.00
leasing	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.00	0.01	0.02	0.01
rental system	0.01	0.02	0.02	0.03	0.02	0.02	0.03	0.03	0.03	0.03	0.02	0.01	0.02	0.02	0.02	0.00	0.01	0.00	0.01	0.01	0.05

MANAGERIAL IMPLICATIONS

This paper discusses the results of an AI-based approach to investigate the servitization levels of individual regions, based on the promotion of industrial service offerings at webpages of enterprises operating in the sectors NACE 26, 27 and 28. Therefore, managers are able to derive service business strategies for their own market, based on which industrial services are already being offered. Having intelligence of their home market possibly indicates potential next steps in the development of their service offerings. The results of the service co-occurrence heat map might advertise which new service offerings complement the current portfolio.

Similar to the home market, managers are able to investigate regions for potential future service export activities. The tool demonstrates which industrial services are already offered by local manufacturer or competitors in the investigated regions. This may help managers to understand whether local customers have already been confronted with and hence are aware of a specific service category or whether the market has to be prepared for the target service (e.g. if the service is not offered at all by local companies).

Finally, the developed tool is publicly freely available (see https://www.prosperamnet.eu/). Therefore, managers can individually analyse their company website to understand whether their service offerings are visible on their webpage and how they perform in comparison with their competitors.

RESEARCH LIMITATIONS

Despite this novel approach to create a robust model, results depend on the professionalism of company webpages. Additionally, the AI-algorithm was trained with data collected by various annotators. Although the researcher conducted quality assurance measure methods (e.g. check of annotations, feedback etc.), the trainings data is exposed to different understandings of the domain knowledge and different preferences of labeling. Due to the focused investigation of industry sectors NACE 26,27 and 28 and specific regions, the study is exposed to industry and regional biases. Regional differences in the online service presentation may lead to deviations between communication and real service offerings. During the development of the Artificial Intelligent algorithm certain parameters were decided on by the research consortium which might expose the study to programming biases (e.g.: fuzziness - "noise" in the precision and recall ratio).

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APPENDIX 1: Results of service detected by the artificial algorithm

	Presale Service		Product Support Service				Product Lifecycle Services					R&D Services			Operational Services			Financial Services			
	product demonstrations	customer seminars	warranty	technical user training	customer consulting & support by phone	testing, test rigs, quality assurance	installation services	repair services	spare parts	maintenance	retrofit modernization upgrades	research service	prototype design & development	feasibility studies	project management	service for operating the product for the customer	service for operating customer's processes	pay per use	instalment payment	leasing	rental system
Austria	17%	27%	23%	31%	33%	23%	40%	41%	38%	40%	24%	24%	41%	28%	36%	2%	17%	1%	2%	3%	5%
Germany (Bavaria)	20%	33%	26%	38%	36%	30%	41%	41%	42%	41%	29%	28%	53%	33%	32%	2%	17%	1%	1%	3%	7%
Germany (Saxony)	14%	25%	21%	31%	29%	34%	48%	43%	37%	41%	26%	26%	59%	33%	34%	1%	13%	1%	2%	2%	6%
Hungary	8%	13%	19%	18%	17%	17%	32%	33%	32%	28%	18%	24%	26%	14%	22%	1%	9%	1%	1%	2%	2%
Italy (Veneto)	2%	3%	6%	3%	7%	5%	4%	9%	5%	7%	2%	11%	21%	11%	5%	0%	2%	0%	0%	1%	2%
Slovakia	14%	15%	15%	18%	20%	22%	22%	29%	24%	25%	11%	19%	23%	15%	23%	4%	12%	1%	2%	2%	2%
Slovenia	8%	6%	13%	10%	16%	15%	21%	20%	23%	19%	10%	15%	16%	8%	11%	1%	8%	0%	0%	0%	3%
Total	12%	17%	17%	21%	22%	21%	30%	31%	29%	29%	17%	21%	34%	20%	23%	2%	11%	1%	1%	2%	4%

THE USE OF SMART TECHNOLOGIES TO FACILITATE PATIENT ENGAGEMENT

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ABSTRACT

The study aims to understand how smart technologies facilitate patient engagement, investigating the effects of their use on the cognitive, behavioural, and affective dimensions of engagement in smart healthcare services. The study follows 3 phases: a) a pre-introduction context of technologies, b) smart technologies' fine-tuning, c) the investigation of smart actions implemented in Medicinae, a surgical clinic. Findings show how smart technologies enable speeding up interaction, allow patients to continue their care independently, enable a healthcare personalized experience and emotional involvement of the patient in a conversational way. The study opens up new possibilities to enable patient engagement involving tech.

INTRODUCTION

Smart technologies have rapidly evolved over the last 20 years, impacting daily life and habits. The spread of smartphones, tablets, and smart objects has contributed to the exponential increase in connectivity. According to The World Economic Forum (2019), there are 8 billion devices connected to the Internet and it is expected that by 2030 that number will increase to 1 trillion interconnected devices. Smart Technologies are described as "entities where physical devices or processes are complemented with the smart properties of digital technologies". (Nasiri *et al.*, 2020 p.97). The term "SMART" refers to self-monitoring, analysis, and reporting technology (Zhu *et al.*, 2013).

These technologies drive healthcare business development and they are expected to completely transform it (Gleiss, 2020). Through devices, humans can capture sensory data every day and act on critical aspects of their daily activities by utilizing past experiences (Backer *et al.*, 2017); similarly, the introduction of virtual agents has been demonstrated to widely support doctor-patient relationships and improve service provision with patients. (Loveys *et al.*, 2020) However, while new devices and tools, such as smart mobile applications, intelligent devices, and virtual agents for healthcare drive service innovation, human use and impact on patient engagement remain some of the main limitations to the diffusion of these new technologies. These aspects need much more investigation.

This research aims to understand how smart technologies foster patient engagement, by investigating the effects of their use on the cognitive, behavioral, and affective dimensions The study adopts a qualitative approach to explicate complex issues and advance extant knowledge (Dubois and Gadde, 2002; Gummesson, 2005, 2017). The investigating context is Medicinae, a medical and surgical clinic, located in Italy, in which different smart technologies (mobile application, wearable, and chatbots) have been recently introduced for the patient management workflow. The research process followed three phases. Introducing a longitudinal study, the first step concerned the study of a context "pre-smart", to analyze the patient engagement before the introduction of smart technologies. The second phase focused on the analysis of the characteristics of smart technologies implemented in Medicinae and their impact on service provision. Finally, the third phase concerned the study of a "smart" context, which aims to analyze how the introduction of smart technologies has impacted the patient's engaging actions.

The findings offer a deep understanding of how smart technologies boost the cognitive, behavioral, and affective dimension of patient engagement in the healthcare context providing: a) a new approach for patients to receive the right healthcare at the right time, enabling a speeding up interaction (smart behavioral engagement); b) a new approach for patients to continue their care independently, enabling a healthcare personalized experience (smart cognitive engagement); c) a first step towards the emotional involvement of

the patient, to enable reactive and conversational actions (smart affective engagement). For example, smart technologies, by enabling patients or doctors the on-demand access to content, care and resources everywhere and every time (without imposing time and place to request information), enable a speeding up interaction. The results will also show that the introduction of smart technologies will be able to allow patients to continue their care independently, keeping their vital parameters under constant control and having the opportunity to interact with the doctor in case of need enabling a healthcare personalized experience. This represents a first step towards the emotional involvement of the patient reactively and conversationally.

The study opens up new possibilities for researchers and managers who design patient engagement involving tech. In the next sections, we review research pertaining to two key topics: patient engagement and smart technologies in healthcare. Then, we present a three-stage study and its findings. Finally, we outline some theoretical and managerial implications, and we conclude with a discussion of limitations and suggestions for further research.

LITERATURE REVIEW

Patient engagement

In the service literature, the concept of engagement is eminently relational and denotes new forms of exchange between a service provider and user in a postmodern consumer context (Hollebeek, 2011; Brodie and Hollebeek, 2011). In the healthcare sector, the term "engagement" is used with the expression "patient engagement", since the patient better reflects the user's idea from a service perspective, as in health services (Wiederhold *et al.*, 2013). Patient engagement is connected to psychosocial, relational, and organizational aspects that foster the people to become more active, aware and participate in the management of the care process (Caic *et al.*, 2018) and qualifies the type of relationship that the patient establishes - or can establish - with the reference health system, in the various phases that lead to the treatment. Barello al. (2015) adapted the three-dimensional construct by Hollebeek (2011) to the healthcare context, thus addressing patient engagement. The behavioral dimension concerns activities regarding, patient conduct in his/her personal profile, patient participation in healthcare-related activities, and patient interest in their healthcare task (Wu et al, 2011). The affective dimension concerns activities regarding patients' feelings of belonging or value to their doctors, their nurses, or the hospital (e.g., interest, sadness, anxiety, etc.) (Menichetti, 2018). Finally, the cognitive dimension is focused on the patient's internal investment in the healthcare process, which incorporates the inner psychological qualities of the patient or their non-visible traits that promote effort in control, reflection, planning, monitoring, understanding, and mastering the knowledge or skills that are promoted in their healthcare process (Reinares-Lara *et al.*, 2019).

The three dimensions described above, however, have been affected by the accelerated technological development that characterized the last decade (ref.). This has given rise to the need to understand how smart technologies foster patient engagement (Mele *et al.*, 2021). To accomplish this aim, we move to the literature on smart technologies in service science.

Smart technologies

Smart technologies have a significant potential to impact people's behaviors thanks to their ability to increase access to different resources (Kaartemo and Helkkula, 2018) and the ability to influence technology-based encounters (Mele and Russo Spena, 2019). With the use of smart technologies, people are able to use and/or deliver an intelligent service based on their interaction with digital tools that perform, in an automatic and/or semi-automatic manner, tasks and objectives that traditionally required human intelligence (Huang and Rust, 2021). In the healthcare context, the application of smart technologies supports healthcare professionals in their daily activities (Backer *et al.*, 2017), making it possible to simplify and speed up repetitive and non-repetitive activities, while guaranteeing savings in resources and an increase in the quality of the health service (Prakash *et al.*, 2021). According to Huang and Rust (2021), smart technologies can involve three different types of intelligence: mechanical intelligence, thinking intelligence, and feeling intelligence. An example of mechanical intelligence are the smart mobile applications (SMAs). In the healthcare context, SMAs are able to support actors in the collection of healthcare data (Garry and Harwood, 2019) , transfer them to other actors (Langley *et al.* 2020) and remember the critical data to activate the alarm (Dahl *et al.*, 2021). These activities support doctors and caregivers in the diagnosis of diseases, enabling the prevention

process (Baker *et al.*, 2017, Bettiga et al, 2020).

The second type of intelligence, the thinking intelligence, is involved in intelligent devices (Dawar and Bendle, 2018). They are able to analyze ever-growing volumes of data and use them to support the actors of the healthcare ecosystem in strategic decision-making, forecasting and modified processes. Supporting the provision of healthcare services, virtual agents are able to engage patients and caregivers on a social-emotional level and have great potential in improving the healthcare status of the patient without requiring advanced technical skills (Luerssen and Hawke, 2018).

The use of smart technologies in healthcare services (Chung and Park, 2019), their acceptance for the diagnosis of diseases (Nadarzynski *et al.*, 2019; Laumer *et al.*, 2019), are just some of the research topics already addressed in the service literature, but their role within the medical service path is not well specified. In particular, it is necessary to investigate how the use of smart technologies supports the patient engagement caregivers' activities along the smart medical service journey (Backer *et al.*, 2017).

The introduction of smart technologies to support the patient management aims to promote greater patient self-management in the conscious management of his disease, within the framework of a good partnership relationship with the health system (Neuofer *et al.*, 2015; Graffigna *et al.*, 2015). A hired patient is the bearer of good practices of exchange between supply and demand of health services, capable of sensitizing his proximal network on the virtuous processes of use of health services and disease management (Fisher *et al.* 2012).

METHODOLOGY

This research adopts a qualitative approach to explicate complex issues and advance extant knowledge (Dubois and Gadde, 2002; Gummesson, 2005, 2017). The study focuses on smart technologies implemented by Medicinae, with an application of information retrieval, automated reasoning, and knowledge representation.   The implementation of smart technologies is provided by the Smart Medical Service, to obtain: a remote monitoring of patients, the personalization of treatments, and system-wide capacity management.

In order to describe and understand the complex structure of relationships that identify and characterize the single-case study "Medicinae", the authors divided the research process into three steps. The first phase concerned the investigation of the main reasons that led to the implementation of smart technologies in the Medicinae context. In other words, a pre-introduction context of technologies is analyzed, through semi-structured interviews with patients and medical staff. The second phase is focused on the smart technologies' fine-tuning. An in-depth analysis of technologies implemented in Medicinae has been elaborated by semi-structured interviews with technology providers offering preliminary insights that impact patient engagement. In particular, two technology providers and two Medicinae staff were interviewed using the same data analysis criteria of phase 1. The interviews were done online, in an in-depth way, on the Zoom platform ranging from 25 to 65 minutes. All the interviews were recorded and transcribed by the four authors. The aim is to analyze the features of the smart technologies implemented in Medicinae and understand how they help human actors to eliminate gaps and obstacles that emerged in phase 1.

Finally, the third phase is focused on the investigation of smart actions (related to engagement) implemented in Medicinae. Semi-structured interviews with patients and Medicinae staff were conducted to elicit the investigated phenomena' patterns, concepts, and categories (Gummesson, 2005).

The data collection was enriched and utilized secondary sources in the form of official company's documentation such as archives and websites. Additionally, business publications and materials provided by key informants were used to collect more data.

Phase 1) A pre-smart context: the pre-introduction of smart technologies

To understand and evaluate the motivation to the base of the introduction of smart technologies being used at Medicinae, as well as determine how their adoption affects patient engagement, we focus, first, on obstacles that influence, in a negative way, the interactions and collaborations among patient and

Medicianaes staffs, in a " pre-smart context". With our qualitative method, we attempt to establish the pre-smart contexts within which patient and Medicinae staff interact and collaborate (Gummesson, 2014; 2017), using interviews with 5 Medicinae Staff and 4 patients. Further, the collection of data is supported by the elaboration of a patient's dashboard.   The interviews each lasted from one to two hours, and during them, we administered a semi-structured questionnaire to encourage patients and medical staff to recognize gaps in their collaboration and interaction. The interviews stopped when we reached a saturation point (Urquhart, 2013). After that we increase these insights with data from secondary sources, i.e., websites and official reports (Lincoln and Guba, 1985).   To analyze these data, we first used open coding to identify initial themes. Then in a second step, we carried out an analytical data process, linking the verbatim analysis with text mining and lexical analysis. In the data coding process, we relied on thematic analysis, such that instead of a mechanistic data-reduction approach, we sought to transform the raw data to a more conceptual level (Gummesson, 2017).

Based on these analyses, we determined that the Medicine staff didn't understand the affective state of patients due to a lack of skills to analyze the emotional- state of the person. See table 1. The misunderstanding of the patient's emotional state resulted in a drop in "last minute" (from the patient's side) appointments with negative effects on the organization of work.

"I don't know if my patient is happy to be looking at the office on that day of the week or feels nervous because he/she cannot match other commitments. this creates great difficulties for my work" (N. 1 Doctor Medicinae staff)

"It happens very often to cancel my note at the last minute, this happens because I have a lot of commitments on Wednesday. this makes me stressed and nervous and consequently, I don't want to spend time in the waiting room" (N. 1 Patient)

A further obstacle to deep interaction was stressed by the difficulty in understanding which services to offer to the individual patient based on his/her interests or hobbies due to the limited time available to communicate with the patient. Services that are not in the patient's interest cause the patient to be removed and disinterested in all ongoing activities*.*

"I would like to understand what entertainment service I can offer to the patient in the waiting room, in a personalized manner, in addition to the usual gossip newspapers. In my opinion, this would improve the behavior of the patient" (N. 2 Caregivers Medicinae staff)

"I get bored very often in the waiting room. Sometimes I feel that I am wasting my time, for this reason, I prefer to postpone / or cancel appointments if they are not urgent health issues" (N. 2 Patient)

Finally, due to the long time required to perform routine administrative tasks, Medicinae staff have little time to devote to listening to the patient's "management" problems. This leads to a poor understanding of the problems and related possible solutions to the patient with negative effects not only cognitive but also behavioral*.*

"I am unable to respond adequately to the management problems of the patient because I do not have time to investigate his needs. This results in a very superficial response I give to my patient" (N. 3 Caregivers Medicinae staff). "When I don't understand how to manage the collection of my health data, I ask for detailed information. Unfortunately, the answers are often not exhaustive, and I comment on the errors. This makes me feel unable to manage my health and very often I prefer to refer even the simplest activities to my doctor." (N. 3 Patient)

Table 1: Gaps and obstacles in a pre-smart context

	OBSTACLES	OBSTACLES
GAPS	Medicinae Staff	Patient
Lack of time	misunderstanding of a patient's "management" problems.	*little interest in the services offered (disinterest)*

	misunderstanding of the patient's needs due to poor communication misunderstanding of the patient's emotional state	decrease in participation in care activities (increase the patient passivity) removal of the patient in the treatment path (decrease in interaction)
Lack of Skills		

Phase 2) A smart context: the smart technologies' fine-tuning

Based on this analysis, we determined that the Medicinae staff experimented with new methods to understand how the patient behaves, understands, and feels. Through combined uses of smart mobile applications (SMAs), intelligent devices, and virtual agents, they attempted to offer more assistance to patients through informed communication. This is enabled by automating repetitive tasks (to make Medicine staff freer) and automatic support in activities that require specific skills (automatic data analysis). More in detail, smart technologies are able to support Medicinae staff and patients' communication thanks to their ability to enable the automatic collection and sharing of data. The tasks automation allows the Medicinae staff to have more free time to devote to the study of patient data (thus enabling informed communication). Furthermore, the shared database that doctors and caregivers can consult is much more enriched, thanks to the features of smart technologies: a) to collect data from different sources every time and everywhere and b) to analyse data that require specialist skills: the emotional data.

Finally, the automatic data sharing, collection, and analysis enabled:

 a) automate and centralize all the processes that lead the patient to book a visit and sort it out, to better management of patients in terms of efficiency (average time of presence in the structure). See table 2.

"When the patient asks me for information, I can be more exhaustive in my answers. This thing makes me happy but above all, it makes me more sociable. I have a lot of free time to devote to the study of relative data and the management of visits but above all, I no longer have a long line of people who come to me to ask for info." (n.3 Caregiver Medicinae staff)

b) make the need for the physical presence of the patient, doctors, and caregivers on-site less rigid, to a better and timely therapeutic approach.

"When I must share data with a colleague of mine, I don't have to physically go to the clinic. The data sharing software allows me to obtain and share data and info even if I am in another place" (n. 1 Doctor, Medicinae staff)

c) create areas of exchange of knowledge and opinions with the Medicinae staff without the need for physical meetings in the usual meeting room, to better management in terms of access to services for the patients.

"The fact that I can share a question or opinion with my colleagues without wasting much time makes me a "better" doctor. Sharing of medical knowledge is an important aspect of our work and very often requires time. Also, the fact that the patient can constantly send me his vital parameters (from his home, his office, etc.), allows me to keep the situation "under control" The elimination of this obstacle allows me to offer a better service to my patient" n. 2 Doctor, Medicinae staff)

Table 2: Smart technologies implemented in Medicinae

Technologies	Features and tasks	Support to:	Examples implemented in Medicinae
Smart Mobile Applications (SMAs)	Data sharing	Patient service Workflow	Slack Kanban Miro
Intelligent Devices	Healthcare Data collection	Workflow Telemetry	Smartwatches

Virtual Agents	(Emotional) Data analysis	Empathic patient service	Chatbot

Phase 3) A smart context: The "smart" patient engagement

With the third study, the research team explored how patients became more engaged thanks to tech-touch collaborative processes where smart technologies play an important role. In addition, the Medicinae staff offered an understanding of the engaging activities. In study 1 the research team made interviews with Medicinae staff and patients to have an understanding of gaps and obstacles that limit the interaction and collaboration between actors. From the interviews carried out it emerged that the lack of skills and the lack of time limited interaction, communication, and the sharing of information between the interviewed actors, with negative impacts on behavioral, cognitive, and affective engagement. By using smart technologies, it is possible to enable automatic data sharing, collection, and analysis, as well as understand patients' emotions. After the introduction of these technologies, the research team re-carried out the semi-structured interviews and meetings with patients and Medicinae staff to figure out tech-touch patient engagement with smart technologies and to write a group of narratives. Narratives offer internal reliability and validity by gaining consensus between the members of the researcher teams (Polkinghorne, 2007).

The third phase shows that smart technologies are providing a new approach for patients to receive the right healthcare at the right time, for example by enabling on-demand access to content, care and resources for the condition without imposing time and place to request information, enabling a speeding up interaction (behavioral engagement). The results will also show that the introduction of smart technologies will be able to allow patients to continue their care independently, keeping their vital parameters under constant control and having the opportunity to interact with the doctor in case of need enabling a healthcare personalized experience (cognitive engagement). This represents a first step towards the emotional involvement of the patient reactively and conversationally (affective engagement).

For example, a woman patient recounted her experience by detailing how difficult it was to interact with Medicinae staff, monitor her vital parameters constantly, and transfer the medical information to another physician or caregivers who have overtaken thanks to the use of smart technologies.

"The idea of always being connected with my doctor, the idea that my health data are constantly transmitted to the doctor, being able to dialogue on other doctors who already know my state of health, through shared folders, makes me serene and calm. I know that I make no mistakes in transferring information, I also speak more with the staff of Medicine because I don't waste time talking about my symptoms ... but they already know everything. All this makes me feel active and involved." (Patient n.2)

The in-depth analysis of three stages led us to classify the engagement in three different dimensions, namely: a) smart behavioral engagement, b) smart cognitive engagement, c) smart affective engagement.

Smart Behavioural Engagement - Speeding up - Became Engaged

The intelligent automation of repetitive tasks speeded up interaction. Virtual agents (i.e chatbots) and SMAs allow patients to interact more easily with medical staff and their caregivers while enabling service providers to automate complex and resource-intensive tasks. Making a large number of information resources available to patients in a very short time facilitates engagement. This approach can also represent a tool for optimizing both the cost-benefit of healthcare as a whole and the patient journey of patients.

Smart Cognitive Engagement - Empathizing - Stay Engaged

The introduction of emphatic chatbots linked to SMAs and devices is able to allow patients to continue their care independently, keeping their vital parameters under constant control and having the opportunity to interact with the doctors in case of need enabling a healthcare personalized experience. These allow patients cognitive engagement due to the development of an empathic analysis that empathizes interaction between patients, technologies and medicians. What makes the difference is the way, made of tone and relevance,

with which the bot developed for Medicinae responds to questions. In other words, the level of empathy is the decisive element between the chatbot that keeps the user of the online dialogue platforms glued and what makes him give up quickly. Not only, but also the use of Apps allows service providers (doctors, medicians, caregivers) to provide an empathic analysis of patients' data. In this way, the user interacting with these technologies maintains emotional involvement during his service path.

Smart Affective engagement - Personalizing - Increased engagement

Devices such as smartwatches (e.g., Apple Watch) allow people to interact with technologies in a personalized way through the development of customized solutions. Patients take advantage of a personalized service wherever they are and with any tool at their disposal. At the same time, it is possible to guarantee continuity between the personalized services provided in healthcare companies and the treatments to be continued independently. The patient becomes not a passive technology acceptor but an active and collaborative protagonist. This represents a first step towards the emotional involvement of the patient reactively and conversationally (affective engagement).

CONCLUSION

This study has both theoretical and practical implications. By addressing the call for more research on patient engagement and smart technologies in the healthcare context (Gleiss, 2020), we contribute to the literature by proposing the smart technologies fine-tuning in healthcare settings to facilitate engagement on three different dimensions. SMAs, intelligent devices and virtual agents are becoming an integral part of the new path healthcare services. The intrinsic characteristics of these technological tools, such as automation of repetitive tasks, empathic analysis, personalization of experiences allow improving the interaction between healthcare providers and their patients, with positive impact on engagement. Thus, these smart technologies are providing a new approach for patients to receive the personalized service at the right time, for example by enabling on-demand access to content, care and resources for the condition without imposing time and place to request information, enabling a speeding up interaction.

Managers need to get an understanding of how smart technologies fine-tuning may influence differently on patients' behaviors and may also foster different forms of engagement and other patients' responses. In addition, investments in advanced technologies offer healthcare professionals and patients access to digital services and tools that support the patient's journey in the continuum of care and at the same time contribute to the achievement of treatment goals. Healthcare professionals make clinical decisions based on information gained from health data, which leads to better patient outcomes. In addition, patients take an active role in the provision of healthcare services by investing in their own health care and defining their own goals for self-management of care and engagement.

This study provides new information on the role of smart technologies in engagement activities, contributing to the existing literature on the use of new technologies in defining smart patient engagement. In particular, these technologies boost the cognitive, behavioral and affective dimensions of patient engagement in a synergic way. In other words, the three engagement dimensions (cognitive, behavioral and affective) are interrelated because, due to the introduction of technologies, the following are achieved: a) healthcare services provided at the right time and speed interactions, b) personalized health experiences service and c) an impact on the patient's emotions with reactive and conversational actions.

In conclusion, we stress the importance of the use of smart technologies to facilitate patient engagement boosting cognitive, behavioral and affective interactions in the healthcare context. It is our contention that the fine-tuning of smart technologies enables and facilitates engagement in a tridimensional and synergistic way.

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ARE WE READY TO IMPLEMENT ARTIFICIAL INTELLIGENCE IN HR PERFORMANCE MANAGEMENT?

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ABSTRACT

Interest on Artificial Intelligence (AI) and its implementation in organization has been growing over the last few years for both researchers and practitioners. This rising interest is mainly based on the huge amount of data currently available. This research aims at analysing the current implementation of AI in the area of Human Resource Management, and specifically in performance management. For this purpose, qualitative interviews have been carried out. The findings show that COVID-19 has accelerated digitalization at the workplace and the implementation of AI tools, but in terms of performance management, AI is still in an early stage.

INTRODUCTION

Workplace environment is evolving and organizations are looking for continuous innovation to get better performance from their employees (Smith, 2018). On the one hand, organizations expect their employees to be more committed, productive, and creative; on the other hand, organization are more oriented to offer an attractive environment in order to achieve their own objectives. All of this embedded into their Performance Management System (PMS) (Sardi, Sorano, Garengo, and Ferraris, 2021).

PM activities includes the management of the performance measurements. These measurements cover what enterprises measure, which includes activities such as developing metrics; setting targets; collecting, analysing and reporting performance information; and interpreting and assessing performance differentials (Sardi, Sorano, Garengo, and Ferraris, 2021).

These PMS have been recognized as the cornerstone of human resource management (HRM) by aligning employee management to organizations' overall objectives (Tweedie, Wild, Rhodes, and Martinov-Bennie, 2019). The concept implies to arrange of activities in order to improve, manage and measure the performance of individuals or teams, pay close attention to organization effectiveness (Becker, Antuar, and Everett, 2011; (Gruman and Saks, 2011).

HRPMS have been affected by the rapid development in technology advancement, Internet and Information Technology (IT) revolution (Giri, Paul, Chatterjee, Bag, and Aich, 2019). This revolution has a strong influence on HRM and practices, in fact, it is moving them to a completely new direction (Priya and Sinha, 2019). The most advanced revolution that is it about to unleash the next wave of the digital transformation in HRM processes and practices is artificial intelligence (AI) (Pillai and Sivathanu, 2020).

HR Performance Management (HRPM) has a significant contributing factor to organizational success and the improvement of employees' performance. Integrating the processes of HRPM along with AI can generate substantial benefits for organizations (Garg, Sinha, Kar, and Mani, 2021).

Artificial intelligence (AI) is one of the main components of current digitalization trends. Particularly, It has drawn the attention of researchers, practitioners and technical developers to figure the strengthening human-machine interactions and fostering automation through integration between business demand and intelligent software (Pereira, Hadjielias, Christofi, and Vrontis, 2021). AI is aimed at making machines think like humans but surpassing the way humans work. Depending on autonomously gather and process data from several inputs to make decisions, solve problems, and undertake other actions to improve task execution and performance.

AI technology is bringing new functionalities to HRM and changing the way HR are managed in organizations (Erro-Garces, 2021; Pillai and Sivathanu, 2020). These functionalities stretched the geographical boundaries of HRM practices, offer employees new ways of working by eliminating physical and time barriers relying on HRM shared services such as virtual workplace and virtual teams (Bondarouk and Brewster, 2016). Therefore, AI has been gradually applied to enterprise management decision making, taking on and helping managers to speed up their tedious and repetitive daily work. It provides powerful database and analytical support, enabling managers to shift away from routine tasks (Al-Harazneh and Sila, 2021).

Analysing AI in the field of PM, it could be said that powerful database and analytical data mining are considered a reference point in employee performance technologies through collecting data from multiple sites within the organization on how employees perform their jobs (Dhir and Chhabra, 2019). By linking these available data, managers could come up with appropriate and objective proposals that predict and improve individual performance, and help organizations to make positive decisions regarding employee's attitude (Alrashedi and Abbod, 2020; Malik, Tripathi, Kar, and Gupta, 2021; Khan, Raya, and Viswanathan, 2021).

Considering AI within this context, it could be used to cluster employees into different groups based on their performance level and work satisfaction level (Chiu, Zhu, and Corbett, 2021). Later, managers could develop suitable strategies to improve the performance of underperformers and enhance the morale of dissatisfied employees. Moreover, AI algorithms could be used to predict the performance level of employees based on their background data and performance characteristics (Mikalef and Gupta, 2021). As a result, HR PMS could be witnessed of great changes due to the adoption of AI (Jarrahi, 2018).

Considering the evolution of digitalization in companies, it could be said that in just a year, the COVID-19 pandemic has radically changed the role and perception of digitalization in our societies and economies, and accelerated its pace (European Commission, 2021). Digital technologies are now imperative for working, learning, entertaining, socializing, shopping and accessing everything from health services to culture (Gabryelczyk, 2020; Kudyba, 2020; Reis *et al.*, 2018; vom Brocke *et al.*, 2021).

Many organization have been forced to accelerate the adoption of automation, digitalization and AI implementation in response to COVID-19, specially during the lockdowns in departments with high levels of human interaction (Hamouche, 2021). This fact has led to an increase in the data collected from employees (Mercer, 2021). Hence HR considered has been considered as one of the departments that has witnessed accelerating in adopting of AI during the Covid 19 pandemic (Nagele-Piazza, 2020). Such technologies have provided enormous opportunities for advancing data-driven workforce management and hence in PM (Shet, Poddar, Samuel, and Dwivedi, 2021; Nagele-Piazza, 2020).

Despite the potential advancement of AI in HRM, in supporting organizations and enhance both employee and organizational performance (Chiu, Zhu, and Corbett, 2021; Garg, *et al.* 2021), the reality faced by practitioners may be very different (Jarrahi, 2018; Webber, Detjen, MacLean, and Thomas, 2019), taking in account the reflection of the COVID19 on the workplaces (Harney and Collings, 2021; Narayanamurthy and Tortorella, 2021).

As the demand of AI technology increased in responding to the COVID 19 pandemic, the issue that was being raised is "can we trust AI technology? What is the reality and accuracy of AI in PM?". Some of the drawbacks identified by practitioners are that AI failed in recognizing answers for the same questions in different languages. Furthermore, failed in scoring candidates on the content of interviwees answers; the algorithm pulled personality traits from interviewer's voice. Therefore, some researchers recommended to expand the future research on PM and AI. For instance, Zhang, Xu, Zhang, and Yang (2021) argue that future HRM research could benefit from applying big data at micro level, employee attitude by applying big data collection techniques. At the macro level, HRM research can benefit from conducting people analytics, analyzing the implication of AI in assessing performance planning and cross-country HRM comparative research. Along similar line, Azizi, *et al.* (2021) suggested empirical research to know more about the challenges of human resources during the COVID-19, specifically innovative strategies for managing employee performance during the COVID-19.

In recent years, a new literature strand has begun to emerge, looking into the current adoption level of AI in HRPM within organizations (Zhang, *et al.*, 2021). Although research work on the implementation of AI in HRPM is emerging and increasingly growing, the full implementation of AI in HRPM process; namely:

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performance planning, managing performance, performance reviews and performance assessment (Armstrong and Taylor, 2020), has not studied in depth before. Improving clarity on the what is the reality of AI in HRPM and what is desiderate is essential for human-machine interactions. At the same time mapping and predicting the potential of this technology in order to foster automation is a key factor for future AI implementation across different levels of HRPM.

Based on the aforementioned issues, we have launched the present study on the current implementation of AI tools in HRPMS and the analysis of the impact of the COVID 19 pandemic in the process. To do so, this qualitative study addresses the answers for the following research questions:

- What is the adoption level of AI in the HRPM process in companies?

- What is the impact of the covid-19 on HRPMS?

METHODS

The study uses a qualitative approach to examine the data collected from seven AI professionals who had experience in AI implementation in HR projects in multi-international firms. They have an average of 12.4 years and working across 6 countries.

These professionals were identified using LinkedIn based on their practical experiences at AI in HRM, to obtain a more holistic overview of the research questions.

We selected LinkedIn since it has had major implications for recruiters and hiring managers, job seekers, and organizations. This claim is supported by findings indicating that it is used by over 40% of potential job seekers, 94% of hiring managers for recruitment reasons, and 85% of hiring managers who use LinkedIn to screen applicants (Cubrich, *et al.*, 2021; Collmus, Armstrong, and Landers, 2016).

In the interviews we asked questions related to the adoption of AI in performance planning. reviews, assessment and managing performance.

The first step of data analysis was coding the interviews into the transcript. In the next step, data cleaning was done from the transcript. And finally, these transcripts were imported into Atlas.Ti for analysis, and structured analysis on their answers.

RESULTS

The result obtained from the interviews offer us the main topics shown in the word clouds in figures 1 and 2.

Figure 1: Thematic word cloud from the interviews

Figure 2: Simplified word cloud from the interviews

Most of the interviewees agreed that although there are a huge range of AI tools available in the market, when analysing them to be used in HRPMS, there are only a few options that cover all the different activities included in the whole process, and the existing ones are not fully developed or mature enough to take decision in an autonomous way.

> *"I've seen very little out there that covers that full spread"*.

> *"We have seen a lot of AI leveraging AI in the performance management cycle, but is not mature enough"*.

Regarding the main reasons that may lead to this current situation, regardless the impressive evolution that AI tools have shown in other areas of HRM as it could be recruiting, they also agree on the fact that it is not only about the AI tool itself, but also about the proper HRPMS. Most of the organizations are not ready for a fully developed HRPMS even without any associated technology.

> *"Performance assessment is still in early-stage because many companies didn't have proper 360 reviews"*

> *"So there's a lot of pieces missing before you put AI on top"*

> *"Perfromance management itself is not mature enough"*

They found a real and clear potential on AI tools within this context, specially in identifying weaknesses in employees' performance and offering specific them trainings to overcome them.

> *"Recognize this gap and advice employees with a specific training program to cover this weakness"*

However, there are multiple drawbacks to overcome in order to be able to take advantage of such tools, mainly due to the absence of valuable and available data as an input for AI tools.

> *"AI is still weak or far away from the judge or manage tangible and intangible skills"*

"The problem depends on structured data set availability "

On the other hand, from the side of the technology, there is still a lack of control and knowledge on the technology/algorithms, therefore HR managers do not trust on AI for HRPMS.

Finally, the answers of the interviewees have been clustered considering the variables shown in table 1, according to Armstrong and Taylor (2020).

Table 1: An example of a table

Variables	
A	Performance planning
B	Managing performance
C	Performance Reviews
D	Performance assessment

As it can be seen in figure 3, all the respondents agreed on the fact that AI is not mature enough to cover the whole process of HRPMS, however, it could be useful mainly in two of the stages, Management the performance, and performing the reviews.

Figure 3: Summary of the interview results
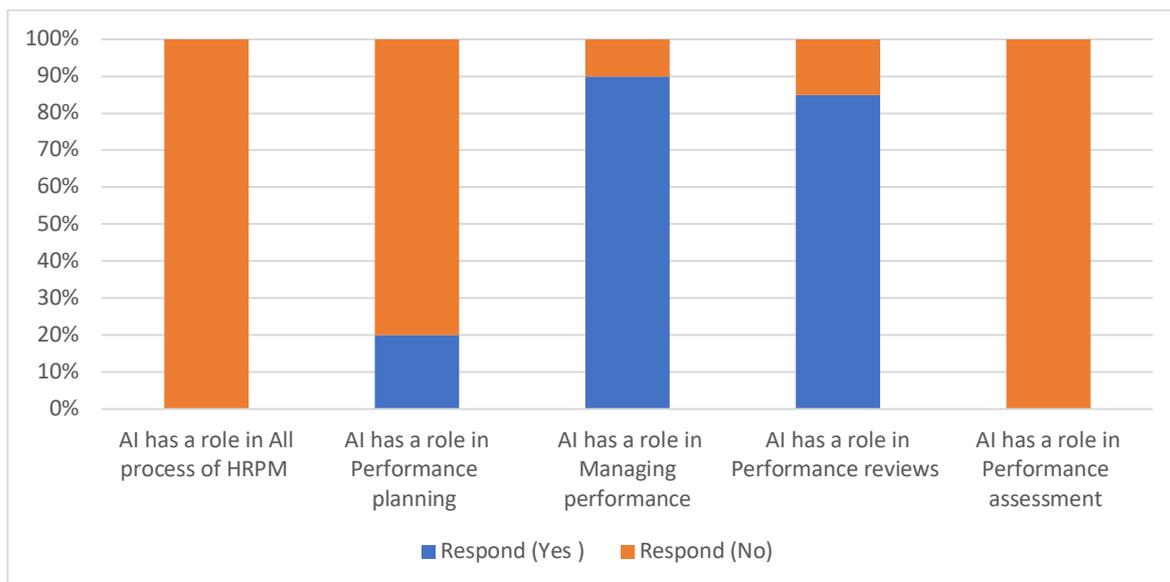
CONCLUSION

In conclusion, considering the previous research findings, it can be highlighted that the current use of AI in the HRPM process is still far away from scholars and practitioners expectations.

AI it is a powerful tool to enhance results in HRM and it could be applied to HRPMS

Although there are available AI tools they are not mature enough yet for HRMPMS. In fact, HRPMS is still in an early stage both with or without AI.

The current situation shows that AI has been deeply involved in managing performance and performance reviews. However, AI algorithms have weaknesses in conducting performance planning and assessment.

This piece of research makes a novel contribution to analysing the current role of AI in HRPMS. And it specially highlights the fact that it should not be studied as a whole, but distinguishing between different stages on the process.

Regarding the COVID impact on the implementation process, it has been seen that although the pandemic has accelerated the development of AI tools and the digitalization of most of the routines at the workplace, in terms of HRPMS, processes and data collection are not mature enough to be automatized, and therefore AI is a futuristic but not current solution.

There is a clear need to better define HRPMS in terms of what to measure, why and how.

As a future research direction, we would like to consider the AI adoption factors that would facilitate the implementation of AI not only in HRPMS but also in other HRM areas.

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ARTIFICIAL INTELLIGENCE ENHANCING THE QUALITY OF HEALTHCARE SERVICES

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ABSTRACT

This paper aims to propose and test a hypothesis that the applications of Artificial Intelligence in healthcare improve the quality of healthcare services. Through theoretical analysis of existing literature of the applications of AI in healthcare, then empirical data analysis of a questionnaire distributed among healthcare professionals in six countries to validate the theoretical analysis.

As a result of both the theoretical and empirical analysis; it is proved that the applications of artificial intelligence in healthcare are enhancers of the six dimensions of quality healthcare services defined by the Institute of Medicine (IOM) as defining dimensions of healthcare quality globally.

INTRODUCTION

Healthcare is a service industry serving the world population of approximately eight billion people (UNFPA, 2020). Health as stated by the World Health Organisation (WHO) is a fundamental human right (WHO, 2017). As we are witnessing through the global crisis of Covid-19; health crisis transforms into economic crisis, food crisis, housing crisis and political crisis (Gates and Gates, 2020). Unfortunately, challenges within the global healthcare before the current pandemic have caused a lot of pressure and call for actions revolving around universality of healthcare and quality of healthcare services (World Health Organization, World Bank Group, 2018).

The quality of healthcare is an intrinsic crucial part of healthcare delivery that does not come automatically; it requires planning, identification and clarifications with transparency and focus upon the patients and work force supported by leadership and healthcare organisation culture (World Health Organization, World Bank Group, 2018).

The institute of medicine (IOM) defines quality healthcare as: "the degree to which healthcare services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge" (AHRQ, 2012). Healthcare quality dimensions haven been identified and developed starting with the work of Donabedian in the late 1980s (Walshe and Smith, 2011) arriving at the six dimensions of quality healthcare defined by the IOM which are effectiveness, safety, people centeredness, timeliness, equity and efficiency (Dunn, 2006; AHRQ, 2012; World Health Organization, World Bank Group, 2018) and are defined as below:

- Effectiveness: delivering healthcare that is compiled and aligned with the evidence base healthcare and results in improved healthcare outcomes for the specific needs of individuals and communities.
- Safety: Delivering healthcare while minimising risks and harms to the service users who are the patients.
- People centeredness: delivering healthcare with people preferences, aspirations, communities, and cultures being the drivers.
- Timeliness: delivering healthcare that is accessible in time with ease when exactly needed with the minimum delays possible.
- Equity: to deliver a healthcare service without any disparity whether due to personal related issues like gender, race, ethnicity, geographical location, or socioeconomic status.
- Efficiency: delivering healthcare while maximising the utilisation of resources and minimising wastage.

The healthcare industry characterised by its innovative nature and continuous challenges have evolved immensely in the last 20 years, starting from medical products (equipment, hardware and consumables), then to medical platforms due to the informatics booming era (wearables, big data and health analytics) then reaching the era of medical solutions which is characterised by the incentive of technological adaptation like robotics, artificial intelligence (AI) and augmented reality (PWC, 2017). It is important to mention that informatics have participated hugely in improving healthcare quality (Otokiti, 2019) yet also resulted in overload of information in healthcare that is needed to be transformed into knowledge (Nicolini *et al.*, 2008).

Knowledge management has been proved through research as an important element in healthcare decision making support (Sibte and Abidi, 2001) as the healthcare industry is a knowledge based community depending in connection between hospitals, clinics , pharmacies and patients (customers) in sharing knowledge (Bose, 2003) and thus high knowledge management tools effect positively in any healthcare facility competitive advantage while enhancing the organisation continuous learning (Kothari *et al.*, 2011).
In innovative industries like the healthcare industry, knowledge management practices also proved to enhance innovation (Donate and Guadamillas, 2010, 2015).

Artificial intelligence (AI) defined as the branch of computer science focused in stimulating intelligent behaviour in computers to imitate intelligent human behaviour (RADICK, 2017). Artificial Intelligence in other words is a computer system ability to interpret external data correctly, to learn from the data and to use those learnings to achieve specific goals and tasks (Haenlein and Kaplan, 2019). AI is also a tool of knowledge embodiment that works in the powerful transformation of knowledge into valuable form (Pee, Pan and Cui, 2019).

OBJECTIVES

More than a year and a half after the Covid-19 pandemic, and it is obvious that the healthcare industry has been put under the microscope of the quality of its performance globally.
As we have already entered the era of the highest technological evolvements as stated above; there is still ambiguity around what can those high technological advancements achieve in the healthcare sector as tools for enhancements.

Artificial intelligence (AI) is a technology that carry huge possibilities of improving quality healthcare according to the six quality dimensions as these are stated: Effectiveness, safety, people centeredness, timeliness, equity, and efficiency.
This paper aims to provide a theoretical and empirical evidence that the applications of artificial intelligence in healthcare have huge possibilities in enhancing the six quality dimensions of IOM.

THERORETICAL FRAMEWORK

Artificial intelligence has proven significant results in the healthcare field through its different subfields like: expert rule-based systems utilising neural networks to stimulate the expert level capacities of knowledge-based decision making, robotic process automation, natural language processing (NLP) and machine learning (Wiljer and Hakim, 2019).

Image and signal processing AI is considered for some researchers a subfield (Cossy-Gantner *et al.*, 2018) due to the huge amount of data available in healthcare as medical images and to availability of signals as data through physiological devices thus leading many companies to invest in this subfield of AI (Faggella, 2019). AI has proven its ability to extract and detect information from medical images to help in diagnosing cancer and eye diseases (Jiang *et al.*, 2017), cardiac diseases (Esposito, 2018) and cerebral aneurysm in brain (Jiang *et al.*, 2017).

Artificial intelligence plays a huge role in prediction and prognosis in healthcare like predicting health outbreaks or sepsis in hospitals by measuring the frequency of symptoms. In the other hand, utilising AI algorithms to teach robots have impacted positively in minimum invasive surgeries (RADICK, 2017). Those robots can also be utilised as surgical assistants and trainers for junior surgeons in the future. It could be soon that the vision of Ray Kurzweil of nano robots which can target specific issues in the human body

including fixing immunity issues or provide internal blood monitoring (Bedsol, 2017; Technology Trends, 2019).

Precision medicine is yet another potential area of AI in healthcare with huge promise of great transformation in this field; which is the manufacturing of medicines based on the personalised genome of the patient which holds the promise of delivering tailored medicine to patients (Lindsay Holst, 2015; Barlow, 2016).

In the pharmaceuticals industry, the applications of artificial intelligence are used in clinical trials as means to reduction of costs and lowering the probabilities of mistakes in the process of drug discovery including enhancing the process of finding candidates for the clinical trials (Cheson, 2009; Woo, 2019). The promise of huge costs saving in clinical trials using NLP algorithms and even robotics in clinical experiments (Clinical Trials Arena, 2018; Woo, 2019).
In medical research, just like clinical trials AI provides an important tool for analysing and identifying patterns in large complex data as a navigating tool also with high promise in medical genomics research (Rees, 2019; SRG Blog, 2019).

In public health, just as its promise in precision medicine, AI carries huge possibilities in precision public health which provides the right intervention to the right population at the right time (Khoury, Iademarco and Riley, 2016). Also, in epidemiology as we witnessed during the Covid-19 pandemic, AI algorithms can help in prediction and management whether in the outbreaks or the vaccines development and management (WHO department of Digital Health and Innovation, 2021). At the same time; AI can support bridging disparities through learning from countries data and sharing expertise in countries where there are scarcity in experts (SRG Blog, 2019) this point in itself is part of the sustainable development goals of the World Health Organisation (WHO, 2019).

In healthcare facilities, AI can be leveraged as a great operation enhancement tool (Lass and Orr, 2019). Prediction analysis in managing patients visits and analysing patients logistics and flow data which impacts hugely in operation costs of hospitals (Sukel, 2019). An added benefit is utilising AI in managing the prediction of pharmaceuticals expiration dates which can also save huge costs to hospitals (RADICK, 2017).

In any hospital department that requires repetitive tasks, labour intensive tackling of high volume of documentation, AI algorithms help cutting time cost and human mistakes (Lass and Orr, 2019). An interesting report published in 2018 in the United Kingdom, predicted that the National Health Services (NHS) can save more than 10 percentage of its running costs with outsourcing repetitive tasks to AI (Kerasidou, 2020).

Many would argue that healthcare currently is in huge need for empathy and increasing available time for patients is one way to increase empathy in healthcare services.

STATEMENT OF HYPOTHESIS

The study proposes that the applications of Artificial Intelligence in healthcare improves and enhance the six dimensions of quality healthcare stated above.

METHODOLOGY

The study included reading, analyzing, and relating medical and managerial literature about the applications of artificial intelligence in healthcare. After that evidence was collected from research and industry reports about the applications of artificial intelligence in healthcare and how can these applications enhance each dimension of the six quality healthcare dimensions.

Then a questionnaire was designed and distributed (using google forms) among healthcare professionals in different countries in relation to how the applications of artificial intelligence can enhance the six dimensions of quality healthcare and 72 responses were gathered and analyzed.

The answers were collected from individuals that are healthcare professionals from different seven countries which are: Ireland, United Kingdom, United states of America, Spain, South Africa, Thailand, and Kingdom of Saudi Arabia.

THEORETICAL ANALYSIS

From the introduction section above the applications of artificial intelligence carry huge possibilities in the healthcare sector. Here those possibilities are connected to the definitions of the six dimensions of quality healthcare of IOM.

Effectiveness: delivering healthcare complied and aligned with the evidence base healthcare and results in improved healthcare outcomes for the specific needs of individuals and communities.

Artificial Intelligence algorithms basically are built upon analysing current existing medical data, learning from these data, building experience through these learnings, then creating solutions or projections for better healthcare services. Examples for how the AI applications can enhance the effectiveness in healthcare:

- Medical diagnostics and enhancing early diseases detection.
- Medical treatment whether through nano robotics or through specific software that allows better applied treatments.
- Surgical robotics: using AI algorithms as teaching algorithms for the robots enhancing accuracy and possibility of the current and future medical surgeries.

Safety: delivering healthcare while minimising risks and harms to the service users who are the patients.

Again, as AI algorithms are based on learning from existing medical data, enhancement of accuracy in delivering solutions based on those systems experiences increase safer solutions and lower risks.

- Precision medicine which addresses the needs for safe and precise tailored medicines according to the genetics of the individuals or population groups. This approach can maximise the suitability and efficiency of medicines minimising side effects and increasing beneficial output.
- Lowering the load of administrative repetitive tasks for healthcare professionals, lower stress and accordingly the medical errors due to this stress; enhancing safety of delivery.
- Spending less time in hospitals through using AI prediction algorithms guarantee less time spent in hospitals which also lower the risk of taking an infection from the hospital and thus increasing the safety.

People centeredness: delivering healthcare with people preferences, aspirations, communities, and cultures being the drivers for healthcare solutions.

AI solutions are driven from health data, those health data are from patients and addressed towards helping patients; driven by the specificity of people's needs and diseases. Clear examples are witnessed in:

- Precision medicine: manufacturing medicine based on the personalised genome of the person, moving medicines from the approach "fits all healthcare" to a personalised tailored approach.
- Predicting (tailoring) patient's treatment plans using AI algorithms based on the patients' needs.
- Saving the physicians time through using AI algorithms, which can then guarantee more time for the physicians for the patients enhancing empathy and compassion during the healthcare service delivery.

Timeliness: delivering healthcare that is accessible in time with ease when exactly needed with the minimum delays possible.

AI can help in creating faster responses which then facilitate achieving the healthcare service in the right time for the patient. Examples are:

- Prediction and prognosis: in population health using AI as an early detection method for diseases which allows fast reliable strong responses as early as needed. This early detection

is highly beneficial to delivery of the service in the right time for the patients. At the same time, it saves more of the health professional times which also increase time of the patient care.

- Can be used as a strong prediction tool for future outbreaks.

Equity: it to deliver a healthcare service without any disparity whether due to personal related issues like gender, race, ethnicity, geographical location, or socioeconomic status.

AI can help bridge disparities as a public health tool allowing for sharing health expertise in poor health settings or while also helping in diagnosing and treatment plans through using this AI expertise.

- Precision public health: providing the right interventions to the right population at the right time.
- Precision medicine: the tailoring manufacturing approach of medicines address the lack of suitability of medications based on biased made on clinical trials.
- AI solutions and telemedicine as a method for sharing health solutions between different locations and allowing the health expertise with less disparities once these technologies are available.

Efficiency: delivering healthcare while maximising the utilisation of resources and minimising wastage.

AI targets utilising available medical resource in forms of data for enhancing the healthcare solutions for patients, its principles are based upon raising the efficiency in healthcare along with that; minimising the costs of healthcare is a huge aspect of AI interventions. This is clarified in different healthcare industries, or inside the healthcare organisations.

- Accuracy in manufacturing industry minimising the wastage of time and resource.
- Inside the healthcare facility, logistics resources saving and healthcare professionals time saving, along with managing patients' arrivals and departures predictions enhancing the flow of the healthcare organisation operations and saving a lot of the pharmaceutical wastage inside healthcare facilities.
- Using AI NLP algorithms for saving time when selecting candidates for clinical trials saving a lot of cost in the very expensive research industry in healthcare.
- Saving a lot of time and resource using AI in protocol design in the pharmaceutical industry and in analysing complex data in medical research.

EMPIRICAL ANALYSIS

The empirical part of the study aimed to validate and collect opinions of healthcare professionals about the theoretical assumptions stated above and the questionnaire contained questions related to each dimension of the quality healthcare dimensions.
The questionnaire was designed and distributed among healthcare professional in different countries which were selected with the purpose of having different varieties of responses yet from healthcare professional working in countries where the applications of artificial intelligence are already established or growing.

Professionals responded from six countries which are: The United States of America, United Kingdom, Ireland, Spain, Thailand, South Africa, and Kingdom of Saudi Arabia. These countries cover Europe, North America, Africa, Asia, and the Middle east.

Table 1 below indicates responses collected from questions related to how the applications of AI increase and enhance each quality dimension:

Table 1: Healthcare professionals' responses

	I strongly agree	I agree	I don't have information	I disagree	I strongly disagree
Effectiveness	32%	39%	26%	2%	0%
Safety	38%	48%	12%	2%	0%

|	40%	47%	11%	1%	0%
People centeredness					
Timeliness	44%	39%	14%	3%	0%
Equity	31%	52%	15%	1%	0%
Efficiency	45%	48%	6%	1%	0%

From calculating of the percentages of the answers of "I agree "and "I strongly agree "among the six IOM dimensions it is obvious that AI in healthcare is perceived positively among healthcare professionals.

Effectiveness has the lowest percentage though among the other five dimensions with a sum of 71 percentage; not surprising maybe with parts of the questions addressing robotics and their future potential in surgical procedures while there is a form of an unspoken fear concerning surgical robotics as replacement of doctors and one question addressed the new concept of the future of medical treatments and nanorobotics with 26 percentage of participants not having information.
Efficiency in the other hand, received the highest number of positive answers concerning the applications of AI.

This could be an indicator confirming the high concerns of time wastage and medical wastage being a huge hold in healthcare and the need for tools to enhance that and AI being hugely acceptable also in these measures. Positive responses are highlighted in figure 1.

Figure1: Artificial intelligence enhancing quality healthcare services
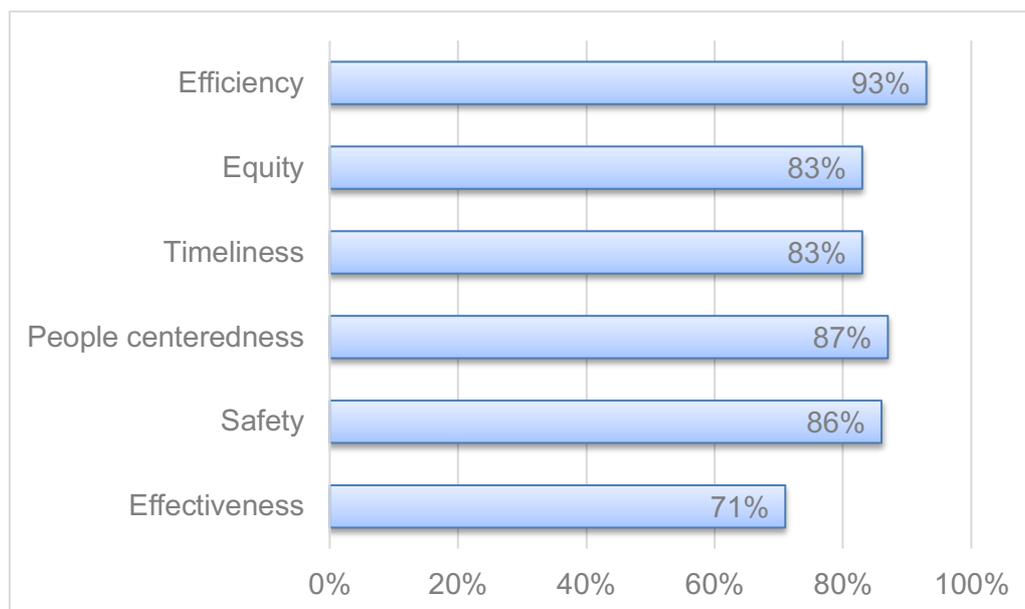
RESULTS

Quality is what defines good healthcare delivery and innovation efforts could have more positive effects once applied with focus to enhance the quality of healthcare.

From theoretical and empirical analysis, the proposed hypothesis of the applications of Artificial Intelligence enhancing healthcare is proved through theoretical analysis followed by empirical testing has proved positive. According to the study each dimension of the six quality healthcare dimensions can be enhanced through the applications of AI in healthcare. (Table1 and Figure1) both highlights this clearly.

CONCLUSIONS

The study represents a theoretical and empirical proof of the huge potentiality of the applications of Artificial Intelligence in healthcare today.

The study didn't include factors of hindrances of leveraging AI in healthcare or complexity of its adaptation in such a sensitive field, factors like data privacy and interoperability or the complex healthcare organisation culture also influence hugely the adaptation of AI in healthcare and must be also considered in future research.

The study demonstrates that AI carries within its layers and evolved advancement many possibilities for enhancing and improving the six quality healthcare dimensions which are always the goals behind each healthcare practice specially in the current time today where technological advancements are well utilised in many other sectors like the banking sector or agriculture sector. The study in this way provides a proof for encouragement of applying technology in healthcare, a field that is highly burdened and in need of continuous improving solutions.

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AI-AND BIG DATA- BASED DECISIONS ON SERVICE INDUSTRY

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ABSTRACT

The use of data analytics for business and service decision making is becoming increasingly important. The use of techniques based on the use of big data or artificial intelligence allows solving new problems that until now could not even be posed. The range of possibilities offered by these tools ranges from obtaining predictive models to relating variables to endless possibilities. This paper analyzes how the use of artificial intelligence techniques in some cases allowed service companies to make better decisions and to focus their efforts on the right direction.

INTRODUCTION

This article focuses on showing some of the possibilities offered by the introduction of artificial intelligence (AI) in the decision-making process in service companies. It is observed how its use helps to develop new ways of understanding the markets and establish new goals and strategies exceeding expectations.

Artificial Intelligence is a term coined to an ethereal concept, such as the behavior of machines performing mental operations simulating human behavior. However, depending on the point of view that is used, we can think that it is a mathematical concept, software engineering, language, psychology, or even machines that perform the tasks for us (Schank, 1987). What is true is that AI is a conceptual change. Instead of establishing closed work methodologies, with deterministic models, AI uses a tool for each problem that is also capable of developing itself. It is said that the tools learn to be able to act in front of the problem (Omohundro, 2018).

The application of AI in business management – as a guide in decision making – is relatively recent. Despite the fact that the tools were known and used in other areas (Awadallah and Morcos, 2003; Dahhaghchi *et al.*, 1997), there was no full confidence in the possibility of using them (Araujo *et al.*, 2020). It has been the incipient interest shown by some companies such as IBM that have managed to improve its acceptance. Projects such as Deep Blue, Watson, GPT-3 have contributed to raising awareness among users that they are tools to consider (Walczak, 2016). Nowadays, its application has widely extent, arriving even to Healthcare (Lysaght *et al.*, 2019), marketing (Stone *et al.*, 2020), etc.

The use of AI has been reinforced with the development of data analysis and *big data*. The service industry generally collects a large amount of data that AI is able to process to reach our decisions (Cohen, 2018). Big data analytics creates data transparency, which leads better decision-making in many areas of study. It also helps to increase innovation in many services, as manufacturing (global) and supply chain, generating innovative business models (Manyika *et al.*, 2011).

AI has also some drawbacks. The user of these techniques must be competent and oversee the results provided after making an analysis. Cases like AuroraAI in Finland, "optimization" service in Poland or Canada's immigration service demonstrated how important it is to have a competent team in decision-making (Kuziemski and Misuraca, 2020).

In this article, we analyze some successful cases of the application of AI in the service industry. We don't dive into the methods applied and discuss the application, but we show how the application of AI has led to results that would otherwise be extremely difficult to achieve.

SOME SUCCESSFUL CASES

AI has a large set of tools that are application specific. Each situation can be solved with one or more tools, but it cannot be extrapolated to other situations immediately. That is why in this article we wanted to show three completely different cases that cover three different tools and forms of application. On the other hand, decision making in these cases shares a similar structured development, which is based on the following parameters: objectives, data and tools.

- The first step has always been to set the objective. It is not so simple as it sounds. The objective may easily vary during the analysis and decision-making process, but tools must be specifically chosen. A change in the objective when work has been done can rust the results. An objective must be fixed and pursued.
- We need to filter available data and decide what variables to use, and check whether new variables must be introduced in the dataset. A common failure is to tackle the problem using as much data as possible but not taking care of it introduces noise in our analysis.
- Finally, not all techniques are valid for all purposes. An expert should select one or two tools from among those available, and trust the results provided.

Photovoltaic solar electricity production plant

Determining the levels of energy production in power generation plants is essential for their economic management. The price of the energy to be offered and the quantities must be made based on the most accurate predictions possible, since any mismatch between the supply and the produced one involves enormous costs to be corrected.

The objective established for decision making was to minimize the error in the prediction, using an indicator, the mean squared error (MSE). From here, data collection of the variables influencing the generation was carried out, as well as others of a management nature were tested.

The plants use artificial neural networks that model the expected generated energy according to a series of factors that are difficult to predict, such as temperature, cloud cover and other climatic factors. With them, it is decided what is going to be offered to the electricity generation market. Figure 1 shows the result of predicting energy production against the real produced. The blue line reflects the real production while the red one shows how the model produced an accurate forecast.

Figure 1: Comparison of forecasted electricity generated in the plant against real.
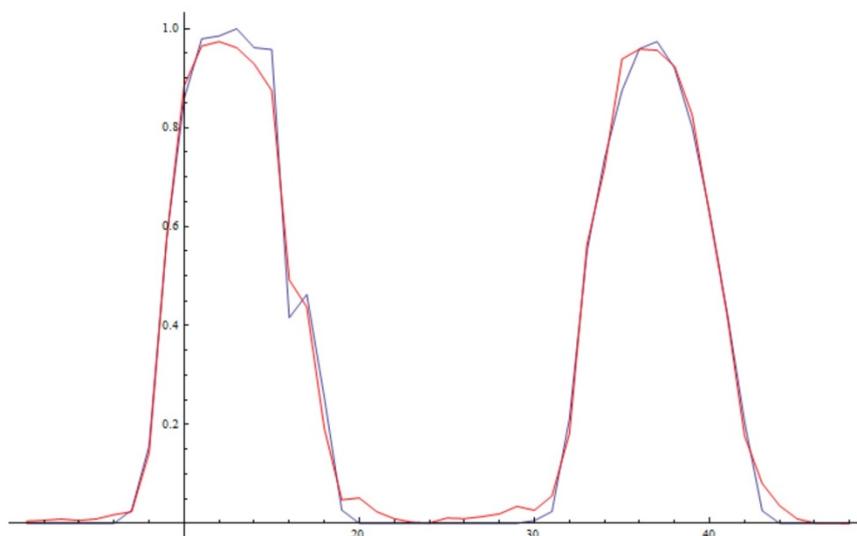
As a result of using this tool, decision-making management has improved considerably. The error made by the model in terms of MSE is around one per cent.

Inbound marketing campaign

Today's marketing campaigns differ greatly from traditional mass media ones. The campaign directed through social networks can be a very efficient element to carry the desired message. In this case, it is a marketing campaign for the sale of a superior quality red wine. The established objective was to locate a character or image that could launch the wine brand and that had relevance. Data extracted from social networks was analyzed.

The company decided to use its own system based on self-organizing maps (SOM) in conjunction with other tools to be able to locate the target person with whom to give image to the campaign. Figure 2 shows radar charts of the two main individuals followed by their opinions in red wine.

Figure 2: SSNN analysis to locate marketing image
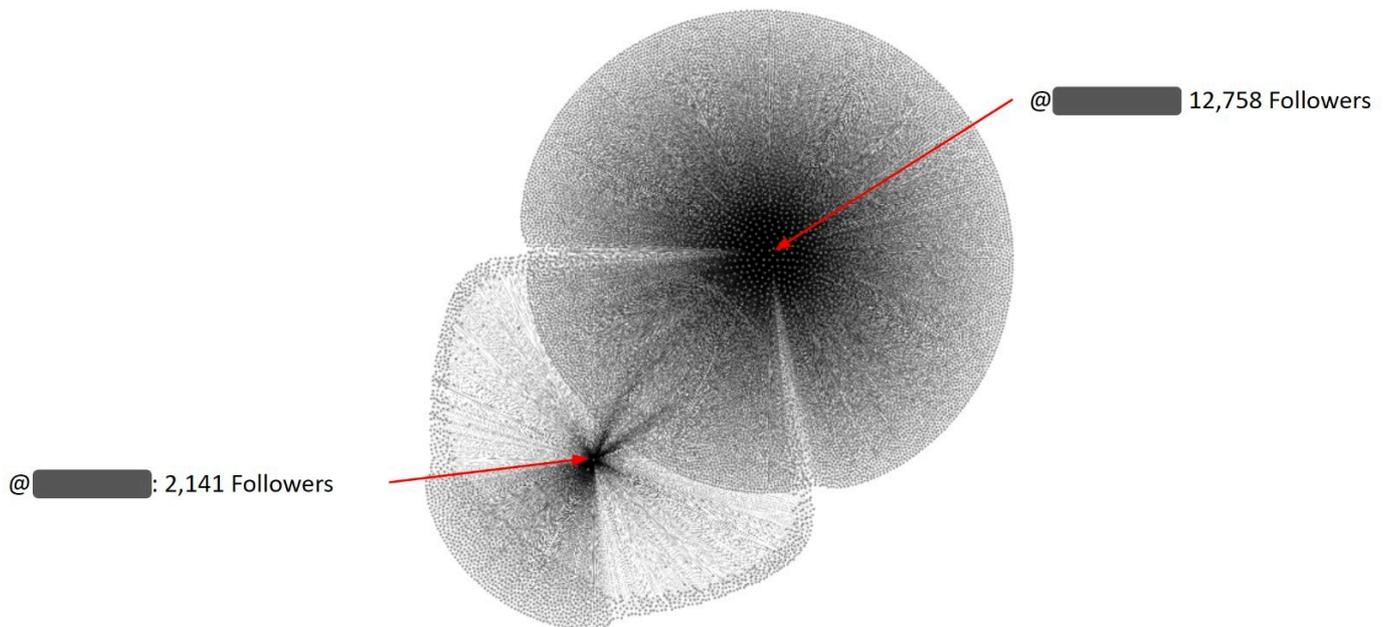
The campaign has behaved as expected – even exceeding expectations – with a reduced investment compared to the traditional campaign. The decision made by the company has minimized costs by 15 per cent.

Advertising impact on Web pages

Advertising on web pages requires an intense study on the attitude of the reader and the interests shown. Banners should be made in such a way that readers are not intimidated by the number and are attractive enough to dig into them. This implies that the placement of the banner must be proportionate to the content (Hyland, 2000).

Figure 3 shows the results of the analysis, indicating in which positions a reader click on a banner is most likely. As a result of this analysis, the newspaper nowadays places the banners and the information is organized according to this development.

Figure 3: Kinematic map analysis

The company in question sought to maximize advertising revenue, studying the behavior of the reader (the web is a newspaper). So different lines of action were executed in search of a data set that could provide that information. Finally, it was decided to use the time spent on the page, the reading speed, etc. Using kinematic maps, developed with the help of software and filtering with AI, the positions in which readers tend to focus their attention were determined, thus discovering the location of the banners.

DISCUSSION

Three application cases have been shown where the use of artificial intelligence represents a competitive advantage. Its use, together with big data, allows making the right decisions. Making predictions on time series using neural networks shows excellent results, with MSE close to one per cent. This value is very close to those obtained with other forecasting tools, such as the ARIMA and Holt-Winters models.

In conjunction with Big Data, it is possible to locate two focuses of attention where to focus the marketing campaign. The use of SOMs allows the data obtained from social networks to be classified in a more cursory way, which with traditional classification tools would not be possible. The intelligent analysis of the use of the Web pages has made it possible to determine the optimal locations of the advertising placements. The use of traditional tools would not have allowed this level of detail to be achieved.

CONCLUSIONS

The use of artificial intelligence for decision making in the service industry opens new frontiers of knowledge. However, it is necessary to be clear from the beginning what the objective is to achieve, so as not to wander in the world of AI. It is important to be clear about the path through the correct selection of tools and the data included in the job.

The jobs shown in this article are real success stories of the application. This shows that with a good approach, AI can perfectly help decision-making in service companies.

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TOURISM AND THE NEW TECHNOLOGY BASED FIRMS: AN APPROACH FROM A BIBLIOMETRIC ANALYSIS BETWEEN 2010-2021

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ABSTRACT

In recent years, research on tourism and new technology-based firms - TBFs has been growing, in the search to create sustainable competitive advantages in an increasingly demanding and competitive market.

The purpose of this work is to carry out a bibliometric analysis of research on tourism and the new TBFs. The information collected was extracted from the main collection of the Web of Science and SCOPUS databases from 2010 to 2021. The main contribution of this work is to show the evolution of this theme, so that researchers can use it in the future in their theoretical and research frameworks.

INTRODUCTION

For decades, tourism experienced continuous growth, becoming one of the fastest growing and most profitable industries in many countries in the world (Yudina *et al.*, 2016). It is closely related to other sectors that are an integral part of its value chain, such as hotels, construction, gastronomic sector, entertainment industry, among others. Therefore, it also contributes to the growth of these sectors; to the improvement in life quality of the inhabitants and their social development (Julca Meza, 2016).

This industry, which has been strongly affected by COVID-19 (Skare *et al.*, 2021), requires a carefully designed strategy to identify possible solutions that allow the reactivation of the sector. Innovation will be a fundamental strategic attitude for the survival and growth of companies in this industry (Binder *et al.*, 2013), because they have the challenge of developing innovative services that involve changes in the ways of managing and performing the tourism offer and demand under the current challenges (Shih-Shuo, 2021).

Bernal Jimenez and Rodriguez Ibarra (2019) found that the implementation of technology is a strategy that will allow companies to generate added value to operational activities, offering business advantages.

Technology-based firms (TBFs), which according to Litan and Song (2008) are defined as those that have a business model strongly rooted in the development and application of a new technology, can originate in various areas and sectors of the economy, and can contribute to the development and strengthening of the tourism industry. In India, for example, technology companies mainly offer software for travel companies, Internet booking engines, online reservation systems, etc. (Jacob M., 2017).

The purpose of this work is to carry out a bibliometric analysis of research on tourism and the new TBFs, with the intention of identifying the main authors, countries and journals that investigate this topic, and to understand the historical evolution of the number of publications and citations by presenting a citation's structure in years.

On the other hand, in order to establish thematic associations between scientific works, and to be able to identify the existing relationships between the key ideas of the different authors who write on this theme, maps were used to visualize elements such as: bibliographic coupling, co-citation, and co-authorship.

METHODOLOGY

Bibliometry provides information on the results of the research process, its volume, evolution, visibility and structure, allowing the assessment of scientific activity and the impact of research and sources. It's very

useful to classify and provide a representative view of a set of bibliographic documents: articles, journals, authors, institutions and countries (Merigó *et al.* 2018; Merigó *et al.*, 2015).

The bibliometric maps, serve as a tool for the organization and analysis of scientific information. Their main objective is to show the structure and evolution of an specific scientific research field: main research activity of representative authors, leading journals groups, similarity of important topics and concepts, etc. (Yu *et al.*, 2018; Sampieri Cabrera and Trejo Rodríguez, 2015).

There is a group of quantitative bibliometric indicators that measures: Researchers' productivity, Researches' impact, Bibliographic coupling, Citation analysis, Co-citation, Co-autorship analysis, Co-occurrence of keywords, etc. Researchers' productivity it's measured by the number of citations obtained by the works. Researchers' impact it's measured by the recognition granted by other researchers (Merigó *et al.*, 2018; Bordons and Zulueta, 1999). Bibliographic coupling counts documents that cite the same third document, which is useful for identifying similar research profiles. Citation analysis identifies how documents cite each other by counting the number of times A cites B and vice versa (Merigó *et al.*, 2018). Co-citation is a co-occurrence relationship that occurs when two documents are cited together by a third party (Miguel *et al.*, 2007). The co-authorship analysis shows the levels of scientific collaboration within a given community, accounting for the documents that are co-written by more than one researcher, institution or country and how they are connected (Sonnenwald, 2007; Perianes Rodríguez *et al.*, 2010; Merigó *et al.*, 2018). Finally, the co-occurrence of keywords identifies the keywords that appear most frequently in the same documents, allowing to identify relationships between concepts within a given domain (Merigó *et al.*, 2018).

In order to perform a bibliometric analysis of this study, data was collected between 2010-2021, from the main collection of the Web of Science (WoS) database using the following search string: TOPIC:(("Startup" OR "Technology Based Firms" OR "Technology Entrepreneurship" OR "Tech start up" OR "Tech startup" OR "High tech Start up" OR "Technology enterprises") AND ("tourism" OR "travel" OR "Tourist" OR "tourist hospitality" OR "Tourism Industry")). The following search strategy was applied to the main collection of the SCOPUS database: TITLE-ABS-KEY (("Startup" OR "Technology Based Firms" OR "Technology Entrepreneurship" OR "Tech start up" OR "Tech startup" OR "High tech Start up" OR "Technology enterprises") AND ("tourism" OR "travel" OR "Tourist" OR "tourist hospitality" OR "Tourism Industry")). The results of both searches were organized, eliminating duplicates, resulting in 110 documents in total, of which 67 are Journal Articles, 37 are published works in the Proceedings of a Congress and 6 are Books.

FINDINGS

Publications and citation structure

There is not much literature published about tourism and the new TBFs. However, Figure 1 shows the evolution in time of publications per year from 2010 to August 2021, showing a gradual growth trend, having published 70 percent of the documents between 2016 and 2021. In this bibliometric study, 60.9 percent of the documents are to Journal Articles, 33.6 percent are conference papers, and 5.5 percent are Books.

The general citation structure makes possible to identify the level of citation that documents have obtained in the last 11 years, evidencing the location of the most cited works and the number of documents with lower levels of citations, including those that are still have not been cited. Table 1 shows that 40.9 percent of the published documents have not been cited, 22.7 percent have received less than 5 citations, 11.8 percent have received at least 20 citations, and only five documents have been cited more than 50 times, and only one has received more than 100 citations.

Regarding the annual citation structure of documents published in SCOPUS and WoS, we found that 59.1 percent have received at least one citation, 24.5 percent have received at least 10 citations, 4.5 percent at least 50 and 0.9 percent at least 100 citations (see Table 2). The year with most citations was 2016 with a total of 245, and the main authors are Ahmad, SZ; Arif, AM, with 141 citations in 2016, followed by Younis M., Lee S., Abbasi AA with 75 citations in 2010.

Figure 1: Annual Number of Documents published in research on Tourism and new TBFs
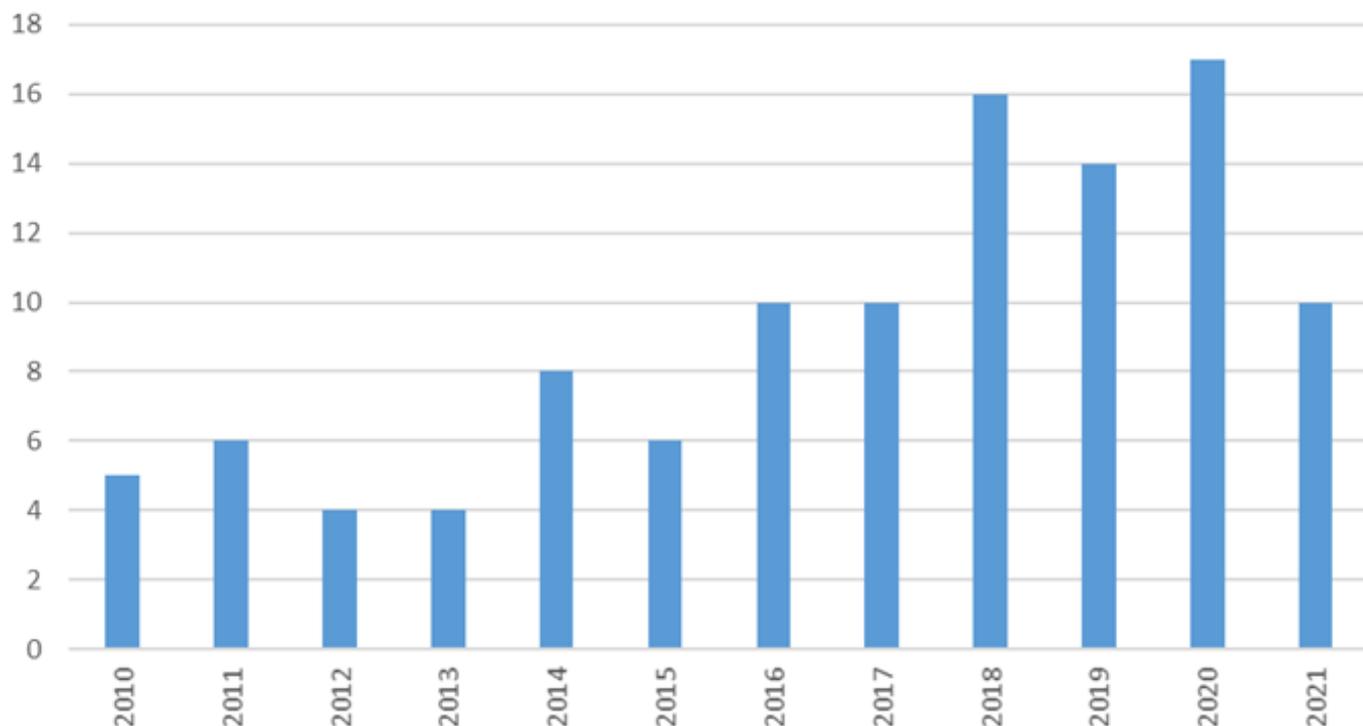

Table 1: General citation structure

Number of Citations	TP	%	Accumulated %
≥ 100	1	0,9%	0,9%
≥ 50	4	3,6%	4,5%
≥ 40	1	0,9%	5,5%
≥ 30	3	2,7%	8,2%
≥ 20	5	4,5%	12,7%
≥ 10	13	11,8%	24,5%
≥ 5	13	11,8%	36,4%
≥ 1	25	22,7%	59,1%
0	45	40,9%	100,0%
Total Publications	110	100%	

Note: TP – Total Publications

Table 3 shows the 15 most cited documents. The document with the highest number of citations per year is that of Fakher G. *et al.* with 69 citations, followed by Janiszewska D. and Ossowska L., with 50 citations, obtained in both cases in 2021 (which was the publication year). Ahmad, SZ and Arif, AMM, are the number one place authors among the most cited, with 141 citations since 2016 (which was the publication year).

Table 2: Annual citation structure on tourism and new TBFs

Year	TP	TC	≥ 1	≥ 5	≥ 10	≥ 50	≥ 100
2010	5	123	4	3	3	1	0
2011	6	30	3	2	1	0	0

Year	TP	TC	≥1	≥10	≥5	≥20	≥50
2012	4	5	1	1	0	0	0
2013	4	63	2	2	2	0	0
2014	8	75	7	4	4	0	0
2015	6	82	3	3	2	0	0
2016	10	245	7	6	4	2	1
2017	10	72	7	6	3	0	0
2018	16	57	8	3	3	0	0
2019	14	51	9	3	1	0	0
2020	17	47	10	5	2	0	0
2021	10	122	4	2	2	2	0
Total	110	972	65	40	27	5	1
%	100,0%		59,1%	36,4%	24,5%	4,5%	0,9%

Note: TP and TC = Total Publications and Citations; ≥100, ≥50, ≥20, ≥10, ≥5, ≥1 = Number of publications with equal or more than 100, 50, 20, 10, 5 and 1 citations.

Table 3: The 15 most cited documents between 2010 and 2021

R	Cited by	Title	Author/s	Year	TC/Y
1	141	Entrepreneurial Characteristics, Motives, and Business Challenges: Exploratory Study of Small- and Medium-Sized Hotel Businesses	Ahmad, SZ; Arif, AMM	2016	28,20
2	75	A localized algorithm for restoring internode connectivity in networks of moveable sensors	Younis M., Lee S., Abbasi A.A.	2010	6,82
3	69	The educational role of informal training in creating an entrepreneurial model of new business	Fakher, G; Azma, F; Shojaei, S; Mostaghimi, MR	2021	69,00
4	60	A role for startups in unleashing the disruptive power of social media	Ghezzi, A; Gastaldi, L; Lettieri, E; Martini, A; Corso, M	2016	12,00
5	50	Food Festival Exhibitors' Business Motivation	Janiszewska, D; Ossowska, L	2021	50,00
6	41	Case and development path for fusion propulsion	Cassibry J., Cortez R., Stanic M., Watts A., Seidler W., Adams R., Statham G., Fabisinski L.	2015	6,83
7	36	Stress development, relaxation, and memory in colloidal dispersions: Transient nonlinear microrheology	Zia R.N., Brady J.F.	2013	4,50
8	36	"Women cannot lead": empowering women through cultural tourism in Botswana	Moswete N., Lacey G.	2015	6,00
9	31	Fluid pressure arrival-time tomography: Estimation and assessment in the presence of inequality constraints with an application to production at the Krechba field, Algeria	Rucci A., Vasco D.W., Novali F.	2010	2,82
10	27	Demand forecasting for domestic air transportation in Turkey	Sivrikaya O., Tunç E.	2013	3,38
11	27	Evaluating a stochastic-programming-based bidding model for a multireservoir system	Aasgard E.K., Andersen G.S., Fleten S.-E., Haugstvedt D.	2014	3,86

12	27	Study of Sidewalk Autonomous Delivery Robots and Their Potential Impacts on Freight Efficiency and Travel	Jennings D., Figliozzi M.	2019	13,50
13	25	A NOVELTY MODEL OF ONLINE ACCOMMODATION PRESENTATION AND DISCOVERY	Sjekavica, T; Zitnik, M; Milicevic, M	2017	6,25
14	21	Sustainable product and market development for subsistence marketplaces: Creating educational initiatives in radically different contexts	Viswanathan M., Yassine A., Clarke J.	2011	2,10
15	18	Causation and effectuation behaviour of Ethiopian entrepreneurs: Implications on performance of small tourism firms	Eyana S.M., Masurel E., Paas L.J.	2018	6,00

Note: R – Rank. TC – Total number of citations. TC/Y – It is the total of citations on the number of years that the document has been published.

Main authors and countries

Table 4 contains the five authors who have at least two published documents on tourism and TBFs from 2010 to August 2021. Authors such as Jennings D. and Figliozzi M. (who write together), belong to Portland State University have 32 citations. All five authors have Americans and their h-index is two. Although these are the most productive authors, they are not the most influential, because for example, Ahmad, SZ and Arif, AMM with only one publication, have the highest number of citations.

Table 4: Most productive authors in Tourism and new TBFs research between 2010-2021

R	Author	TP	Institution	Country	TC	H	TC/TP	≥1	≥10	≥20	≥50
1	Jennings D.	2	Portland State University	United States	32	2	16,0	2	1	1	0
2	Figliozzi M.	2	Portland State University	United States	32	2	16,0	2	1	1	0
3	Deng A.	2	Microsoft Corporation	United States	7	2	3,5	2	0	0	0
4	Gupta S	2	University of Maryland Baltimore County	United States	7	2	3,5	2	0	0	0
5	Kohavi R	2	Microsoft Corporation	United States	7	2	3,5	2	0	0	0

Note: H – h index. TC/TP – Cites per publication. Other abbreviations are available in table 2.

Countries with the most publications on tourism and new TBFs are:

- United States: 31 publications and 290 citations
- China: 15 publications and 42 citations
- India: 5 publications and 17 citations
- Indonesia: 5 publications and 5 citations
- Spain: 5 publications and 5 citations

Main sources

Leading sources in publishing documents on tourism and new TBFs are "Sustainability", "Proceedings of the International Astronautical Congress, IAC", each with three publications, but its h-index is zero. Regarding the citation structure, only one source has had at least 100 or more citations in a document: "International

Journal of Hospitality and Tourism Administration", however, it is not among the sources that produce the most documents.

Table 5: Citation structure of the sources that publish the most on tourism and new TBFs research

R	Source	TP	TC	H	TC/TP	≥1	≥10	≥50	≥100
1	Sustainability	3	51	0	17,0	2	1	1	0
2	Proceedings of the International Astronautical Congress, IAC	3	0	0	0,0	0	0	0	0
3	Transportation Research Record	2	32	2	16,0	2	1	0	0
4	Journal of Small Business and Enterprise Development	2	31	2	15,5	2	2	0	0
5	International Journal of Electrical Power and Energy Systems	2	26	2	13,0	2	2	0	0
6	Proceedings of the European Conference on Innovation and Entrepreneurship, ECIE	2	0	0	0,0	0	0	0	0

Note: Abbreviations are available in the previous tables.

GRAPHICAL ANALYSIS WITH VOSVIEWER

In the previous section, a general description of the most productive and influential variables on tourism and new TBFs was presented. In this section, you will find the bibliographic connections between the main sources. For this, the VOSviewer software was used, helping to collect data and build maps of: bibliographic coupling, citation, co-citation, co-authorship and co-occurrence of keywords (Merigó *et al.*, 2018).

Co-citation of sources analysis was carried out. Figure 2 presents the general visualization between 2010 and August 2021 with a minimum threshold of nine citations and a set of six more representative connections. The size of the nodes indicates the magnitude of the participation or contribution of the sources. The greater the number of articles published, the larger the size of the node (Liao *et al.*, 2018). The most representative sources and the broadest networks are "Tourist Management", "Journal of Business Venturing" and "Annals of Tourism Research". The sources have been grouped into 2 clusters, and the colors of the nodes that represent them indicate the group to which they belong. The red group is the one with the most connections and the highest number of co-citations.

An analysis of the bibliographic coupling of authors was carried out. This analysis occurs when the authors of two documents cite the same third document (Merigó *et al.*, 2015). Figure 3 presents the most productive authors with a threshold of one published document and a set of thirteen most representative connections. This figure shows the graphic mapping of authors that connects those who have similar research profiles and cite similar bibliographic material (Merigó *et al.*, 2018). Three clusters were identified, the main ones being red and green, with a higher concentration of networks between authors. In the green cluster, it is observed that Li Z. has a greater participation and has strong connections with Chen F., Zhao I., Zhang D. and Wen S., which indicates that they are close and that it is common for the Researchers to cite these authors in the same document.

Figure 2: Co-citation of sources
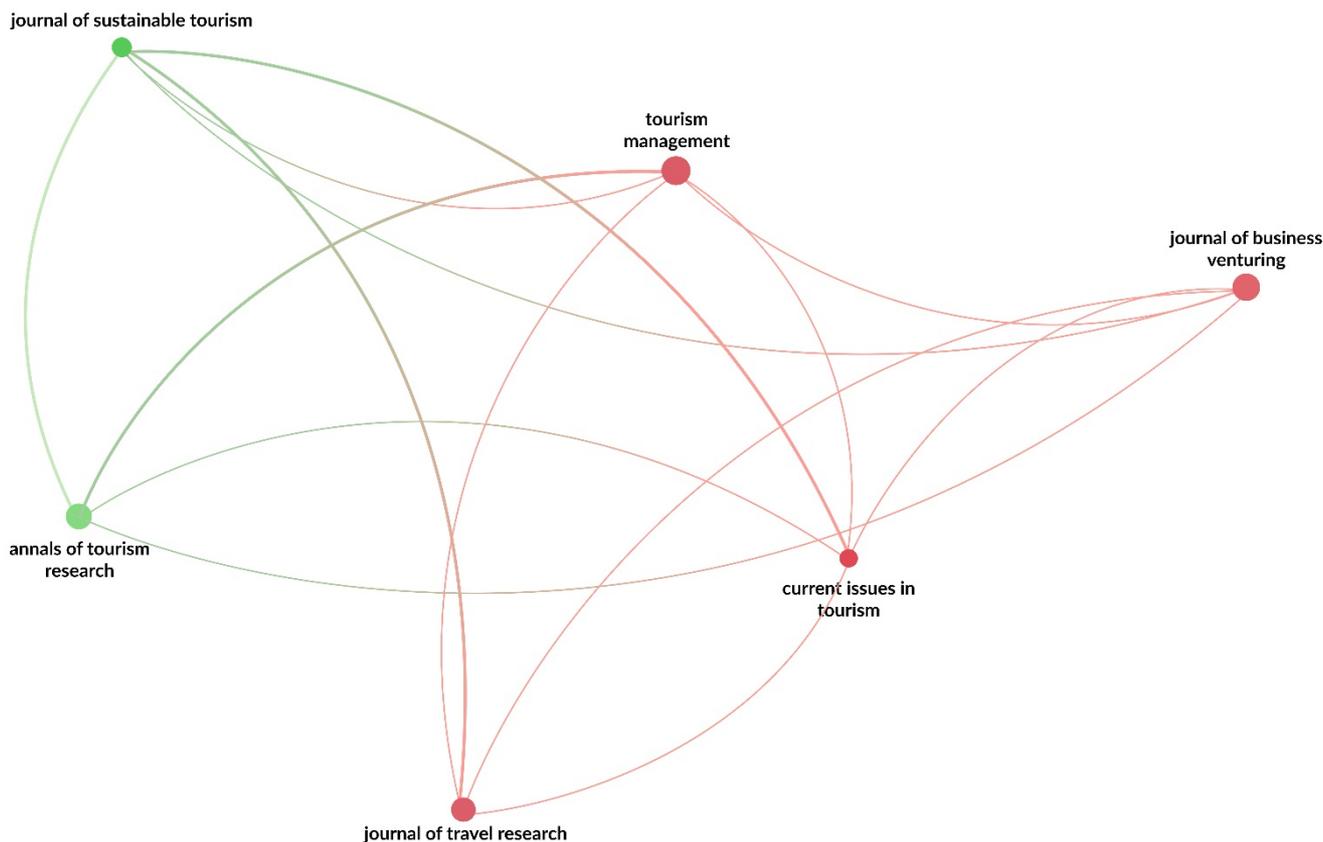
Figure 3: Bibliographic coupling of authors
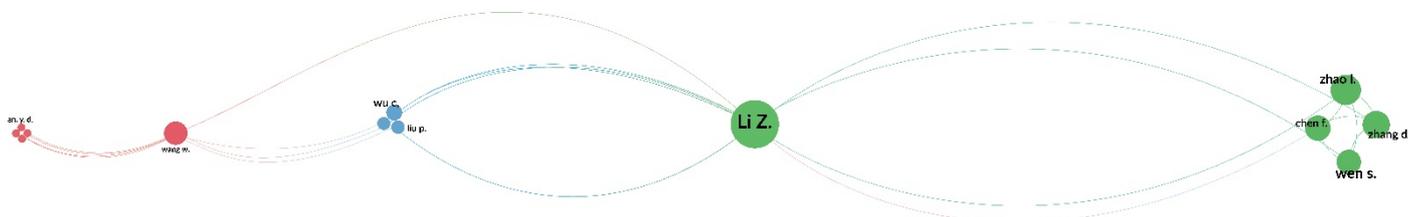
The bibliographic coupling by countries was analyzed. Figure 4 visualizes the data, considering a minimum of two documents and thirteen connections. United States is the country with the largest number of publications. Four clusters were identified. The red one being the one with the highest number of connections. This figure also shows the relationships between countries, making it evident the closeness between United States, Spain and Italy.

Figure 4: Bibliographic coupling by countries
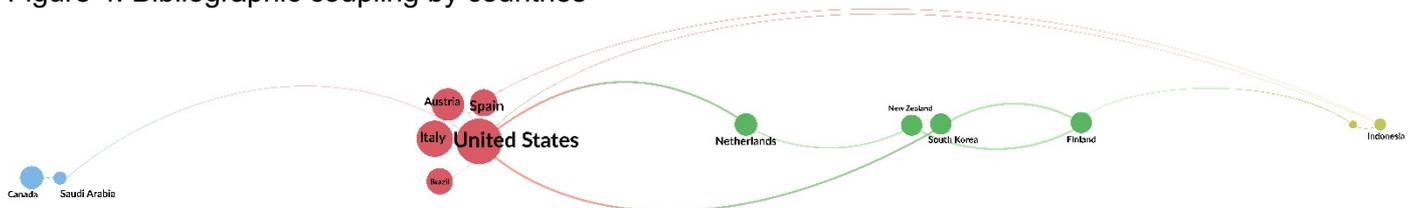
Another interesting topic to study is country co-authorship, that is, how authors from different countries publish together. Figure 5 contains the co-authorship by countries, showing the most influential countries and the degree of communication between them. Although the results obtained when identifying the countries with the highest number of publications are similar to those of Figure 4 on bibliographic coupling, the difference can be found in the connections established. Four clusters were identified, the main one being the

red, with the highest number of connections between countries. It is worth noting that the largest nodes represent the most influential countries, with United States clearly standing out, followed far behind by Indonesia, Spain, Italy and South Korea. Relationship lines represent cooperation between countries. It is striking that despite the fact that China is the second country with the highest number of publications, no connections are established with any other country. This Figure was made taking into account a threshold of at least two documents and twelve connections.

Figure 5: Co-authorship by countries
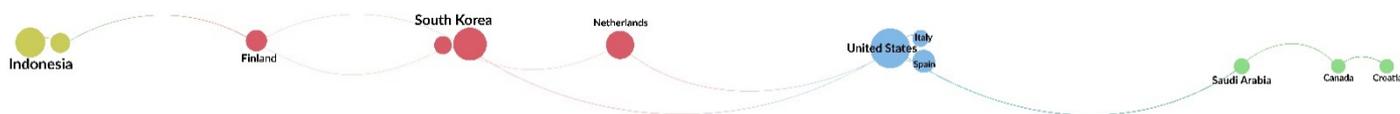
Keywords are often used to detect research topics (Yu *et al.*, 2018). To analyze the main ones on this paper, the author's keyword co-occurrence has been used. Figure 6 visualizes the map considering a threshold of three occurrences and the seven most representative connections. This is consistent with the information presented in Table 9, which shows all the most common author keywords with their respective co-occurrences, and the total strength of the connection. "Tourism", "Entrepreneurship" and "Startup" are the most frequent keywords in publications on this topic, with a total link strength of seven, six and four.

Figure 6: Co-occurrence of author keywords
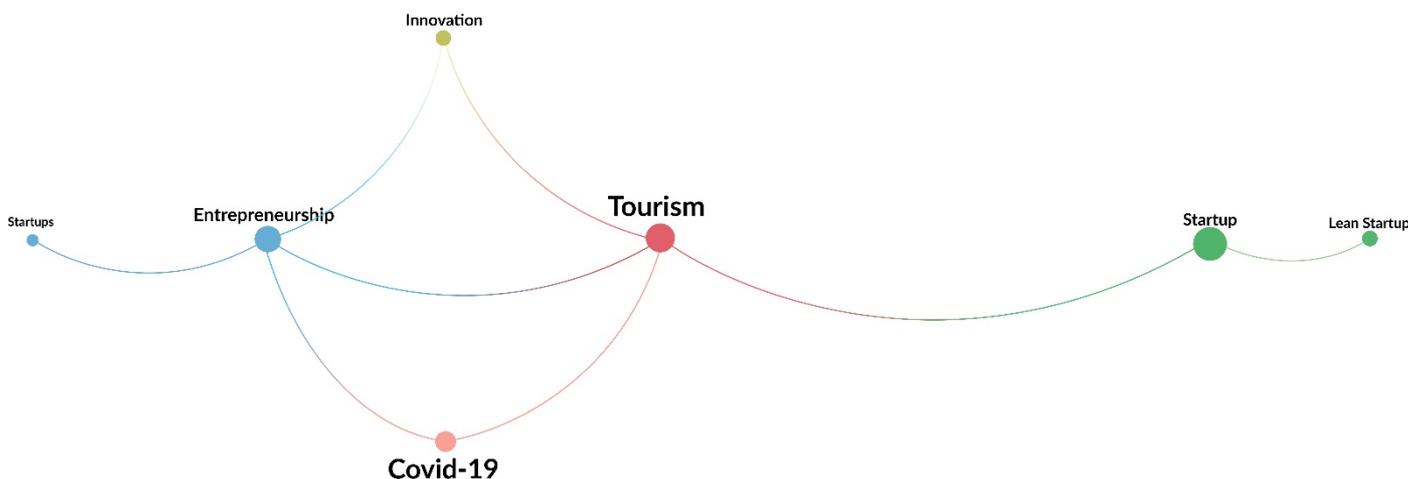
Table 6: Most common author keywords

R	Keywords	Ocurrences	TLS
1	Tourism	8	7
2	Entrepreneurship	6	6
3	Startup	7	4
4	Covid-19	3	2
5	Innovation	3	2
6	Lean Startup	3	2
7	Startups	3	1

Note: TLS – Total Link Strength

CONCLUSIONS

This paper presents an overview of the main publications about tourism and the new TBFs between 2010 and August 2021. Different analyzes were carried out for the described period, showing the main trends in relation to publications in this field of research.

The number of published documents has been gradually increasing, with the largest number of documents being published between 2016 and 2021, which can be explained by the interest aroused in recent years to understand how technology can help create sustainable competitive advantages in a highly competitive market such as the tourism industry.

United States is the most productive country for publications on this subject, with an annual number of documents well above the rest of the countries, followed by China, India, Indonesia and Spain. When observing the relationship between the total number of citations received and the total number of publications made, it is evident that although United States is the country with the highest number of documents generated, the countries that perform the best in this relation with the least two published documents are Saudi Arabia, Iran and Italy.

An analysis of the citation structure of the sources that published the most in the area was carried out. The source with the highest number of publications is "Sustainability", and the one with the highest number of citations in relation to the number of publications, which makes it more influential.

When performing the analysis of the most productive authors, it is found that Jennings D. and Figliozzi M. tend to write together and have the most published documents. However, Ahmad, SZ and Arif, AMM with just one publication have a higher number of citations.

To deepen the bibliometric results, a graphical visualization of the results was developed using the VOSviewer software. The work shows the publication structure of authors and countries, through the use of bibliographic coupling and co-authorship. It is observed that United States occupies the most significant position. The software also visualizes the most cited journals on the subject, through the analysis of co-citations, highlighting the "Journal of Business Venturing" and "Tourism Management", and ended by mapping the most frequent keywords and the co-occurrence among them, evidencing the use of "Tourism", "Entrepreneurship" and "Startup".

The main contribution of this work is to show the evolution of both tourism and TBFs, so that researchers can use it in the future in their theoretical and research frameworks. Also entrepreneurs can identify new business opportunities, and governments can use it in the design of its public policies towards the recovery of the sector. Topics such as entrepreneurship, tourism and startups could be further explored.

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APPLYING TECHNOLOGY ACCEPTANCE MODEL IN VIRTUAL BLENDED LEARNING

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INTRODUCTION

This paper aims to understand how virtual learning affect college students during the COVID-19 pandemic. Studies show that students' academic involvement positively affects their learning outcomes. Those who participate in the learning process are more likely to master knowledge and skills than disengaged ones. Engaging students in a virtual classroom via video-conferencing can be challenging due to non-social presence. With teacher support being added in the technology acceptance model, this study examines the perception of online education technology on student learning attitude, course engagement, satisfaction, and behavioral intention. Confirmatory factor analysis and structural equation modeling will be used to test the hypotheses.

LITERATURE REVIEW

Virtual blended learning

By infusing asynchronous web-based technologies into synchronous learning and teaching practices, blended learning can tailor to the changing needs in higher education, providing learners with more options and flexibility while maintaining interactions with peers and instructors (Garrison and Kanuka, 2004; Vaughn, Garrison and Cleveland-Innes, 2013). Students are more likely to learn if they enjoy learning (Thorne, 2003). To create a positive experience, faculty need to be aware that blended learning has barriers, such as decreasing quality of interaction (Humbert, 2007). Groen and Li (2005) argued that blended learning objectives could be achieved entirely online as advanced technologies could allow synchronous communications fulfilled in distance learning. Synchronous tools encourage student engagement through regular interactions with instructors, meaningful learning opportunities, and positive learning communities (Schullo *et al.*, 2007; Wdowik, 2014).

Technology acceptance model and teacher support

Proclaimed as a "remarkable accomplishment" (Bagozzi, 2007), the technology acceptance model (Davis 1993) explains a user's attitude and behavioral intention based on the perception of a particular technology's usefulness and ease of use. The technology acceptance model has been widely adopted and expanded in numerous empirical studies in various disciplines, such as education (e.g., Ball and Levy, 2008), healthcare (e.g., Sun *et al.*, 2013), e-commerce (e.g., Marios, 2002), online banking (e.g., Brown *et al.*, 2002), and social media (e.g., Pinho and Soares, 2011). If users find the technology easy to use, they are more likely to continue to use it in the future (Cho and Sagynov, 2015).

It is commonly acknowledged that teacher support enhances student engagement and positively impacts students' success and well-being (Skinner and Belmont, 1993; Ryan and Patrick, 2001; Kiefer *et al.* 2015). Reeves and colleagues (2004) reported higher student engagement when teachers demonstrated greater autonomy support. Karabenick and Sharma (1994) stated that when college students perceive teacher support in the classroom, they feel at ease to ask questions. In other words, teacher support of questioning leads to increased involvement.

H1: Perceived usefulness of video-conferencing will have a positive effect on attitude toward virtual learning.
H2: Perceived ease of use of video-conferencing will have a positive effect on attitude toward virtual learning.
H3: Teacher support in a virtual classroom will have a positive effect on attitude toward virtual learning.
H4: Perceived usefulness will have a positive effect on continued intention to use.

H5: Teacher support in a virtual classroom will have a positive effect on student course engagement.
H6: Teacher support will have a positive effect on student satisfaction.
H7: Student attitude toward virtual learning will have a positive effect on student course engagement.

Student course engagement

Student engagement, an indicator of actual system use in the blended learning, is a viable predictor of student success (Skinner, Wellborn and Connell, 1990; Fredricks, Blumenfeld and Paris, 2004; Dotterer and Lowe, 2011). Newmann, Wehlage and Lamborn (1992, p. 12) defined student engagement as "the student's psychological investment in and effort directed towards learning, understanding, or mastering the knowledge, skills, or crafts that academic work is intended to promote."

Based on student self-theories (Dweck & Leggett, 1988; Dweck, 1999), Handelsman *et al.* (2005) developed a 23-item Student Course Engagement Questionnaire (SCEQ), grouped into four factors: skills, emotional, participation/interaction, and performance engagement. Given the nature of this study, student course engagement in skills, emotional, and participation/interaction will be assessed to understand student behavior in a virtual blended learning setting.

Student satisfaction and behavioral intention

Student satisfaction is a multidimensional construct, referring to "a short-term attitude resulting from an evaluation of a student's educational experience" (Hartman and Schmidt, 1995; Elliott and Healy, 2001, p. 2;). Typically, it is believed that students may experience greater satisfaction in traditional classroom learning, resulting from immediate feedback, interactions, and belonging (Anderson, Banks and Leary, 2002). Kim and Kim (2021) analyzed the responses from 250 college students studying remotely during the COVID-19 pandemic in South Korea. The findings show that class interactions led to student engagement, which in turn affected student satisfaction.

H8: Student engagement will have a positive effect on continued intention to use.
H9: Student engagement will have a positive effect on student satisfaction.

The conceptual research model is shown below in Figure 1.

Figure 1: Research model
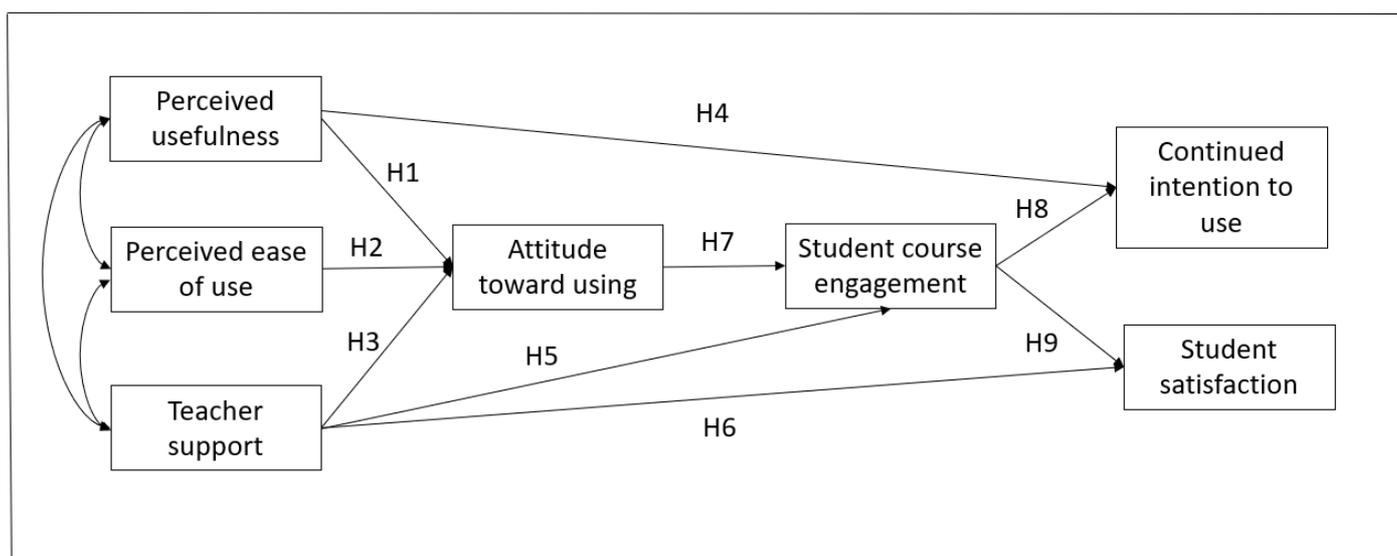
METHODOLOGY

Measurements, Data collection, and analysis

The questionnaire was distributed to 213 international students who took one or more blended courses with an American university between Spring 2020 and Summer 2021. A total of 153 cases were received.

The measurement instruments were derived from various models. All the items were measured with a seven-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree).

Confirmatory factor analysis and structural equation modeling were conducted to test the hypotheses. The software packages SPSS 24.0 and Amos 24.0 were used in this study.

RESULTS

The results from the first run of the measurement model indicated that the factor loadings for PEU1, PEU2, SCE1, SCE2, SCE3, TS1, TS2, TS3, SA2, and SS2 were removed due to low factor loadings below .6. All factor loadings were greater than .70. Composite reliability ranged from .74 to .93, and the average variance extracted was from .50 to .78. The model fit summary indicated an acceptable fit.

The results from the structural equation modeling revealed that all hypotheses were supported except H2, H3, and H8. The model fit summary showed an acceptable fit.

DISCUSSION

Perceived usefulness positively related to student attitude and continued intention toward using the technology. Some participants commented that video-conferencing in the virtual classroom was beneficial as they could turn on message translation and review the recorded lectures. However, students also reported some drawbacks attending the virtual classes, such as bad internet connections, 12-hour or 13-hour time difference, lack of peer-to-peer communications, and difficulty understanding complex math-related subjects.

Perceived ease of use did not affect student's attitude towards the technology. The reason could be that students were introduced to Zoom or Microsoft Teams right after the COVID-19 pandemic started in March 2020; By the time they took the survey, they would have been tech-savvy already. Teacher support was found to be related to student course engagement and satisfaction. One way to show support is by calling students by their names. Results also indicated that engaged students were more satisfied with their learning outcomes.

LIMITATIONS

This research may not be used to generalize the whole population. The participants in this study are a group of international students who took one or more blended courses during the COVID-19 pandemic. The early exposure to the video-conferencing technology might have influenced their feedback on the use of the technology when taking the survey. In addition, the questionnaire was worded in English. Although the students took classes in English, they might interpret the questions differently, especially with the negative form of words, such as "I wouldn't mind using Zoom or Teams for my future class." Future studies may avoid confusing questions in the survey.

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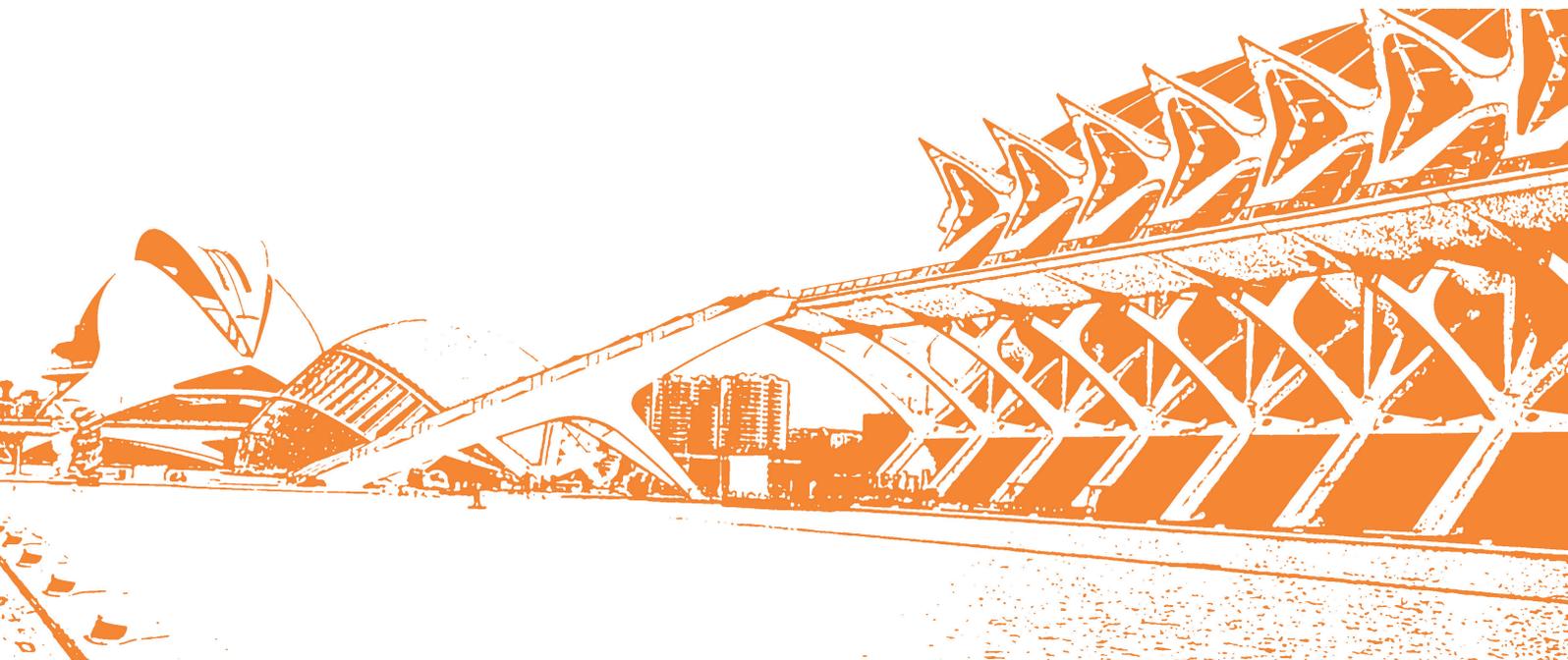
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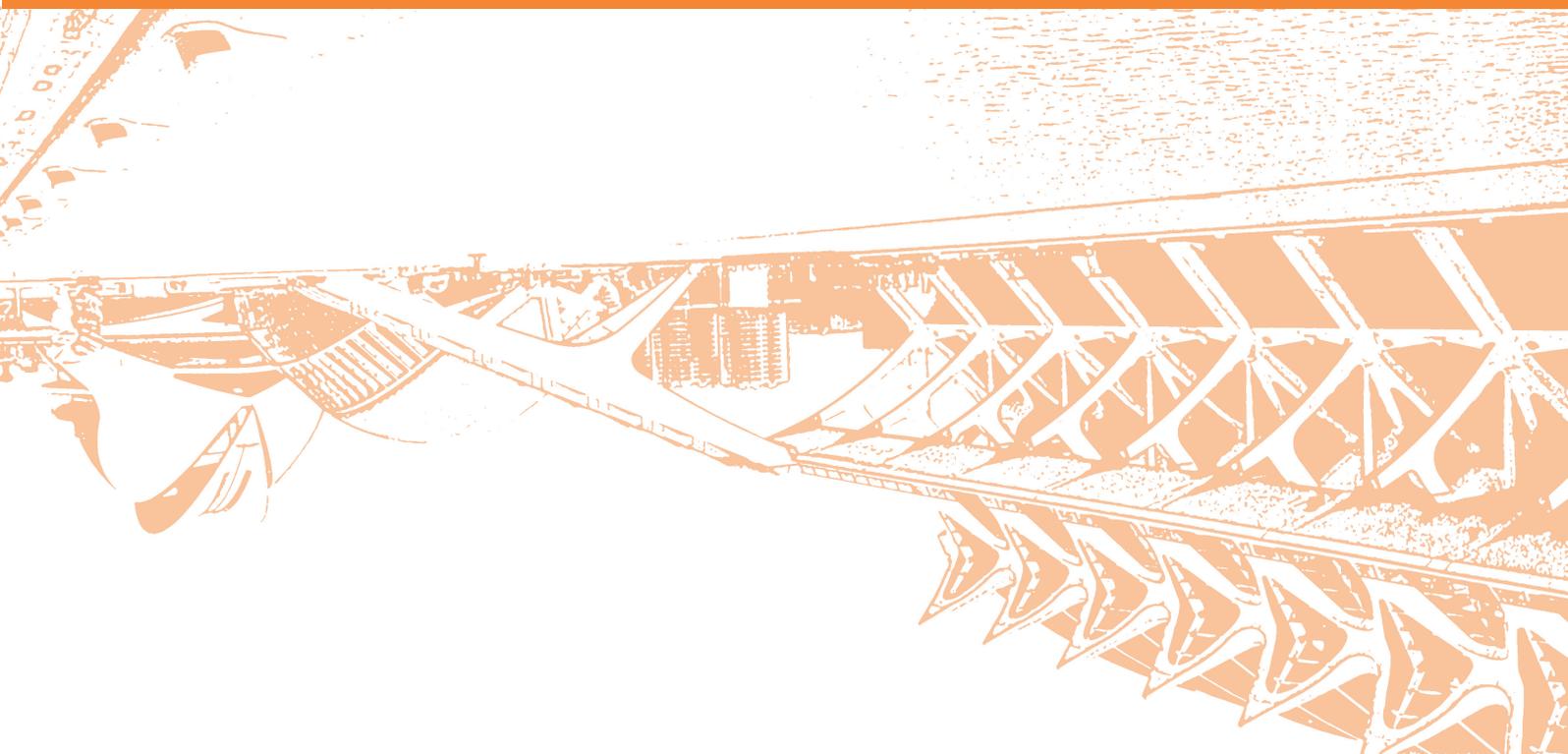
HOW DOES OTHER CUSTOMERS' COPRESENCE DESTROY CUSTOMER SATISFACTION?

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ABSTRACT

This study aims to better understand how other customers negatively affect customer satisfaction during service encounters in offline settings. Relying on the critical incident technique (CIT) with two large samples of negative copresence incidents across 20 service settings, we develop a taxonomy of negative copresence influences and identify the factors that make copresence critical and hence impact, significantly and negatively, customer satisfaction and ultimately repatronage intentions. In addition, we explore the preventive measures and recovery actions that could be taken by service firms and frontline employees, respectively, to prevent and reduce the effects of negative copresence.

INTRODUCTION

In a wide range of offline service settings, customer copresence enriches the service experience, meanwhile, such a copresence might also destroy customer satisfaction and eventually repatronage intentions. However, service providers often have little awareness of this phenomenon and lack knowledge on how to effectively manage negative customer copresence (Baker and Kim, 2018). While the service literature acknowledges the importance of copresence and has explored several of its aspects (e.g., Colm *et al.*, 2017; Grove and Fisk, 1997; Nicholls, 2020; Zhang *et al.*, 2010), a comprehensive understanding of how copresence influences customer satisfaction is still lacking. A few studies have investigated the negative influences of copresence, most of them nevertheless only rely on relatively small samples and single service contexts, limiting the generalization of their findings. Using the critical incident technique (CIT), the current study strives to contribute to extant literature on negative customer copresence by providing an in-depth understanding of its influences on customer satisfaction based on two large samples of negative copresence incidents across several service contexts.

Answering calls to broaden the perspective of service encounters by considering the influence of other actors in service ecosystems (e.g., Vargo *et al.*, 2020; Wieland *et al.*, 2016), this study pursues three main objectives: First, it aims to better understand how other customers negatively affect customer satisfaction during service encounters in offline settings and more specifically, to inductively develop a taxonomy of such negative copresence. Second, it seeks to identify the factors that make copresence particularly critical in affecting customer experience. Third, this study explores the preventive measures and recovery actions that could be taken by service firms and frontline employees to reduce the occurrence and the negative effects of customer copresence.

Based on two large samples of 366 and 515 incidents, we develop and validate a taxonomy of the negative influences of customer copresence, which is structured around three main conceptual categories: whether the focal customer is affected by other customers' deliberate disruptive behavior, by the coincidental spillover of other customers' copresence, or by the passive observation of other customers' behavior. Our results suggest that several factors amplify the impact of negative customer copresence incidents, such as the reach of the incident (whether the focal customer is the only one affected or not), customers' personal situational factors, transitory enhanced expectations, and own (lack of) behavior. Moreover, attributions of the incident to the service provider or frontline employees and feelings of insecurity also moderate the relationship between decreased satisfaction and repatronage intentions. Potential preventive measures are identified, mostly regarding servicescape design and customer compatibility management. Finally, results reveal the key role of frontline employees. Notably, their absence, non-intervention, negligence, and ineffectiveness exacerbate customer dissatisfaction when a negative copresence incident occurs. Novel types of negative

copresence incidents are also identified and documented, which are related, among others, to COVID-19, the MeToo movement, and customer insecurity.

LITTERATURE REVIEW

Since the seminal work of Langeard and Eiglier (1977) on servuction (i.e., the provision of a service), the role of other customers in services encounters has been acknowledged by different research streams. The fragmentation of the literature has led to the use of various terms to describe similar concepts. The influence of other customers is often referred to as customer-to-customer interaction (CCI) (Nicholls, 2010; Wu, 2007; Zhang *et al.,* 2010). In place of interaction, Martin and Pranter (1989) use the term relationship. Other studies however refer more broadly to the presence of other customers (Grove and Fisk, 1997; Yin and Poon, 2016). Colm *et al.* (2017) use the term of copresence to refer to the simultaneous presence of other customers. Several other terms are also used to refer to the negative influences of other customers more specifically, such as negative CCI (Bosio and Lewis, 2008; Nicholls, 2020), other-customer failure (Baker and Kim, 2018), other-customer misbehavior (Huang, 2008), customer-to-customer rage (Dorsey, 2016), dysfunctional customer behavior (Harris and Reynolds, 2003), and disruptive customer behavior (Hoffman and Lee, 2014; Gursoy *et al.*, 2017). In this study, we follow Colm *et al.* (2017) and favor the term copresence. More precisely, we examine the negative influences of copresence, defined as all the direct and indirect ways service customers can be negatively affected by the simultaneous presence of other customers.

Several studies have already developed classifications of negative copresence (see Nicholls, 2010 for a review): For example, McGrath and Otnes (1995) have identified in a retail setting a series of potential roles that other customers might play in influencing a focal customer, such as competitor, complainer, judge, spoiler, and accuser. Martin (1996) has identified seven broad categories of other customers' disturbing behavior (i.e., gregarious, grungy, inconsiderate, crude, violent, malcontent, and leisurely). Based on a sample of theme park customers, Grove and Fisk (1997) have identified two categories of incidents related to other customers' presence: protocol incidents, such as physical and verbal incidents in line, and social contact incidents, such as unfriendly and ambiance incidents. In the hospitality context, Harris and Reynolds (2003) have identified four categories of dysfunctional customer behaviors: unreasonable/rude behavior, complaints, alcohol overconsumption, and violence. In an investigation of other customers' influence across several service settings, Zhang *et al.* (2010) have identified direct interaction incidents, such as fighting incidents, and indirect interaction incidents, such as loudness and rudeness incidents. In a classroom context, Hoffman and Lee (2014) have identified six categories of students' disruptive behaviors: side discussion issues, technology issues, over-the-top participation issues, commitment issues, proximity issues, and miscellaneous issues. Examining the influence of other customers at highway restaurants, Colm *et al.* (2017) have distinguished between several types of customer copresence influences: proactive instrumental interactions, proactive social interactions, reactive interactions, and behavioral spillovers. Based on data from serval service contexts, Nicholls (2020) developed a typology consisting of nine distinct categories of customer-to-customer positive and negative incidents related to shared use space, assigned space and possessions, information provision, assistance, social conversations, disrespectful attitude, queuing discipline, transaction efficiency and undesired customers.

Despite the abondance of studies classyfing the different types of negative copresence influences, the generalizability of their findings is limited in three ways: (1) Studies have investigated other customers' behaviors (Grove and Fisk, 1997; Nicholls, 2020), whereas others have focused on other customers' roles (Camelis *et al.*, 2013; McGrath and Otnes, 1995). As roles are bundles of behaviors and as the same behavior could belong to different roles, the findings of these two types of studies cannot be reconciled. (2) Even if a few studies (Nicholls, 2020; Zhang *et al.*, 2010) have taken a multiple-industry perspective, most studies (Colm *et al.*, 2017; Grove and Fisk, 1997; Hoffman and Lee, 2014) have developed industry-specific typologies of customer copresence influences, which are hardly applicable to other service contexts. (3) Finally, most studies have simultaneously studied positive and negative copresence influences (Colm *et al.*, 2017; Nicholls, 2020; Yin and Poon, 2016), which resulted in relatively small samples of negative copresence incidents and significantly reduce the generalization of their findings.

METHODOLOGY

We rely on the CIT (Flanagan, 1954) which offers a set of procedures to collect, analyze, and classify human behavior. As an inductive, storytelling method widely used in service research (see Gremler, 2004), CIT has been successfully employed in prior studies on customer copresence to capture customers' perceptions of service encounters (Nicholls, 2020). CIT hence allowed us to undertake an in-depth investigation of the copresence phenomenon. CIT does not require a priori hypotheses; instead, new concepts and theories can be formed from patterns that emerge from the responses (Whalen and Boush, 2014). Given the inductive nature of CIT data analysis, we thus developed a taxonomy from the data, rather than a typology deductively developed from the emergence of predetermined conceptual categories (Bailey, 1994).

We collected data from two independent samples. The first sample was used to develop the taxonomy and the second sample was used to validate it. The first sample of 366 incidents was collected between 2006 and 2021 from students enrolled in management programs in France and Switzerland. The second, sample of 515 incidents was collected from Swiss consumers in the spring of 2021, with an average age of 36, a 50/50 male/female distribution and covering 20 different offline service settings (including hospitality, retail, transport, entertainment, administrative services).

Following Bitner *et al.* (1990), data was analyzed through an iterative coding and classification process. In accordance with Keaveney (1995), the unit of analysis was the discrete critical behavior of other customers, as a same incident can include multiple behaviors. After a preliminary reading and analysis, the incidents comprising more than one critical behavior were split accordingly. Three groups of independent coders participated in the analysis to ensure the validity and reliability of the proposed classification scheme.

The first stage of the analysis was the inductive delineation of the taxonomy structure based on the data from the first sample. Three successive clustering processes conducted by three teams of researchers resulted in the emergence of the taxonomy based on the initial sample of negative copresence behaviors. Using an iterative process, a first team of two researchers read, sorted, reread, and recombined the negative copresence behaviors until consensus was achieved on category labels, and the assignment of each behavior to one of the 20 resulting categories. All behaviors were then sorted by a second team of two researchers who were given the 20 categories but had not participated in the initial categorization tasks. Intercoder agreement (based on the second team's sorting of the incidents) on assigning the incidents to the 20 categories was .89. The same process was reiterated by a fifth coder. Careful consideration was notably given to intra- and intercoder reliability (Gremler, 2004), with agreement rates over .85, and a final intercoder agreement rate of .9.

The second stage of the analysis was the validation of the taxonomy based on the data from the second sample. A new coder was tasked with the allocation of the critical behaviors to the 20 categories identified from the first sample. With less than .10 of new categories that emerged from the second sample, this second stage of the analysis allowed for the validation of the proposed taxonomy.

Thematic analysis and coding, as well as constant comparison with extant literature (Corbin and Strauss, 2008) were further employed to address the second and third research objectives, hence to identify the factors that make copresence particularly critical in decreasing customer satisfaction and affecting repatronage intentions, as well as the preventive measures by service firms and recovery actions by frontline employees.

RESULTS

Three main conceptual categories emerged from the data: whether the focal customer was (1.) directly affected by other customers' deliberate behavior that disrupts the service process, (2.) directly affected by coincidental spillover of other customers' copresence, or (3.) indirectly affected by the observation of other customers' behavior (see Figure 1, Appendix). At the second level of the taxonomy, disturbing behavior is then divided into (1.1.) one-way misbehavior and (1.2.) disruptive interaction (two-way). The coincidental spillover category is further divided into (2.1) spatial spillover, (2.2) accidental spillover, and (2.3) overuse of the service.

Figure 1: Taxonomy of the negative influences of customer copresence
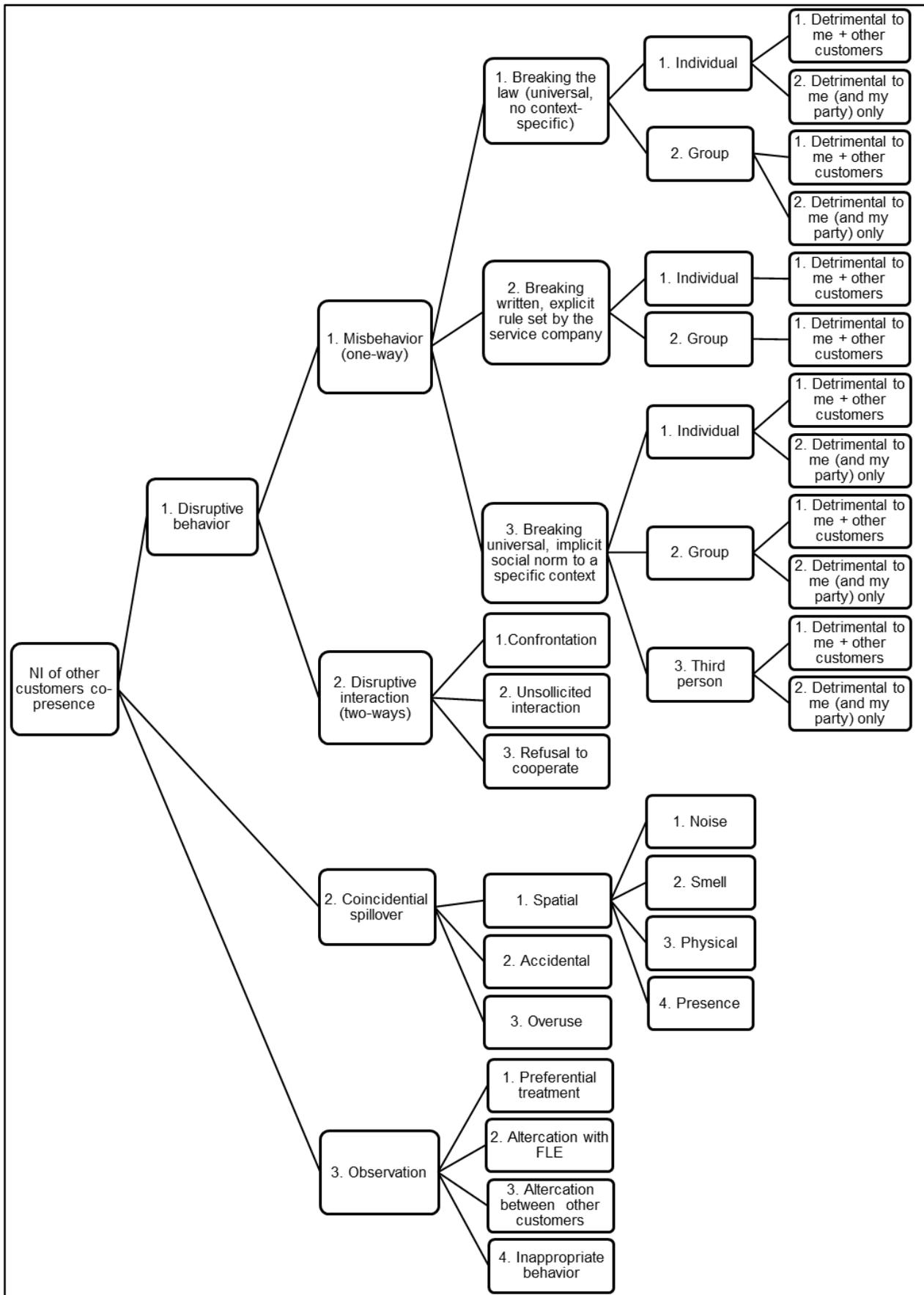
At the third level, the one-way misbehavior category is split into three subcategories: (1.1.1.) breaking the law (i.e., universal, non-context specific misbehavior), (1.1.2.) breaking explicit rules set by the service provider, and (1.1.3) breaking tacit, universal social norms which are context specific. At the third level, the disruptive interaction category is further split into three categories (1.2.1.) confrontation, (1.2.2.) unsolicited interaction, and (1.2.3.) refusal to cooperate. Spatial spillover is also split into (2.1.1.) noise, (2.1.2.) smell, (2.1.3) physical spillover, and (2.1.4) mere presence of the other customers. The observation category is split into four subcategories: (3.1.1.) observation of preferential treatment, (3.1.2.) observation of an altercation between other customers and frontline employees, (3.1.3.) observation of an altercation between other customers, and (3.1.4.) observation of an inappropriate behavior.

The fourth level distinguishes between the behavior of a (…1) single individual, (…2) a group of individuals, and (…3) a third person (e.g., a baby, a child) under the responsibility of the other customer(s). The fifth level distinguishes between behaviors that are (….1) detrimental to the focal customer (and its party or companions) only from those which are (….2) detrimental to all present customers sharing the service environment.

In relation to our second and third research objectives, preliminary results suggest that several factors amplify the impact of negative copresence incidents (see Figure 2). First, the reach of an incident is often evocated as an amplifying factor. This means that the disturbing behavior of another customer or group of customers is perceived as more dissatisfying when it affects not only the focal customer, but also the other customers present in the service setting as indicated by one of our respondents: "At first, I thought it would pass, but as the evening progressed and their discussion got louder, even the farthest tables were looking at them." Second, some personal situational factors and some transitory enhanced expectations of the focal customer were also evocated to justify the criticality of a disturbing behavior as mentioned by another respondent: "We wanted to rest [in our hotel room] because we were really tired, but our neighbor in the next room played music very loudly until 1am." Third, another factor which makes a disturbing behavior more critical is when the focal customer does not have the courage to intervene or react, as put by another respondent: "So, we just didn't dare to say anything and it was so annoying because we just spent the evening listening to his problems without being able to hear each other." Fourth, the absence of frontline employees who are expected to stop other customers' disturbing behaviors aggravates the situation as indicated by one of our respondents: "They had no reaction, they weren't even there". Finally, when the incidents are facilitated by a poor servicescape design, the focal customers perceive the situation as even more critical: "We had chosen a beautiful place with few customers, but the tables were set-up too close to the others".

Moreover, the (partial) attribution of the incident to the service provider or one of its' employees and the feelings of insecurity are two additional factors that are likely to moderate the relationships between the focal customer's dissatisfaction and his or her repatronage intentions. Indeed, our findings suggest that when customers attribute part of the responsibility of the copresence incident to the service firm in addition to the perpetrating customers, it negatively affects their repatronage intentions. In addition, when a copresence incident triggers feelings of insecurity, customers are also less likely to use the service again as indicated by one of our respondents: "He was insistent and he was in my personal space. It happened in a supermarket, in a certain area, and I can guarantee you that I haven't been in that supermarket since".

Potential preventive measures are identified, mostly regarding inadequate servicescape design and poor customer compatibility management. In addition, preliminary results also reveal the key role of frontline employees in managing customers' copresence. Notably, their absence, non-intervention, negligence, and ineffectiveness exacerbate customer dissatisfaction when a copresence incident occurs.

Figure 2: Factors influencing the criticality of customer copresence
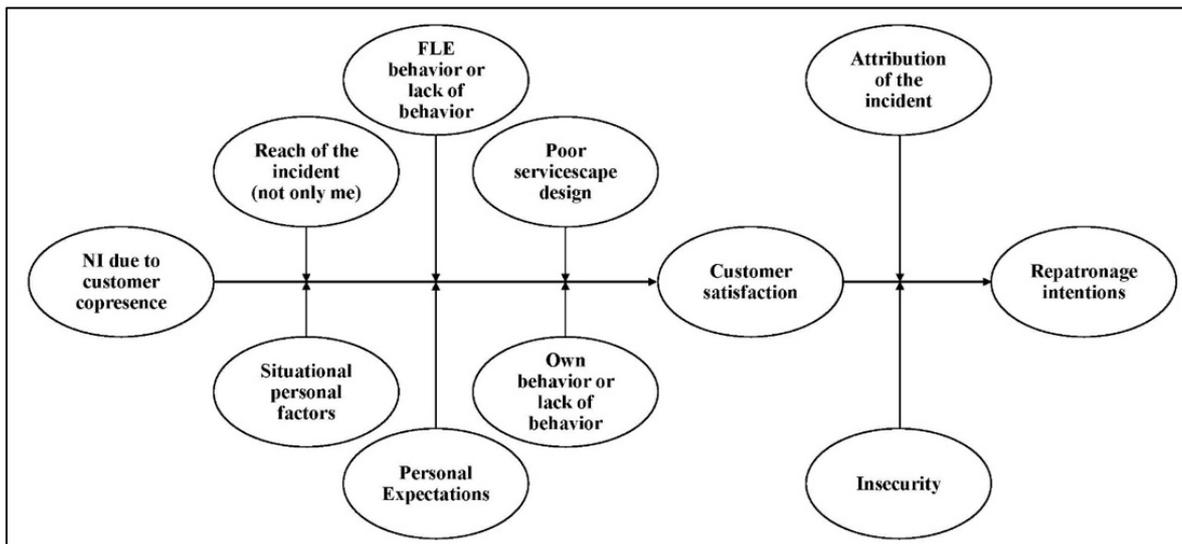
DISCUSSION

This study seeks to make three main contributions to extant literature on negative customer copresence in service settings. First, compared to extant literature, our proposed taxonomy provides a more fine-grained classification of the negative influences of copresence. Our taxonomy distinguishes behaviors that are often regrouped in previous studies, even if they may have different managerial implications. For example, in the study Nicholls (2020), the broader "disrespectful attitude" category comprises behaviors such "misbehavior," "altercation with frontline employees," and "altercation between other customers," which deserve to be distinguished as the presence of frontline employees is likely to vary across these situations. Our findings also highlight new categories of incidents. For example, "refusal to cooperate" is a type of negative customer-to-customer interaction and "accidental coincidental spillovers" is another which have not yet been discussed in the literature.

Second, unlike previous research which has, so far, neglected this issue, our study advances the understanding of what makes customer copresence a critical factor that could negatively affect customers' service experience and satisfaction. Understanding when a particular behavior from another customer becomes critical in destroying customer satisfaction is particularly relevant as some of these disturbing behaviors might not be perceived as such by the perpetrating customer or even by frontline employees. Indeed, some environmental (e.g., the absence of frontline employees and poor servicecape design) and personal (shyness and temporary elevated expectations) factors might transform such mundane behaviors into critical incidents likely to ruin a customer's service experience.

Third, efficiently managing customer copresence in today's societal context and limiting its detrimental effects on service outcomes is particularly managerially relevant as firms and frontline employees have often little awareness of this problem and lack knowledge on how to effectively manage customer copresence (Baker and Kim, 2018). Our findings highlight the critical importance of physically separating customers with incompatible needs and behaviors through a carful design of the servicescape. They also stress the intervening role of frontline employees when a copresence incident occurs as the absence and non-intervention of these employees are likely to negatively affect the perception of these negative incidents.

Our findings also suggest interesting avenues for future research, notably regarding customer insecurity, servicescape management, customer compatibility, and discrimination, the absence of frontline employees, and copresence issues related ageism. In addition, future research could also examine if and how our findings might equally apply to online customer copresence.

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APPENDIX Classification Scheme

Negative copresence influences	Done by	Detrimental to	No*	No**	Quote
1. Disruptive behavior *(focal customer is directly affected by other customer(s)' perceived deliberate behavior that disrupts the service process)*					
1.1. Misbehavior *(other customer(s)' behavior violates generally accepted norms of conduct; one-way communication)*					
1.1.1. Breaking the law	Individual	Me and others	8	19	*"I was at the supermarket, it was crowded and suddenly the cashier started to yell because some other customer stole something (…) the customer started to yell as well, security intervened… it took so much time (…) and I could not move and change register, there was so many people waiting."*
		Me (and my party) only	5	6	*"I was at the bank to deposit some money in my account, there was a long queue, but no one was respecting it. Everybody was squeezed together (…) when I got out, I realized that some other person waiting behind me stole my phone, as just before I entered the bank, I checked the time on my phone".*
	Group	Me and others	6	5	*"Lately, during a football match, different groups of supporters, even if they were supporting the same team, stated to fight in the stand. It created a general feeling of insecurity and ruined the party".*
		Me (and my party) only	2	0	*"At the nightclub, some drunk and excited customers started to bother me and my friends. They shoved and insulted us for a long time before it escalated in a verbal and physical fight."*
1.1.2. Breaking an explicit rule set by service company	Individual	Me and others	20	10	*"I was on a plane and just before takeoff, the hostess asked all passengers to switch off their phones. One passenger kept talking on his phone, putting everybody's security in risk, honestly this behavior bothered me (…)"*
	Group	Me and others	4	10	*"The last time I was on vacation at a very nice 4-star hotel, there were two kinds of pools proposed: one activity pool and one relax pool. The difference was clear: the activity pool is for doing all kinds of stuff like volleyball, snorkeling, water gym and to make noise. The relax pool was destinated to people who wanted to be calm: that's where I was lying. But a family arrived with 3 kids and they were playing in the relax pool and making a lot of noise. I could not relax anymore."*
1.1.3. Breaking a universal implicit social norm	Individual	Me and others	57	13	*"At the bank, one customer jumped the line to go first, which of course generated some aggressivity from all other customers (…)"*
		Me (and my party) only	16	23	*"I was at the post office to send a parcel in emergency and did not know the process. I waited in line as everybody else in that noisy post office, this already annoyed me. But then when it was my turn, I started explaining what I wanted when someone interrupted me and started asking questions to the employee. Although this person was with children, I don't know if it was due to that, but I was put aside and the employee took care of this other customer first."*
	Group	Me and others	53	6	*"Last year I was at the cinema, once the film started a group of teenagers entered while making a lot of noise. They changed seats several times and kept talking loudly (…)"*
		Me (and my party) only	8	3	*"At a fine dining restaurant during Valentine's Day with a very nice setting and a menu worthy of the reputation of the restaurant, I was placed next to a couple who was fighting (therefore ruining our intimate ambiance)."*
	Third person	Me and others	17	6	*"At a restaurant, a couple came to eat with their four children who did not stop playing in the restaurant, which as annoying as we could not eat calmly and without stress (…) no one did anything, I will never go back."*
		Me (and my party) only	6	4	*"During a 6–7-hour flight, the passengers behind me were young children with their parents, it was very noisy, and the children kept kicking my seat, neither the hostess or the parents could do anything, they were too agitated."*
1.2. Disruptive interaction *(interaction with other customer(s) which involves a two-way communication)*					
1.2.1. Confrontation			11	7	*"At the bowling alley with some friends on a Saturday night, we had to wait for a line to vacate, after a while we were allocated one but another, slightly drunk customer came to see us saying he was there before us. A fight almost broke but my friends and I were not even responsible for this mistake"*

1.2.2.	Unsolicited interaction	11	5	*"I was at the supermarket waiting at the queue. I was very late and the lady after me just had a few things and asked me to pass. It's true that I had more but time is time."*
1.2.3.	Refusal to cooperate	6	5	*"(…) Then the movie starts and a few minutes later we hear two people laughing and talking very loudly. So, we asked them to speak a little quieter. Nothing to do, they didn't want to know anything. They started throwing popcorn at us.(…)"*

2. Coincidental spillover (*focal customer is directly affected by the presence of other customer(s) or a perceived unintended / unconscious behavior*)

2.1. Spatial *(Sharing the same space)*	Noise	4	13	*"This encounter occurred when I was at the cinema to watch a movie. The room was crowded, and some customers were eating crisps, they made a lot of noise with the wrappers".*
	Smell	20	8	*"When I took the train in order to go to Paris, my satisfaction has decreased because I was the only person who was not from the group sitting in my wagon (a group of tourists who were obviously not from a European culture) (…) they started their lunch at 10 in the morning with very smelly food which infested the whole wagon."*
	Physical proximity	10	3	*"In 2018 I was travelling to Sri Lanka in coach, the person in front of me was very tall, must have been more than 2 meters and also was largely built. When he wanted to sleep, he fully inclined his seat which made me feel trapped on my seat, and that made have a very long and uncomfortable seat."*
	Mere presence	23	15	*"When at the Apple Store in Geneva, my experience of the retail service was significantly tarnished, by the large crowd of customers in the store. This resulted not only in an overcrowded shop floor, but also in excessive lines in front of the check-out."*
2.2. Accidental *(Unintended behavior)*		7	6	*"One time at a nightclub, I was sitting with my drinks on the table when someone felt and pushed all the drinks away on me and on the floor."*
2.3. Overuse *(Other customer is taking too much time to use the service)*		46	32	*"My satisfaction has been decreased by another customer one day at the security checkout. Indeed, the airport customer in front of me was taking an outrageous amount of time to pass the counter (removing his shoes, belt and watch as well as preparing his bag). I was very upset and, in a hurry, because my flight was leaving."*

3. Observation (*focal customer is indirectly affected by observing other customer(s) / being exposed to their behavior; he/she could choose to ignore the situation as his/her service continues without being affected/interrupted*)

3.1. Preferential treatment		12	5	*"I was waiting in line to enter a nightclub (…) I have been waiting for more than 45 minutes in the cold when a group of young women sneaked into the group who blocked the door. One of them kissed the bouncer and they were able to enter without waiting even though they should have been behind me."*
3.2. Altercation other customers - FLE		25	18	*"Last winter, I went to Morocco to relax and enjoy the sun after my exams. Luckily, the weather was very good, and I could relay at the swimming pool. But suddenly, another customer started to yell at a waiter. From what I understood, he forgot to bring her a drink. All the people around the swimming pool were mad because she wouldn't stop yelling while we were all trying to relax. I was actually sleeping, and she woke me up. The waiter just let her yell, left and brought her drink back."*
3.3. Altercation other customers		9	4	*"At the supermarket, while waiting to pay for my groceries, one customer started yelling at another and they started arguing. This situation made the other customers really uncomfortable."*
3.4. Inappropriate behavior		15	15	*"One year ago, I was eating at a restaurant with my parents and the couple at the table next to us was kissing loudly and were inappropriately displaying their affection. It was extremely embarrassing, and we could not help ourselves but to watch them, incredulous, without enjoying our meal or talking to each other."*

* Number of occurrences of each category in Sample 1, ** Number of occurrences of each category in half of Sample 2 (n = 257).

EMPLOYEES' READINESS FOR CO-CREATIVE LEADERSHIP IN PUBLIC SERVICE INNOVATION

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ABSTRACT

The aim of this on-going study is to investigate what hinders and enables the spread of resource integration behavior to find innovative ways of dealing with societal challenges. The study is based on empirical material from the Swedish welfare sector. Exploring how project managers and coordinators experience and manage the task of integrating resources and work, in order to spread resource integration behavior within organizations, can clarify important prerequisites for service innovation. This study should be seen as a contribution to the emerging theoretical field of public service logic, and as the promotion of a framework for public service innovation.

INTRODUCTION

Gang-related crimes involving minors, increased mental illness among children, and the large number of adolescents dropping out of school are just some of the societal challenges facing the Swedish public sector today (SOU 2018:32; SOU 2020:28; SOU 2021:6). Given the complexity involved, these issues/dilemmas do not lend themselves to being dealt with by one public service organization, instead cutting across boundaries between agencies such as the police, education, child and adolescent psychiatry, and social services etc. A holistic cross-organizational approach, whereby public resources are viewed as collective, would provide opportunities to solve, or at least manage, the situation: However, such a collaborative approach is usually not prevalent in the public sector today. Instead, each public service organization is only responsible for its own restricted area, focusing on internal matters. Attempts to find innovative ways of managing societal challenges have prompted both researchers and practitioners to take an interest in innovations from a service logic perspective (e.g. Bason, 2010; Skålén et al., 2018; Osborne et al., 2015). In this perspective, service innovation must lead to an improvement for the end-user (citizen); otherwise, the change will not be a service innovation (Kristensson, Gustafsson and Witell, 2014). Service innovations are defined as new integrations of actors' resources aimed at organizing value creation in a new and more efficient way for the end user, e.g. the patient, client, student etc. (Grönroos, 2019). Research into service logic has focused on value and value creation. Less attention has been paid to the integration of resources and there is a lot we still do not know about resource integration behavior in public services. Previous studies of the public service logic have only touched upon what the concept of resource integration consists of (e.g. Davey and Grönroos, 2019; Eriksson et al., 2020: Eriksson and Hellström, 2021). A call for more research on the topic has been made by Osborne (2018, p. 229):

> /---/ the concepts of 'resource integration' and 'value propositions' need further exploration in a public service rather than for-profit context. However, these conundrums are only exposed when we go 'through the looking glass' and see public service delivery for what it is – a process about value not performance, and focused upon the actions of citizens and service users, rather than upon PSOs [public service organizations, authors' comment].

The employees, in both their own and other organizations, are key players because they are the ones who can integrate resources effectively in their day-to-day work based on the user's needs, wishes and experience of what value is (Karlsson and Skålén, 2015). But what is the significance of more and more people taking the lead and wanting to share the responsibility within and between organizations in order to pursue resource integration behavior? How can leadership that includes multi-stakeholder participation in both decision-making and responsibilities shape employee engagement in resource integration processes? How do various professional functions tasked with spreading resource integration behavior perceive obstacles or opportunities in their line of work? Neither of these questions has received much academic attention.

Consequently, we do not know much about the prerequisites that allow resource integration behavior to be spread, although it may be assumed to be an important part of moving the service logic forward in public services. How resource integration behavior is hindered and enabled in practice is thus an important issue to investigate in order to increase our knowledge of what needs to be taken into account in the further development of the public service logic. By studying how resource integration is performed in practice, we can learn something new. The present study intends to contribute to such knowledge.

This study aims to increase knowledge of what hinders and enables employees in integrating resources from a service logic perspective, based on empirical material gathered from the Swedish welfare sector. Exploring how project managers and coordinators experience and handle the task of integrating resources and work, in order to spread resource integration behavior within and between different organizations, can clarify important conditions for service innovation. This involves exploring opportunities for new approaches to resource integration behavior in public service organizations, discussing the importance of a leadership that is spread between many employees in this context, while at the same time involving the service user as an active actor. At the same time, the results of the study shed light on the employee's readiness to use a service logic perspective during his/her innovation work. In that sense, the study makes a contribution to the emerging theoretical field of public service logic and the advancement of the framework of public service innovation.

THEORETICAL FRAME OF REFERENCE

Over the past ten years, the service logic has been informing public services, and the field of public service logic has emerged, with its focus on value and the user's own value creation (Dudau, Glennon and Verschuere, 2019; Grönroos, 2019; Osborne, Radnor, and Nasi, 2013; Trischler and Charles, 2019). Osborne (2021, p. 133) ascribes the core of public service logic with the following meaning: "/… / a focus on value also shifts the fulcrum of attention away from organizations and performance and to citizens and impacts." In the public service logic, public service organizations have the main role of organizing service offerings in order to improve or increase citizens', or groups of citizens', as well as individual users', ability and involvement in order to create value in a better way than before during their life *experiences* or in their lifeworlds (Høibjerg, 2021, Osborne, 2018). These service offerings involve integrating the relevant actors and their resources into the processes independently of the nature of the services (Laing, 2003) and contexts (Jung, 2010; Osborne, Nasi and Powell, 2021). Some services are voluntary while others contain elements of, or are purely the exercising of, authority, often being associated with certain requirements or restrictions for the individual, e.g. compulsory schooling and mandatory measures taken in the social services, etc. (Osborne, Radnor and Strokosch, 2016; Reitan, 2019). Regardless of the nature of the service offering, public service organizations, according to public service logic, have to both manage and bring about the best of conditions, providing the integration of resources, in order to improve the users' value creation.

The view of resource integration in public service logic is based on the argument that public service organizations cannot create value for their users, they can only offer services (value proposals) that support the user's value creation (Grönroos and Ravald, 2011; Osborne *et al.*, 2013; Vargo and Lusch, 2004). The user is the one who both creates and determines value, but the public service organization is either involved in or mediates the processes of value creation (Davey and Grönroos, 2019; Grönroos and Voima, 2013). In public service logic, there is a dual effort that simultaneously strives to achieve collective value that is accessible to all citizens, or groups of citizens, and individual value for the individual citizen (Alford, 2016; Osborne, 2021; Skålén *et al.*, 2018).

Several studies highlight the fact that there are shortcomings when it comes to resource integration across organizational or professional boundaries, due to the fact that an organizational perspective is prevailing, rather than the needs of those who actually need help and support (Westrup and Danielsson, 2019). Another way of expressing this is that criticism is directed at the organization being run from an "inside-out" perspective and not an "outside-in-perspective". The lack of such coordination is a symptom of a well-known problem: the "silos" problem (Christensen and Lægreid, 2007). Many attempts have been made to mitigate the consequences of this way of working, for example through various collaboration projects and collaboration models (e.g. Julkunen and Willumsen, 2017; Liff and Andersson, 2012; Rose and Norwich, 2014). However, it has turned out to be the case that collaboration is not straightforward, frequently not working as intended in practice.

Value creation processes are not limited to organizational boundaries: On the contrary, these processes aim to gather all the relevant actors needed together in order to provide the best conditions for value creation (Grönroos, 2019; Lusch and Vargo, 2014). Some researchers have examined this issue more closely and discussed how important it is to explore resource integration in more detail. Eriksson *et al.* (2020, p. 806) emphasize that:

> /---/ a systems view should not be restricted to include knowledge of what other actors' resources to mobilize in order to best support the user's value-creation process, but also to be aware of, for example, organizational cultures or power asymmetries between professions that is pivotal for collaborative efforts and establishing relationships.

In this research, Eriksson *et al.* (2020) also highlights that the role of a coordinator is to make it easier to coordinate value propositions across organizational and professional boundaries. This is also emphasized by Becker (2019, p. 32): "/… / the coordinator role is of particular importance in steering complex network structures." Becker (2019) also highlights the fact that adopting a new micro-level, service employee-centric perspective on resource integration makes it possible to understand the key role that employees play in multi-actor interactions, providing knowledge of various employee behaviors that may drive resource integration and co-creation. Moreover, Becker (2019) proposes leadership collaboration – collective leadership – whereby the actor who is tasked with spreading resource integration behavior can be said to consciously support the other actors by clarifying roles, the ability to take on the role, and the motivation for taking on the role. The actor tasked with spreading resource integration behavior can, in this role, actively and consciously develop strategies that contribute to the emergence of collective leadership (Zhu, Liao, Yam and Johnson, 2018). In doing this, the actor can share his/her leadership role in order to spread resource integration behavior among all the actors involved (based on their specialized skills and expertise), with the goal of merging resources in the best possible way (Friedrich, Griffith and Mumford, 2016). Friedrich *et al.* (2009, p.933) gives collective leadership the following definition: "/---/ it is a dynamic leadership process in which a defined leader, or set of leaders, selectively utilize skills and expertise within a network, effectively distributing elements of the leadership role as the situation or problem at hand requires." This leadership is thus not something that is exercised by individual leaders or managers: Rather, it is a mutual and integrated process that is distributed between the participants.

In leadership research, there is an emphasis on the importance of creating direction and movement, with this requiring co-creative actions that create direction. Several researchers have investigated in which way conversational interactions are crucial to the process whereby leadership is practiced and direction is created (Crevani, 2018; Raelin, 2016). Alvehus (2019, p. 541) emphasizes the importance of understanding conversational interactions in order to understand leadership as a collective implementation. He writes: "Talk initiates action, shapes directions, and is thus fundamental to the collective accomplishment of leadership." In addition, Alvehus (2019) also believes that the use of artifacts (language and material/tools) is an important part of creating direction. Taking such a social constructivist approach to leadership means that leadership becomes something during its performance. This view of leadership is referred to as a post heroic approach to leadership, and it highlights something other than a traditional view of leadership, focusing on shared power and responsibility and emphasizing the relational aspects.

This theoretical framework highlights the importance of collectively pursuing a behavior that supports the integration of actors' resources across organizational and professional boundaries in the best possible way in order to facilitate users' value creation. In order to understand the importance of collective leadership that drives and supports the participation of different actors in decision-making and assuming responsibility for the integration of resources, a social constructivist approach to leadership needs to be taken.

METHOD

This study included data from two research projects (starting in 2020 and 2021), which formed two different cases in our study. They each followed a different leadership role; the temporary project manager and the permanent coordinator, where both roles focused on spreading a resource integration behavior within and between organizations. In both project environments, there was a pronounced willingness to work from a service logic perspective.

The methodological starting point of the projects was an interactive research approach (Svensson, Brulin, Ellström, 2015) aimed at enabling increased joint knowledge of resource integration behavior, from a service logic perspective, between practitioners and researchers. The role of the researchers was to stimulate the discussion (both empirically and theoretically), but also to ensure that the work led constructively forward (Aagaard Nielsen and Svensson, 2006). The findings from the projects were extracted continuously from the concrete work. This meant that development took place by means of the leadership roles (the project managers and coordinators) having enough drive to try new paths and develop new ways of working. The researchers were involved in creating action and following the work being done, thus influencing what happened during that work. However, the main actors in the projects were always the practitioners. It was only through the actions of the practitioners that knowledge of, as well as the ability to spread, resource integration behavior, based on a service logic perspective, could be investigated and was able to take shape as a natural part of, and between, organizations. The knowledge could not, so to speak, be found in what already existed, but in what became visible in the work concerning the shaping of structures and the promoting of a culture of service innovation, with the help of attitudes, methods and language, from a service logic perspective. This approach was crucial in order for the work to be sustainable in spreading resource integration behavior.

The first case, referred to as "Temporary project manager with a given project", involved a financial collaborative association made up of four authorities (municipality, healthcare, employment service and social insurance). This association financed project managers in their task of spreading a resource integration behavior between the authorities so that they jointly facilitated young adults in need of the coordinated support of several authorities, both in order to be able to create increased well-being and in order to enable them to start studying or enter working life. The empirical material from this project consisted of 13 focus group interviews involving 12 project managers, as well as a further six network meetings led by individual project managers and involving the actors from the collaborating authorities.

The second case, referred to as "Permanent coordinator with an adaptive project", was from a research circle consisting of two academics and 14 practitioners. All the practitioners worked as coordinators in municipal welfare administrations in charge of education, health and social services and regional healthcare, all tasked with leading and bringing together different actors and their resources in order to co-create value more effectively with the user than was currently being achieved. In the research circle, the practitioners and researchers jointly examined the role of developing and disseminating a resource integration behavior. To date, four research circle meetings have taken place. In between the meetings, the participants had assignments to find the answers to in their own work, to be submitted in written form before the next meeting, thus forming an important framework for the discussions.

All the data from focus group interviews, network meetings, and research circle meetings was recorded, transcribed and digitally stored together with the individual written assignments. In order to inform this paper, the empirical data was searched by focusing on the following two questions in the analysis:

- What do project managers and coordinators think prevents the spread of resource integration behavior?
- What do project managers and coordinators think enables the spread of resource integration behavior?

FINDINGS

Temporary project manager with a given project

The first research project is about a financial collaborative association made up of four authorities (municipality, health care, employment service and social insurance). This collaborative association finances project managers in their task of spreading a resource integration behavior between these authorities so that they jointly facilitate young adults in need of the coordinated support of several authorities to enable them to create increased well-being in order for these young adults to start studying or enter working life. The project managers have temporary positions with the projects in a permanent collaboration structure between several, predefined organizations. Each project has been identified in a process consisting of users and the

coordinating organizations as a joint proposal for a potential service innovation and value co-creating process in order to further individuals in their lifeworlds. All the project managers have a written job description to start out from.

In this project, the project managers primary hindrances concern silos and the expert roles. They believe that they need to proceed smoothly because many actors in the public sector have a weak trust in, or knowledge of, other actors' skills and resources. The project managers attempt to handle the lack of trust between actors, sometimes expressed during meetings, but disguised in terms of "not being critical" and "do not take it as a criticism". For example, a project manager says the following to a social worker:

> I can then imagine that you as the social welfare officer face a dilemma when it comes to getting in touch with the Swedish Public Employment Service. This is not a criticism.

One factor that project managers used instead of criticizing the lack of trust to enable resource integration was to consolidate the service perspective at the beginning of each meeting, thereby offering new knowledge to employees within their own or other organizations who were unacquainted with the perspective, but also reinforcing and reminding the employees about what was expected to be achieved by their work. A project manager says the following:

> Whose needs govern the process? Is it our need or the individual's need? I think if we start out from the individual's needs, it will be easier to build a team like this. Then, of course, we'll have different operational goals and perspectives, but in this team, that's not what it's about. It's about the individual and his or her needs and how we can jointly help him or her. By combining our resources. I think that if we have that perspective, it will be easier to shape this team.

An additional possibility is the very concept of "resource integration", which the project managers perceive as acting as an enabler of their work, "because it more clearly describes what needs to be done compared to less specific words such as collaborate or cooperate", as expressed in the words of a project manager:

> Right now, I'm promoting our 'famous' word [resource integration]. You can really see when people realize what the difference is between the synergy effects of collaboration, on the one hand, and resource integration, on the other.

All project managers work with projects lasting between six and eighteen months. Accordingly, they leave the project and return to their regular employment at one of the associated four authorities. It is a recurring dilemma that the projects are temporary and that there is an obvious risk that, once the project manager has left, the level of coordination based on a service perspective will decrease. The project managers believe that it is important to work hard to ensure that the integrations achieved last. This is highlighted by the remarks made by one project manager:

> I'm fighting for it to be lifted into the organizations in this form in its entirety. I believe that, if I fight, I will succeed.

This case shows that the project managers have a clear focus on what needs to be performed, and that they are also given projects with the individual's need in focus. All the project managers have been trained in the service perspective and work with a user-orientated focus, which is written into their job descriptions. This, in combination with the use of clear language, gives them an advantage over many other employees: Even complicated terms such as resource integration become a helpful tool in their work. However, they stand alone in this with this competence and no one else in the organizations has equivalent positions. They come across obstacles, often identified as employees in both their own and other organizations who do not use a service perspective in their work. Therefore, it is easy to forget about the user and look solely at resource integration between organizations.

Permanent coordinator with an adaptive project

This research project involves practitioners who work as coordinators, all tasked with leading and bringing together different actors and their resources in order to co-create value more effectively with the user than is

currently being achieved. This case is conducted within a project as a research circle whereby the practitioners, with the aid of two researchers, delve into the complex tasks that they all have and perform, and may jointly discuss, problematize, test and collectively learn during their processes in order to find ways of disseminating resource integration behavior within their networks.

The obstacles identified by the coordinators are often linked to their mission rather than to structural obstacles. For example, they identify the fact that they themselves do not have a mandate for the tasks they are meant to coordinate, especially not outside of their home organizations. Perhaps based on the fact that coordinators can have a varied number of actors in their networks, they also recognize the complicating factor of having organizations that are based on different institutional logics. They also identify problems related to organizations using their own 'linguae', i.e. the terminologically- and contextually-based language used within an organization, which may contribute to the difficulties of seeing resources as collective. Such obstacles correlate to their attempts to merge, or translate between, the different institutional logics. One of the coordinators gives the following description, for example:

> Basically, they want to achieve the same thing, but they're seeing it from a slightly different angle and their different 'languages' make it difficult for them to understand each other. In these situations, it's usually my job to be a kind of translator.

The possibilities identified by the coordinators involved creating clear overall goals, which should be based on the individual's desired value creation. Coordinators also identified the importance of creating and utilizing artefacts such as overall frameworks, agreements, and policy documents. These become especially valuable if they also describe the service perspective and the role of the coordinator in orchestrating integration of resources. A further practical enabler is identifying and compiling "shortcomings in collaboration" documents that may be used as a starting point in further work on integrating resources. One coordinator touches upon this aspect as follows:

> A lack of communication and information, shortcomings in routines, shortcomings in the holistic view and individual focus, shortcomings in competence and understanding each other's assignments. If we can then work toward counteracting this, we'll create the conditions for better collaboration.

Just like the project managers, the coordinators identified the fact that employees' ignorance of the service perspective makes it difficult for them to do their work. The discussion about whether to teach or to show employees how to implement a service perspective becomes key. If they try to teach, the employees may still not understand, while if they try to do and to show, the employees may not learn but may simply be grateful for the result. One coordinator makes this point:

> I carry the service perspective and can quite often be the one who goes back to the needs, purposes and goals when the discussions held in different group configurations become very solution-focused.

Another of the coordinators made the following remarks:

> When I, as a bearer of the service perspective, work with organizations where the production perspective prevails, it's very challenging because we then have to merge different approaches completely. Likewise, when there are several actors using different logics who have to cooperate and co-create. This also includes things like various policy documents, as well as an ignorance of each other's competence.

The empirical study highlights the many skills that these two professional roles have for furthering resource integration. However, it also recurringly returns to obstacles that stem from the same cause, i.e. that employees' unawareness of the service perspective makes it difficult for them to pursue their goals. In order to counteract this, the coordinators and project managers need help in promoting and launching the service perspective, such as to be able to convey to the employees to (a) better understand how to involve the individual's own resources, skills and motivation throughout the process, and (b) increase the understanding and knowledge of other actors, and their skills and resources that are able to contribute toward the process,

and (c) translate the individual's value 'idea' into the various actors own organizational language and to translate between logics. From this study, it also becomes clear that both professional roles are struggling to keep the individual in the value co-creating process. Many meetings and discussions focus on resource integration solely between organizations. With the individual's own need removed, it becomes difficult for employees to see resources as collective.

TENTATIVE ANALYSIS AND CONCLUSION

The obstacles and opportunities experienced by the project managers and coordinators have largely confirmed previous studies. In addition, the results also indicate that collective leadership is important in order for the resource integration behavior to be able to take root and to continue to develop within and between organizations.

The project managers and coordinators provided insights into their professional skills and tools. They explained how they used social interactions and artifacts to anchor their own roles (Alvehus, 2019; Crevani, 2018), and to establish a public service logic perspective, as well as how they used strategies to encourage employees to integrate resources such as starting off each meeting by explaining the perspective, and how they tried to act as intermediaries between the institutional logics and as a translator of the organizational "linguae". All of these tips are useful for new professionals who are about to face the same challenges. However, in order to really drive development forward, and to bring out and elicit change in the direction of a resource integration behavior, we saw the need for increased participation and collective responsibility (Becker, 2019): We saw the need for collective leadership.

The findings point to the challenge of strengthening the insight of project managers and coordinators, i.e. that resource integration behavior needs to be disseminated, to be set in motion and to become a tangible force for effective resource integration in day-to-day work. This presupposes that formal roles, such as the project manager and the coordinator, need to work deliberately and hard in order to support the leadership of others so as to strengthen the movement of spreading the collective leadership actions that are constantly driving motivation and responsibility for, as well as knowledge of, resource integration within and between organizations (Friedrich et al., 2016).

However, it becomes obvious that neither the project managers nor the coordinators emphasize the need to join forces in order for more and more people to assume leadership and share responsibility. One explanation for this may be the fact that resource integration, from a service logic perspective, is seen as a new way of trying to collaborate more efficiently (cf Eriksson et al., 2020). Therefore, the issue of the importance of collective leadership for resource integration behavior being driven by more and more people taking on the leadership role and wanting to share the responsibility, both within and between organizations, has not yet been addressed in any broader sense.

In summary, it is hardly possible for individuals alone (e.g. project managers and coordinators) to be able to drive resource integration behavior that successfully gain a foothold into organizations. The successful integration of resources is not one individual actor's achievement but a collective effort (collectively co-created). Eliciting change in the direction of a resource integration behavior makes greater demands than project manager and coordinator is able to handle, however skilled these may be in their respective functions. Building the integration of resources on an outside-in perspective, and in doing so departing from a focus on an inside-out perspective, is not an easy task and one that needs to be put into practice together with others and allowed to emerge through the movements being made visible. Leadership is required that patiently drives and supports the participation of various actors in decision-making and responsibility-taking, with the aim of integrating resources. The conclusion we can draw here is that collective leadership can be seen as an important part of realizing more efficient resource integrations, both within and between organizations, as an important basis for service innovations. We can thus state that the employee's readiness to use a service logic perspective when working innovatively can be seen as relatively undeveloped, but that there should also be a good potential for supporting such a perspective through collective leadership.

This tentative analysis and conclusion clearly show that further research is needed: However, hopefully, this study's contribution is a step along the way toward a more collaborative approach to managing day-to-day public services as well as the major societal challenges.

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THE REAL OR THE FAKE:
A NEUROSCIENTIFIC PERSPECTIVE OF CONSUMERS' COGNITIVE RESPONSES TO ORIGINAL PRODUCTS AND THEIR COUNTERFEIT VERSIONS

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ABSTRACT

In many global locales, consumers can Legally purchase authentic products as well as their counterfeit versions. The goal of this research is to explore consumers' cognitive responses to five original products, including a baby bottle, toy car, sneaker, sock, and moisturizing cream, and their counterfeit versions which are available for sale in Bogota, Colombia. The authors evaluate consumers' cognitive responses to the original product and the counterfeit version by employing the Emotiv EPOC+ headset to obtain electroencephalogram (EEG) recordings. The findings show that consumers neural responses to authentic products, and their counterfeit version, differ and evoke significantly different negative emotions.

INTRODUCTION

In many global locales, consumers can easily, and legally, purchase authentic products as well as their counterfeit versions within the same shopping areas. For instance, consumers in countries such as China, Cambodia, Vietnam, Turkey, and Colombia can enter urban shopping areas and easily purchase branded and designer counterfeit merchandise, including apparel, handbags/accessories, cosmetics, electronics, and foodstuffs, including infant formula (Ellis *et al.*, 2016). Although consumers in other countries also have easy access to retailers that sell authentic branded merchandise (e.g., Adidas, Nike, Louis Vuitton), they often must enter illegal exchanges in temporary exchange settings, such as street vendors, flea markets, automobile trunks, or other illicit, black markets (Chaudhry and Stumpf, 2011; Quach and Thaichon, 2018).

To date, many marketing researchers have thoroughly researched reasons why consumers purchase counterfeit merchandise; most notably, designer apparel, handbags, and accessories (Khandeparkar and Motiani, 2018; Quach and Thaichon, 2018). Indeed, a dominant theme that emerges in the extant literature is that some consumers admit enjoying purchasing counterfeit merchandise; namely, fake designer products. Given the presence of counterfeited designer items in many marketplaces, other consumer researchers have investigated the extent to which some consumers refrain from purchasing authentic versions because of diluted perceived brand equity stemming from the proliferation of fake items (Song *et al.*, 2021).

Other prominent literature streams in the counterfeit paradigm explore organizational responses to counterfeit versions of their products (Chaundry, Cesareo, and Pastore, 2019) and the linkages of global terrorism with counterfeit merchandise (Sullivan *et al.*, 2014). Finally, whereas marketers tend to explore counterfeit branded products, which do not dangerously impact human health, other researchers focus on the profound impact of food fraud, such as fake infant formula, and fake pharmaceutical drugs (Majid, 2017), on human well-being, especially among consumers with vulnerabilities (e.g., illiteracy and low socio-economic status; Spink *et al.*, 2017).

At first glance, one may surmise that the counterfeit paradigm is thoroughly researched from various perspectives. However, an under-explored area in the counterfeit paradigm regards an understanding as to why consumers residing in locales in which both authentic and counterfeit versions of the same product are readily available, and either fully or implicitly legal to purchase, opt to purchase authentic version. For example, Colombian consumers have easy access to authentic products that are sold by authorized retailers as well as to counterfeit products in local shopping areas, which are referred to as San Andresitos (Rosenbaum, Losada-Otalora, and Contreras-Ramirez, 2018). San Andresitos, thrive within typical urban marketplaces (Linares, 2018; Mattelart, 2012) throughout Colombia, despite their recognised association with

contraband, organized retail crime, stolen goods, terrorism, and counterfeit merchandise, including designer and branded merchandise, pharmaceuticals, and foodstuffs (e.g., alcohol, chocolates, and infant formula). Given the openness and prevalence of San Andresitos in Colombia, the country is an ideal locale for investigating why consumers opt to purchase authentic products despite having readily available access to their counterfeit versions.

As previously discussed, the counterfeit paradigm is thoroughly investigated and perhaps, even at a saturation point. For example, Rosenbaum *et al.* (2018), explored reasons why some consumers opt to shop at San Andresitos, while others express disdain for doing so. A key finding in their study was that although some Colombian consumers understood the problems inherent with the San Andresitos, others believed that these markets enabled lower-income consumers to gain access to otherwise unattainable merchandise and provide employment to lower-skilled labor. In other words, many Colombian consumers are torn between the illegality of purchasing fake products; however, they understand that San Andresitos serve a target market which lacks the disposable income to purchase authentic products and that the numerous vendors that operate small stalls at the San Andresitos provide employment opportunities to many lower-skilled citizens, whom would be challenged to find employment elsewhere.

Although San Andresitos are legal in Colombia, the topic is not easily discussed among the populace. That is, given the sensitive nature of black-market retailing in Colombia, primarily stemming from the San Andresitos' connection with crime, criminal figures, drugs, Colombian and radical Islamic terrorism, and governmental participation in black market corruption, it would be problematic to openly obtain Colombian consumers' perceptions of products obtain in the San Andresitos. Further, because of the social stigma associated with discussing the acquisition or purchasing of counterfeit or other illicit goods with their social network (Albers-Miller, 1999; Mackenzie, 2010), consumers would likely not provide honest answers in either a group or individual interview setting regarding their propensity of purchasing counterfeit items. As such, the authors of this study decided to turn to neuroscience techniques (Verhulst, Vermeir, and Slabbinck, 2021). Indeed, neuroscience techniques are most useful to academic scholars and practitioners in marketing, when they can provide insights to questions that are unavailable using traditional behavioral data (Camerer and Yoon, 2015), such as personal interviews or focus groups.

RESEARCH QUESTION

This study seeks to explore why consumers decide to purchase authentic branded merchandise, despite their having readily available, and legal access, to counterfeit versions of the same merchandise. More specifically, this study probes neural correlates, and hence, emotions, among shoppers in a major Colombian shopping center when they are exposed first to an authentic branded product and then to the product's counterfeit version, which was purchased at a nearby San Andresito.

This study employs the Emotiv EPOC+ headset (www.emotiv.com/epoc-x/ to obtain electroencephalogram (EEG) readings, which were interpreted with EmotivPro Software (www.emotiv.com/emotivpro/). An in-depth review of Emotiv products and EmotivePro are available on the organization's website (www.emotiv.com/category/independent-studies/). EEG recordings are interpreted with EmotivPro software, which provides readings on six emotional states, including excitement, interest, stress, engagement, attention, and relaxation. Accordingly, this research explores whether a mall shopper's emotional state (i.e., excitement, interest, and so forth) change after they are exposed to an authentic branded product and then to its counterfeited version. Although this research does not directly ask a mall shopper whether he or she would have purchased a counterfeit product, neuroscience permits the authors to explore emotional changes in a shopper's brain that may impede the shopper from purchasing the counterfeit version.

METHODOLOGY

The sample consisted of 50 randomly selected participants who were shopping or browsing in an enclosed mall located in a major metropolitan Colombian city. The mall is the third largest in Latin America and targets a middle-upper income shopper. Each participant was a female shopper, over the age of 18 years. With the assistance of the mall's research team, one of the study's authors intercepted shoppers at the mall and had groups of 10 shoppers individually handle one of five authentic products, and then their counterfeit versions, for a total sample size of 50. To limit any possible gender bias, the study was limited to female participants

and household purchases are typically purchased by females in Colombia, especially in the contexts of shopping malls (Dávila, 2016).

Each participant showed proof of age and then was escorted to the mall's research room, which contained no stimuli other than a computer and basic furniture. A trained neuroscience researcher from a university laboratory fitted each participant an Emotiv EPOC+ EEG headset. Then, the researcher presented each participant with an authentic product. Each participant was told that the product was authentic, available at the mall, and to touch the product until he or she felt comfortable with knowing all that one can possibly surmise from the product. When the participant researched this point, typically after 2-3 minutes, the researcher recorded an EEG reading associated with six emotional states. The researcher then gave the informant an exact counterfeit version of the product. The researcher told the participant that the product was counterfeit and purchased at the local San Andresito market. The researcher asked each participant to again touch the product until he or she felt comfortable with knowing all that one can possibly surmise from the product. When the participant researched this point, typically after 2-3 minutes, the researcher recorded an EEG reading associated with six emotional states.

The authentic and counterfeited products that were investigated in this study were the following:

- Avent baby bottle (10 participants)
- Hot Wheels toy car (10 participants)
- Adidas men's athletic shoe (10 participants)
- Nike white socks (10 participants)
- Victoria's Secret moisturizing cream (10 participants)

FIGURE 1: Original and counterfeited products investigated in this study
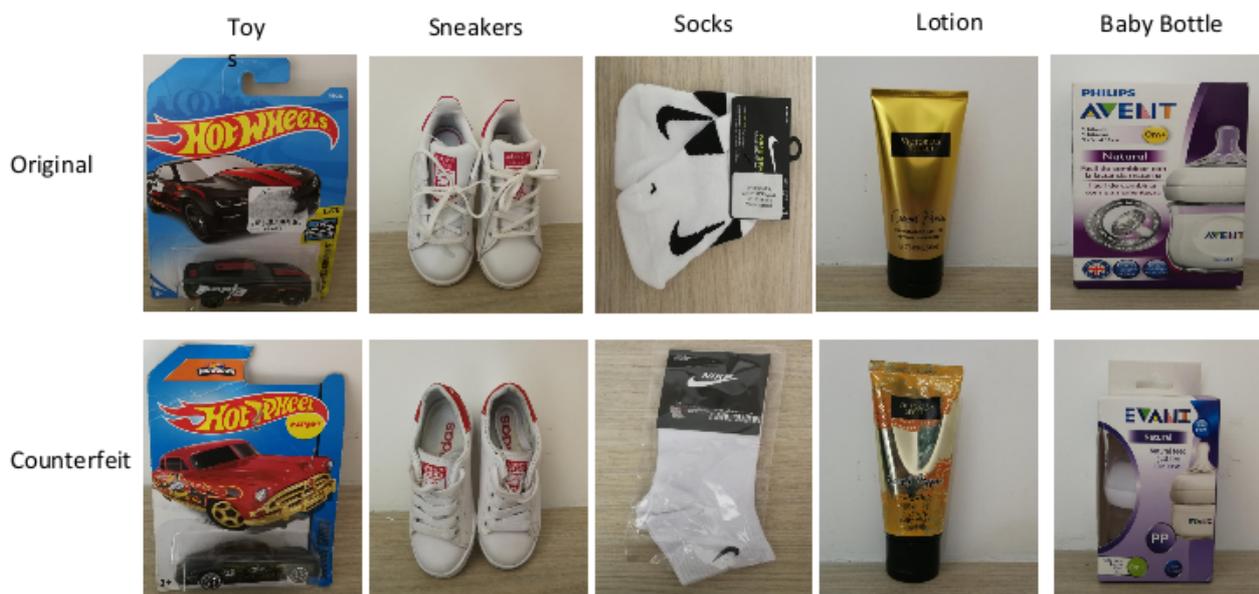
Although the sample size is limited, it is worth noting here that many mall shoppers were hesitant to participate in the study due to COVID-19 concerns. Additionally, the headset, each product, and the research room were sterilized by the researcher between each participant session.

The EmotivPro software interprets the EEG headset data and provides researchers with measurements that correspond to six emotional and subconscious dimensions within a participant's brain. The first dimension, excitement/arousal, evaluates a person's feeling of eager enthusiasm and interest. The second, interest/valence, measures a person's attention and, thus, desire to learn more about a phenomenon or to be involved in something. The third dimension, stress/frustration, evaluates a person's state of mental tension and worry. The fourth dimension, engagement, evaluates a person's emotional involvement or commitment. The fifth dimension, attention/focus, captures a center of activity, attraction, or attention. The sixth dimension,

meditation/relaxation, helps stop someone from being nervous or worried (Rosenbaum, Ramirez, and Matos, 2019).

EmotivPro software provides researchers with data parameters for each of the six emotional (including subconscious) dimensions; these parameters range from 0 (low/no brain activation) to 1 (extreme/intense brain activation). Mean differences were calculated for each emotional statement by analyzing differences between authentic versus counterfeit measurements. Given that the repeated-measures were limited in size to 10 participants per product, we employed the Wilcoxon Test to investigate significant mean differences between the parameter measurements. Unlike the Student's t-test, the Wilcoxon signed-rank test does not assume that the data is normally distributed and is opportune for small sample sizes.

RESULTS

Avent baby bottle

A Wilcoxon test was condcuted to explore whether a shopper's emotional state signficantly differed between the time that she investigated an original Avent branded baby bottle and its counterfeit version. The results indicated a significant difference in engagement, z = -2.80, p < .01 (based on positive ranks). More specifically, the mean engagement score among shoppers when they analyzed the original version was .65, while it dropped to .50 when they were given the counterfeit version. In other words, a shopper's emotional involvement with the Avent baby bottle plummeted after she was given the counterfeit version.

Hot Wheels toy car

A Wilcoxon test was condcuted to explore whether a shopper's emotional state signficantly differed between the time that she investigated an original Hot Wheels toy car and its counterfeit version. The results indicated a significant difference in focus, z = -2.80, p < .01 (based on positive ranks). More specifically, the mean focus score among shoppers when they analyzed the original version was .53, while it dropped to .40 when they were given the counterfeit version. In other words, a shopper's center of activity, attraction, or attention plummeted after she was given the counterfeit version of the toy.

Adidas men's athletic shoe

A Wilcoxon test was condcuted to explore whether a shopper's emotional state signficantly differed between the time that she investigated an original Adidas branded men's athletic shoe and its counterfeit version. The results indicated a significant difference in excitement, z = -2.80, p < .01 (based on positive ranks). More specifically, the mean excitement score among shoppers when they analyzed the original version was .67, while it dropped to .57 when they were given the counterfeit version. In other words, a shopper's feeling of eager enthusiasm and interest towards the shoe decreased after she was given the counterfeit version of the shoe.

Nike socks

A Wilcoxon test was condcuted to explore whether a shopper's emotional state signficantly differed between the time that she investigated an original Nike branded men's athletic shoe and its counterfeit version. Similar to the Adidas branded shoe, the results indicated a significant difference in excitement, z = -2.43, p < .05 (based on positive ranks) More specifically, the mean excitement score among shoppers when they analyzed the original version was .53, while it dropped to .40 when they were given the counterfeit version. In other words, a shopper's feeling of eager enthusiasm and interest towards the socks decreased after she was given the counterfeit version.

Victoria's Secret moisturizing cream

A Wilcoxon test was condcuted to explore whether a shopper's emotional state signficantly differed between the time that she investigated an original Victoria's Secret moisturizing cream and its counterfeit version. The results indicated a significant difference in engagenement, z = -2.09, p < .05 (based on positive ranks),

interest, *z* = -1.27, *p* < .05 (based on positive ranks), and excitement, *z* = -2.29, p < .05 (based on positive ranks).

More specifically, the mean engagement score among shoppers when they analyzed the original version was .65, while it dropped to .54 when they were given the counterfeit version. In other words, a shopper's feeling of emotional involvement with the cream decreased after she was given the counterfeit version. Additionally, the mean interest score among shoppers when they analyzed the original cream was .60 and it decreased to .52 when they analyzed the fake version. This suggest that shoppers' involvement in learning about the cream plummeted with they were given the fake version. Lastly, shoppers recorded a mean excitement score of .60 with the authenic cream, which decreased to .50 with its fake version. This decrease suggests that a shopper's feeling of eager enthusiasm and interest plummeted with the cream's counterfeit version.

CONCLUSION

One may speculate reasons why consumers who have readily available access to authentic and counterfeit products choose to purchase authentic versions. This research focuses on Colombian mall shoppers, who have readily available access to both authentic and counterfeit products. More specifically, this research employs neuroscience to probe mall shoppers' emotional states when they are given authentic branded merchandise and their counterfeit version.

The findings presented here reveal that consumers neural responses to authentic products, and their counterfeit versions, differ and evoke significantly different negative emotions. For example, when female mall shoppers held the counterfeit version of a baby bottle, their engagement, or emotional involvement, with the product significantly plummeted. Among shoppers who analyzed a Hot Wheels toy, their attention, or focus, dropped with the counterfeit. Similarly, when Colombian mall shoppers analyzed both the Nike socks and Adidas men's athletic shoes, respectively, their excitement with the counterfeit version significantly diminished. Lastly, when mall shoppers analyzed the counterfeit Victoria's Secret moisturizing cream, they lost excitement, engagement, and excitement which they exhibited towards the authentic version.

Although we cannot precisely conclude that mall shoppers will never purchase counterfeit products that are readily available in the San Andresitos, this research shows emotional triggers that may prevent them from doing so. In terms of managerial implications, many manufacturers sell merchandise in locales in which counterfeits are readily available. This research shows that among female mall shoppers, counterfeit versions of popular items evoke different, but negative, emotions that may impede their desire to purchase counterfeit products. Indeed, this works shows that mall shoppers often lose excitement, engagement, and focus when they are presented with a counterfeit product, and these negative emotions vary across product types.

Additionally, it is worth noting here that in a market in which consumers have access to authentic and counterfeit products, mall shoppers never demonstrated an uptick in any positive emotion after handling a counterfeit product. Therefore, original product manufactures should educate consumers regarding potential harm from using counterfeited versions and attempt to foster negative emotions with consumers about counterfeits. Indeed, given that counterfeit products are associated with crime and global terrorism, understanding how to lessen their appeal would enhance global well-being; however, the reality is that many consumers will continue to purchase counterfeit merchandise despite the illegality of their actions.

Overall, this research breaks new ground in marketing by showing consumers' neural responses to authentic products and to their counterfeit versions among mall shoppers. Despite a low sample size, the rich neural EEG data provides valuable insights regarding how six different emotions are stimulated among mall shoppers when they handle authentic and counterfeit products.

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UNDERSTANDING THE HETEROGENEOUS EFFECT OF MOTIVATIONS TO CONSULT EWOM ON VALUE CO-CREATION IN THE TOURIST ACCOMMODATION EXPERIENCE: ARE TOURIST SEGMENTS REALLY DIFFERENT?

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ABSTRACT

In the process of tourism post COVID-19 recovery, understanding the customer motivation heterogeneity should be critical in hotel industry. The aim of this paper is to analyse the unobserved heterogeneity motivations to consult eWOM on tourists' perception of the hotel's value co-creation process, and its potential effects on future behavioural outcomes. Based on 393 hotel guests interviewed, finite-mixture SEM model was performed to analyse simultaneously the estimation of structural equations and the identification of unobserved heterogeneity. The results show two latent segments where the estimations indicate the different significant effects in the "online tourist searches motivations-value co-creation-eWOM" relationship chain.

INTRODUCTION

Segmentation is used to define and divide the market into clearly identifiable subsets that share common interests and respond in a similar way to marketing mix actions. Its goal is to increase the effectiveness of marketing initiatives by producing a business advantage to meet the needs of target consumers. Along these lines, there is evidence of its widespread use as a marketing tool to better understand consumer behaviour, and especially tourist behaviour (Moliner-Velázquez *et al.*, 2021). In addition, its relevance is accentuated by the challenges faced by the tourism sector in general and for the hotel sector in particular, as a result of the changes in tourist behaviour caused by COVID-19 (Cambra-Fierro *et al.*, 2022).

Although there is an open debate regarding the most effective criteria for market segmentation, a widespread area of study focuses on psychographic research as a powerful tool to understand the motives and behaviours of tourists (e.g. Li *et al.*, 2020; Kim *et al.* al., 2020; Moliner-Velázquez *et al.*, 2021). These segmentation bases, focused on those activities, interests, motivations, benefits, and expectations, allow marketers to improve consumer participation in the design of their services through a more creative user-oriented approach. In this sector in particular, these criteria are frequently used to profile tourists in the stages of a tourism experience that include experiences before, at the destination, and after the trip (Moliner-Velázquez *et al.*, 2001). In this direction, the perception of value, although recognised as one of the most important behavioural variables to address consumer loyalty (Fuentes-Blasco *et al.*, 2017), has received very little attention as a segmentation criterion (Li *et al.*, 2020). Ruiz-Alba *et al.* (2019) expressly point out that the study of the perception of value co-creation as a basis for *a posteriori* segmentation criterion has been, to date, clearly scarce. In addition, motivations are also considered as powerful subjective bases of segmentation, however, the role of motivations for consulting word of mouth through technologies (eWOM) in the pre-consumption stage and the intention to post comments in the post-consumer phase has been limited to the identification of segments with descriptive procedures (Ahani *et al.*, 2019).

Faced with these challenges, this research proposes to identify the heterogeneity of tourists in relation to their motivations, perceptions of value co-creation, and subsequent eWOM behaviour regarding their hotel accommodation. The contribution of this research is to observe the potential heterogeneous effect of motivations to consult eWOM and its link with the perceptions of value co-creation and the intention to spread eWOM in the collective accommodation service, in order to better understand and provide the value of superior customer service in a highly competitive sector such as the hotel industry.

THEORETICAL FRAMEWORK

Motivations to consult eWOM

Advances in ICT have changed the way consumers share information about their experiences of tourism consumption, the monitoring of which represents a challenge for the accommodation sector in particular (Ahani *et al.*, 2019). This information exchange carried out through eWOM behaviour has been studied from two perspectives: sender and receiver. Most of the studies have focused on the sender's approach (Kunja and GVRK, 2020), although recently research works have proliferated from the receiver's perspective (e.g. Filieri *et al.*, 2021). From this latter approach, Moliner-Velázquez *et al.* (2021) conclude that the most recognised motivations have been: 1) motivations of convenience or reduced evaluation and information search efforts (Goldsmith and Horovitz, 2006); 2) purchase risk reduction motivations (Kim *et al.*, 2011); and 3) social motivations or the search for security and social approval (Yen and Tang, 2015). These dimensions are retained in this work as it is considered that they adequately bring together the reasons that lead guests to consult eWOM (e.g. Ahani *et al.*, 2019; Moliner-Velázquez *et al.*, 2021). As indicated, the literature on the effects of motivations to consult eWOM in the pre-purchase phase is relatively recent and scarce. Some studies analyse its relationship with the decision to reserve accommodation (e.g. Yen and Tang, 2015; Ahani *et al.*, 2019) or with the sociodemographic characteristics of tourists (e.g. Kim *et al.* 2011). However, to our knowledge, there is no empirical evidence on the effect that eWOM consultation motivations have on the perception of the value co-creation process with the tourist experience.

The value co-creation process

The literature has deepened the understanding of the impact of eWOM consultations on behavioural intentions (Kim *et al.*, 2011). However, there are few studies on the interaction between these consultations and value co-creation (See-Too and Ho, 2014; Kunja and GVRK, 2020). As Sigala *et al.* (2021) point out, there is a clear trend towards its research together with the perceptions of value of the tourist experience during the last five years (2016-2020). The generation of superior value for the customer, which makes it possible to generate a sustainable advantage in such an intensely competitive environment, must occur through reciprocal company-customer interaction (González-Mansilla *et al.*, 2019), a process that is facilitated by the availability of Web 2.0 Internet-based applications (See-To, 2014). Within the company, there is a certain consensus on the need to provide resources to stimulate co-creation, e.g. location, employee training, etc., although the role of the tourist as an actor in the value co-creation process is also emphasised (González-Mansilla *et al.*, 2019; Ruiz-Alba *et al.*, 2019; Kunja and GVRK, 2020).

This work supports the process of value co-creation from the user's perspective by adapting the DART model (dialogue, access, risk, and transparency) proposed by Prahalad and Ramaswamy (2004), providing a reference framework in the management of the co-creation process (González-Mansilla *et al.*, 2019). Therefore, it is observed that the value creation process involves the customer, the company and the other parties involved, emphasising the need for sincere commitment on the part of the customer that allows them to better understand the services to influence a future intention to purchase. Therefore, Kunja and GVRK (2020) argue that in the co-creation process, the eWOM is another type of active customer participation. In this way, the consultation of eWOM can directly influence value co-creation (See-To and Ho, 2014) through Social Networks, OTAs, and the hotels' websites. From the company's viewpoint, customer engagement will improve two-way communication while generating new opportunities to improve their services (Kunja and GVRK, 2020). In addition, eWOM is also shared intragroup (family and friends who take part in the tourist experience together) and intergroup (tourists who have previously shared information or who meet during the tourist experience) and is a very important interaction channel in the evaluation of the tourist experience. Based on the previous results on the key role of the tourist in the interaction in the value co-creation process and its relationship with eWOM behaviour, both before and after the experience, the following research hypotheses are proposed:

> *H1: Pre-experience eWOM consultation motivations have a positive and significant effect on the evaluation of the value co-creation process with the tourism service.*
> *H2: The tourist's evaluation of the value co-creation process has a positive and significant effect on the intention to carry out post-experience eWOM.*

Identification of unobserved heterogeneity

When it is sought to analyse the heterogeneity of individuals, normally the researchers involve segmentation processes using *a priori* methods, that is, they previously identify the variables whose discrimination capacity is going to be evaluated, describe the segments, and connect their characteristics with variables related to their behaviour. Along these lines, a significant part of studies has been segmented based on demographic variables or specific objective variables of the tourist experience; however, it is rarely known in advance how many segments exist and which tourists comprise them. For this reason, latent modelling, as a predictive post-hoc procedure, is very useful when it comes to identifying the size and composition of unknown groups (Cohen and Ramaswamy, 1998), as it is an effective tool to detect unobserved heterogeneity on a segmental level. The methodology developed by Jedidi *et al.* (1997), based on the proposal of the analysis of heterogeneity in the MIMIC model, simultaneously combines the estimation of causal relationships and the detection of unobserved heterogeneity from a general structural model of random coefficients. Specifically, their proposal makes it possible to obtain segments and estimate the loadings of the measurement models and the causal relationships in each of the segments not defined *a priori*. This perspective is in line with the segmentation models that are based on the consumer's decision process, albeit with the difference that it allows for working with simultaneous equations and measurement error. The call for research on the study of heterogeneity in the relationship between the value of experience and its potential consequences (Ruiz-Alba *et al.*, 2019) leads us to move forward along these lines based on the recent work by Moliner *et al.* (2021):

> *H3: There are different guest segments: H3a in the formation of the evaluation of the value co-creation process with the tourism service, and H3b in the formation of the intention to carry out post-experience eWOM.*

METHODOLOGY AND ANALYSIS OF RESULTS

Measurement instrument and field work

In order to contrast the proposed research hypotheses and respond to the stated objectives, a quantitative analysis was carried out through a structured questionnaire based on the opinion of guests after the reopening of the collective accommodation sector, in October 2020, in the post-pandemic recovery period. The instrument collected the measurement of the constructs using scales adapted from the literature. In this way, the eWOM consultation motivations scale is made up of 8 items adapted from the work of Kim *et al.* (2011) and based on Goldsmith and Horowitz (2006), among others. Value co-creation, based on the DART model (Prahalad and Ramaswamy, 2004), is made up of 15 items that bring together guest perceptions. Finally, the scale to measure the intention to carry out eWOM is composed of 3 items adapted from the works of Yang (2017) and Nam *et al.* (2018). All items were measured with a 7 point Likert scale (ranging from 1: strongly disagree to 7: strongly agree).

In addition, data related to the description of the type of accommodation were collected, including some variables prior to provision of the accommodation service (e.g. reason, reservation time, and place where it was made) that have been used as covariates in the identification of latent segments. The field work was carried out through a panel applying quotas by age and Autonomous Community where the hotel was located. It was carried out by a specialist company, reaching a response rate of 70%. The main reason for the trip was for leisure or holiday (94%), more than half of the guests interviewed stayed in hotels with 4 stars or more (65%) and have mostly made their reservation through OTAs (48%) and the establishment's website (39%).

Results

The dimensionality and initial reliability of the scales was analysed from the results of exploratory factor analysis with maximum likelihood factoring. The scales related to eWOM, motivations for consulting eWOM, and intention to carry out eWOM after the tourist experience, turned out to be one-dimensional, as was, contrary to expectations, the variable of value co-creation, although there is recent evidence of similar behaviours in this variable (Ferm and Thaichon, 2021). These results were corroborated through the estimation of a first-order measurement model using Robust ML (χ^2_{Sat}/df=833.60/296=2.81; RMSEA=0.068;

CFI=0.925; BB-NFI=0.889; BB-NNFI=0.917). The scales showed optimal levels of reliability (α>0.7; CR>0.7; AVE>0.5). In addition, the factor loadings were significant at their latent factor at 99% (t-Stat>2.58), thereby confirming the convergent validity of the proposed scales. The discriminant validity was also contrasted, since the linear correlation between each pair of constructs is less than the square root of the AVE of the scales involved. Discriminant validity was also analysed using the χ^2 difference test between the estimation of the model, restricting the correlations between each pair of constructs to unity and the unrestricted model (Anderson and Gerbing, 1988). The test statistic χ^2 =42.61 (df=3) is significant at 99% (p-value<0.0000) so we can affirm that each scale measures a different dimension.

The objective of SEM modelling of finite mixtures is to simultaneously estimate the causal relationships raised and detect unobserved heterogeneity from the general structural model of random coefficients. First, the aggregate causal model is estimated, using Robust ML given the lack of multivariate normality of the observable variables. After this first causal estimate, the unobserved heterogeneity is incorporated in order to identify the latent segments and estimate the previous relationships. The choice of the final model and the number of latent classes to retain is made according to different evaluative indices.

The causal model, without taking into account the heterogeneity of the data (aggregated view: 1 Class), presents evaluation criteria that are clearly worse than the rest of the proposals where this heterogeneity is taken into account (disaggregated view contemplating between 2 and 4 segments). This fact is indicative of the latent heterogeneity in the effect of eWOM consultation motivations on value co-creation, as well as the influence of co-creation on the intention to carry out eWOM after the experience, thereby confirming H3. In addition, the evaluative indices indicate that the best estimate is the proposal that contemplates two latent segments in the fourth step of the iterative process (-LL: 14133.27; BIC$_{Adj}$: 28532.62; AIC: 28456.54). It is a model where all those parameters of any matrix have been left free according to the values of the modification indices. Therefore, by choosing this modelling as the most appropriate, two groups of guests of size 21.4% (84 individuals) and 78.6% (309 individuals) are obtained, respectively. It should be noted that this solution presents average probabilities of belonging to the most probable class higher than 85% (class1: 0.924; class2: 0.926), which reinforces the choice made.

To study the existence of possible differences in the causal relationships between the two segments, the estimates of the structural relationships are analysed both for the aggregate model and for the selected model of two latent classes. The results indicate that in both cases the causal relationships raised are 99% significant. That is, there is a positive and significant effect of the motivations to consult eWOM on value co-creation in the accommodation industry (1-Class: 0.373**; 2-Class: 0.235**), this last construct having a significant and positive impact on the intention to carry out eWOM after the experience (1-Class: 0.525**; 2-Class: 0.508**). These results permit an affirmative contrast for H1 and H2.

In order to describe the two latent classes, crossovers have been made with the sociodemographic information and specific variables on the experience of the service provided in the hotel. The results make it possible to determine the profile of the two segments, although there are no large significant differences based on the general and specific criteria, confirming in turn H3.

CONCLUSIONS

The consumer's motivations for consulting eWOM play an important role in their perception of value co-creation after the experience. In addition, the guest's perception of the value co-creation process with the hotel has a significant impact on the subsequent intention to disseminate eWOM. To date, the consequences of the perception of the co-creation process have been limited to the study of satisfaction with the experience, loyalty (Ruiz-Alba *et al.*, 2019), and the perception of brand equity (González-Mansilla *et al.*, 2019). Considering the identification of heterogeneity, the results indicate that the effects that eWOM consultation motivations have on the perception of value co-creation and on the intention to carry out eWOM are different. The latent segmentation methodology based on SEM modelling of finite mixtures has made it possible to identify two segments with different influences of the variables, contributing to the advancement of segmentation research in the tourism sector. The motivations for eWOM consultations are heterogeneous and vary according to the profiles of the tourists. For this reason, hotels must design communication strategies adapting them in terms of sociodemographic characteristics and more specifically, in terms of the characteristics of the hotel's destination.

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RESPONSIBILIZATION OF SERVICE CONSUMERS – A LITERATURE REVIEW

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ABSTRACT

The aim of this article is to review research on consumer responsibilization in the context of service. The review shows that studies on consumer responsibilization mainly highlight notions of capabilities, control, and governance. The article concludes that consumer responsibilization in service contexts is an immature research field and more research about the topic in general, about the three themes identified in particular is recommended.

INTRODUCTION

With the increased emphasis on value cocreation in service and consumer research (see e.g., Vargo and Lusch (2018)), the traditional view of exchange holding that consumers are the recipient of services or products is challenged. In particular, it has been argued that producers are increasingly delegating the practices that earlier were the responsibility of the provider, to the consumer, which has been referred to as responsibilization (Anderson *et al.*, 2016). Responsibilization has been defined as "*the process whereby subjects are rendered individually responsible for a task which previously would have been the duty of another – usually a state agency – or would not have been recognized as a responsibility at all*" (Wakefield and Fleming, 2009). The article aims to provide the reader with a critical overview of research concerning service consumer's responsibilization.

An integrative literature review (Snyder, 2019) of consumer responsibilization was conducted. The review was delimited to articles published in international scientific journals between the years 2001 and 2021. Papers who make an empirical, conceptual or methodological contribution focusing on service consumer responsibilization and/or service consumer capabilities/characteristics were included in the review. In total, 19 articles about service consumer responsibilization were identified.

LITERATURE REVIEW OF CONSUMER RESPONSIBILIZATION

In the integrative literature review we have identified three key themes of consumer responsibilization in service contexts: (1) consumer capabilities, (2) responsibilization as control and governance of consumer actions, and (3) the consequences of consumer responsibilization. These themes will be presented in this section.

Consumer capabilities

A commonly discussed theme regards the capabilities and knowledge that a consumer need to or should possess in order for responsibilization to take place. Capabilities are of substantial importance when it comes to responsibilization and capabilities can be defined as that they "*represents a person's ability or competencies to achieve a particular goal or fulfill expectations*" (Anderson *et al.*, 2016). They are important as they regulate whether an individual is able to achieve a specific goal or meet set expectations and the ability to take on a certain behavior is guided both by internal and external factors. The internal capabilities of the individual consist of personal resources such as time, money and interest along with sensible abilities and knowledge (Moisander, 2007). Moisander (2007) does also state that external factors should be considered in relation to the individual consumer's abilities as external structures can both promote or constrain behaviors. Important to remember is that the underlying logic that govern responsibilization is that the individual consumer is solely responsible for the responsibilization, regardless of whether they have enough or are lacking in capabilities. Capabilities should not be isolated or displayed individually, instead we are to consider them holistically and that they can be influenced by context as well. How we choose to use our capabilities to embrace consumer responsibilization will also be informed by different contexts such as

cultural, social, economic and political interests (Davis *et al.*, 2018). In some cases, capabilities might or should be altered to better fit the context and discourse that the consumer find themselves in (Uehling, 2015) as they otherwise will prohibit successful consumer responsibilization. We could also describe it as making consumer responsibilities a normal part of life.

In research by Tikkanen (2020) the scope of capabilities is narrowed down to cower well-being capabilities and Tikkanen (2020) suggest that there are three different types of capabilities that can have an impact on consumer well-being; (1) changing, (2) coping, and (3) countering. The author propose that those three capabilities are ways in which the consumer behave to enhance their well-being, while also acting in a way that fits the surrounding social structures. Putting this in a broader perspective, the capabilities presented by Tikkanen (2020) are much about meeting expectations, and make use of both internal and external factors as suggested by Moisander (2007). Different types of services call for different types of capabilities. For example, in health care services the consumer must possess knowledge that allows for them to make informed decisions about their health. This could take more practical expressions, such as that the consumer must know how to measure blood sugar levels or inject insulin if they are diabetic (Anderson *et al.*, 2016) or know how to dissect a stressful situation in order to feel better (Tikkanen, 2020). Governmental services, or services that previously was in the responsibility of governments, require a consumer that can make use of information given while also having the possibility to act on it (Khanal and Devkota, 2020, Killian and Hyle, 2020, Jagannathan *et al.*, 2020). The capabilities of a green consumer must entail knowledge about what makes a service or product sustainable and have enough skills to make the "right" choice both morally and rationally (Moisander, 2007). Thinking of banking or internet services, the consumer needs to have the ability or competence to know how to use the technology that the services demand while also being educated to make decisions that previously often was made by the provider of the service (Williams, 2007, Renaud *et al.*, 2018, Renaud *et al.*, 2020, Bay, 2011) which can be difficult as these services often has been viewed as expert services that require a lot of knowledge and skills.

The importance of capabilities is also displayed in the P.A.C.T. routine developed by Giesler and Veresiu (2014) which is to be seen as a four step process for reaching consumer responsibilization and consist of the following four phases; *Personalization, Authorization, Capabilization,* and *Transformation*. First of all, the consumer needs to be able to acknowledge an opportunity for responsibilization, in which the consumer may compare themselves with other, less responsible consumers, and thereby *personalize* the responsibility. It can also be a general issue that previously has been the responsibility of the state or public organizations are redistributed to the individual consumer. Secondly, as the consumer will receive a lot of different messages of how to act, the message of take on responsibilization must be *authorized* to the consumer to let them know that this is the way to act. The third step, *capabilization* is closely related with the individual's capabilities as it refers to "the creation of an infrastructure of products and services that supports the individual's active self-management" (Giesler and Veresiu, 2014). This implies that when the consumer has acknowledged and been sanctioned as a responsible consumer, the market structure must be supportive of that as well. The last step in the P.A.C.T routine is *transformation* which is connected to behavioral changes for the individual.

Just as Giesler and Veresiu (2014) highlight that the market structure is an important and necessary aspect to responsibilize the consumer we also need to acknowledge that a proper market structure is of little worth if the consumer lack capabilities to fulfill the responsibilization (Renaud *et al.*, 2018, Renaud *et al.*, 2020). Wilson (2019) highlights that a consumer who is not use to taking responsibility needs to gradually be taught how to do so to make it a normal part of the consumer's life. Relating to this is the research on capabilities by Tikkanen (2020). The consumer will likely have to change some of his or her capabilities in order to meet the expectations, and he or she will also have to cope with these expectations and maintain the capabilities of responsibilization. Consider it and put it in relation to what Uehling (2015) says about integration of refugees, that some cultural values might have to be altered for successful responsibilization and to fit the cultural values in the new country. Where will the liability threshold between consumer choice and integrational adaption meet? Keep in mind that this is not a call claiming that refugees will not have to adapt to new cultural values, it is rather an implication stating the complexity that capabilities can be surrounded with.

The importance of capabilities is also mentioned by Bay (2011) but from another perspective. She highlights that if a consumer is to take on added financial responsibility, the person must possess enough capabilities

to be able to make proper decisions. This is somewhat problematic as it implies that the responsibilized financial consumer must be created and educated to enable the possibility of making well-informed financial decisions. Even though Bay (2011) does not say explicitly that this also can have an impact on the consumer's well-being it is logical to think that one's financial state will have an impact on the overall sense of well-being. It gets even more complicated if we consider what financial education may do to the consumer capabilities. A regulatory quest of educating citizens (consumers of state) is not the same as responsibilizing the consumer, at it is not guaranteed that a financially educated consumer actually will take on the increased responsibility (Williams, 2007).

Responsibilization as control and governance of consumer actions.

Responsibilization is also used by market interests to control and govern consumers. This is illustrated in the article by Jagannathan *et al.* (2020) where they find that frugal consumers are less likely to disconnect from authority. Building on this, the consumer can be caught in an unequal environment, meaning that the consumer experiences a case of false responsibilization and the control is still in the hand of the authorities. Going back to capabilities and the three capabilities of consumer well-being developed by Tikkanen (2020), we can see that they also are influenced by power. These social structures and responsibilization can be problematic as it sometimes overlooks cultural differences and values that the consumer may be subject to (Jagannathan *et al.*, 2020, Khanal and Devkota, 2020, Killian and Hyle, 2020, Uehling, 2015), which we can consider to be both a sustainability issue, and a consequence of social structures. Frugality is partly seen as a solution to unsustainable consumption, and yet we should remember that frugality is not necessarily a voluntarily choice that the consumer takes on. It can be a result of both economic and cultural limitations and it can thereby also conform inequalities and political conservatism which makes consumer responsibilization and freedom an illusion as the frugal consumers are unlikely to break free from authority (Jagannathan *et al.*, 2020), showing that responsibilization is elitist in its nature. Responsibilization has been said to be used as a means to create the responsible consumer who are thought to take on societal issues (Gollnhofer and Kuruoglu, 2018). This is of course a discussion that is influenced by issues of sustainability, but it is also a matter of control. The rearrangement of responsibility stems from economic and political forces (Gollnhofer and Kuruoglu, 2018) illustrating how forces that previously were in charge now instead of protecting the consumer is keen on facilitate and nurture consumption (Shamir, 2008, Giesler and Veresiu, 2014). Extending on that notion, it tells us that responsibilization could be used to control and create certain expectations on, thus, depending on how the demands on actions and responsibilization are facilitated it could also be a way of keeping certain types of consumers controlled (i.e., to act in a certain presumed direction).

Responsibilization is, however, also thought to be a stepping stone for self-realization (Khanal and Devkota, 2020). Consumer responsibilization has been used in rural areas in Tanzania for natural resource management (Killian and Hyle, 2020) and in Nepal for community forestry (Khanal and Devkota, 2020) as it is seen as a way to make the consumer responsible for problematic issues such as climate change and that the individual consumer then will take responsibility for changing destructive patterns and act more sustainable. Ward *et al.* (2018) illustrated in their research how control was given to parents regarding vaccination of their children. In that case, the parents accept the responsibility given, and use it to control their own children's health care. As previously stated, consumer responsibilization is closely related with consumer agency and making the consumer act on their increased responsibility. However, responsibilization puts more pressure on the consumer, and that they are responsible for their capabilities (Anderson *et al.*, 2016) meaning that if I as consumer fail, and we are to follow the basic logic of responsibilization, it will be my fault as I was given the responsibility to conduct myself.

Consequences of consumer responsibilization

Consumer responsibilization comes with consequences that can be both beneficial and unfavorable for the consumer. This has for instance been the conclusion in research concerning consumer responsibilization and cyber security where it has been noted that consumer responsibilization can be unfavorable for the consumer with the implication that governments should consider de-responsibilize the consumer (Renaud *et al.*, 2018, Renaud *et al.*, 2020). This research points toward the circumstance that cyber-security is too complicated for the consumer, and that they do not possess the capabilities to be able to take on the increased responsibility. Thinking of capabilization in the P.A.C.T routine (Giesler and Veresiu, 2014) a

question that emerges regards to what extent the infrastructure for capabilization should be developed with the consumer in mind, or, as an alternative, should the consumer develop capabilities that fit the infrastructure? In the cases of cyber security, it would seem that the infrastructure is in place for consumer responsibilization but not the actual consumer capabilities that are required. In the research by Wilson (2019) on housing benefits one can tell that there is a structure in place, but it does not fit the responsibilized consumer, whom is in need of education and normalization of the increased responsibility if it is to be successful.

The consequence in that case can be a consumer that already is standing outside the normative part of society will continue to do so, as they lack proper capabilities to fulfil what is expected of them, in this case to pay their rent on their own. Following the logic of responsibilization, it will then be the individual consumer that is to blame, even though the market structure did not fully prepare or let them take responsibility. Anderson *et al.* (2016) makes an observation that informs us of why it may be fruitful to incorporate value creation in responsibilization, and that it rather considers the market structure as liable for failure. As mentioned in the previous section, consumer responsibilization can be used as a way of controlling (or governing) the freedom of the individual consumers and it could also it could also lead to victim blaming. By changing approach and integrate value creation, it could be used as a step away from blaming the individual and rather focus on how the market structure should be developed to contribute to value co-creation.

Research considering how the consumers experience consumer responsibilization has gained less empirical attention. An exception is Eckhardt and Dobscha (2019) who in their research connects consumer responsibilization with conscious capitalism. Responsibilization is thought to work as a way for the consumer to act more ethically or socially sustainable, but the study by Eckhardt and Dobscha (2019) points in another direction. They claim that consumers who are being responsibilized into taking action in social issues may feel discomfort and this feeling may be tangible enough that the consumer opt out of the consumer responsibilization. Quite oxymoronic Gollnhofer and Kuruoglu (2018) guides us in another direction and find that moral and emotions can be a source for consumer to take on responsibilization in cases when the consumer experiences failure from conventional institutions/government. Instead of facing consequences of consumer responsibilization the consequence will be responsibilization. It seems that by facing such a situation, the consumer is more likely to act on their morals and emotions and accept and embrace responsibilization (Gollnhofer and Kuruoglu, 2018). To make it even more complex and extend the scope of responsibilization, it could also be suitable to connect it to freedom of choice, or freedom *from* choice as Steffel and Williams (2018) puts it. The consequence of responsibilization may also be that it takes another direction than what was planned. In a paper by Ward *et al.* (2018) they look at responsibilization in terms of parents being responsibilized for their children's health (salutogenic parenting) and vaccine programs, and whether the parents lets their children get fully vaccinated or not. Interestingly, it was found that these parents took on the task of conducting research which could be seen as developing capabilities to make the decision. However, the information about vaccines is extensive and some of the parents felt insecure and as the society would blame them if they did not comply to having their children vaccinated (Ward *et al.*, 2018). It can also be seen as an unintended consequence as the government responsibilized the parents because that is what neoliberalism entails but the plan was never that less children would be vaccinated.

The interest and research of consumer responsibilization has also been connected to sustainability and green consumption. As the responsibility have been delegated to the consumer, it renders more pressure on the individual consumer. The following quote from Moisander (2007) illustrates the reallocated responsibility rather well; "*In public discourse, however, green consumers are still often expected to perform the role of goal-conscious decision makers who engage in 'rational' household management*". She then proceeds her remark by stating that this expectation also is anticipated to be something that the sustainable consumer should disseminate among their peers which probably is a heavy task to assign to the consumer and is definitely a case of increased responsibilization. It also tells us that even though the consumer has the capabilities required to take on the increased responsibility, they may not be willing to act on it, once again illustrating that it may not be enough to possess the correct capabilities to be fulfilling the concept of responsibilization. Soneryd and Uggla (2015) are also looking into the responsibilized consumer in relation to consumption and they pinpoint an interesting aspect that even though consuming less is one of the solutions to act more sustainable, we are still ought to consume our way out of the sustainability issues we are facing, just consume less and better. Giesler and Veresiu (2014) on the other hand tells us about how

the idea of responsibilizing the consumer, repositioning the environmental on an individual level, and how that were supposed to make climate change a matter for "everyone".

CONCLUSION

This article has reviewed some of the most significant literature on consumer responsibilization in service contexts. Doing so three themes emerged; (1) consumer capabilities, (2) responsibilization as control and governance of consumer actions and (3) consequences of consumer responsibilization. Responsibilization of consumers in service contexts is an immature research field. Therefore, we recommend more research about the topic in general, about the three themes identified by us in particular.

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FASTER OR SLOWER? THE IMPACT OF MEAL PACE ON THE DINING EXPERIENCE OF A SOLO DINER

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ABSTRACT

This study proposes that solo diners have unique needs such as fairness and freedom and that these two factors mediate the effect of meal pace on solo dining experience. This study also posits that the communication accommodation style of service employees moderates the effect of meal pace on those two reactions of solo diners. Using a total of 197 online scenario-based experience, the study results demonstrated that the negative effect on perceived fairness is more salient when the pace is slow, while the negative effect on threat to freedom is more salient when the pace is fast.

INTRODUCTION

Solo consumption (i.e., one person's consumption) is a hot trend in contemporary life (Her and Seo, 2018) and becomes a growing purchasing power. The current Covid pandemic is accelerating this solo consumption trend. Defined as doing things alone in the marketplace as representing "solitary" (Leary, Herbst, and McCrary, 2003), solo consumers participate in consumption as a unit of one.

In the restaurant industry, due to their growing importance and hedonic nature, solo diners have received considerable attention as a hot emerging market (The NPD Group, 2020). Despite the utilitarian purpose is considerable in fast-food solo dining (e.g., to eat quickly and turn back to work), a growing population in solo diners has become enjoying unique dining experiences for hedonic purpose (OpenTable, Inc., 2015).

However, the extant literature has showed discrepancies regarding the mechanisms of the service delivery process design in the solo dining context. One of the controversial topics is meal pace. Some support that most of solo diners look for quick meal options (The NPD Group, 2020), while others state that solo diners hate when they feel watched and rushed (Foster, 2020). Traditionally, solo diners are recognized as eating out alone at quick service restaurants for the sake of quickness and convenience (Her and Seo, 2018), supporting fast meal pace design by restaurants. However, they might ignore the other unique needs of solo diners to seek freedom and indulgence without being disturbed. In addition, solo diners have a psychological need, which is they do not want to feel "not wanted" at restaurants. Solo diners need fairness, getting a fair treatment when dining alone (Rizzo, 2019). With this reason, service providers' communication style could be a critical contributor to successful service delivery, especially when customers feel rushed by verbal and non-verbal cues of service providers (Noone *et al.*, 2009). Thus, in this study, we employ 'meal pace' as a key research construct and focus on effects of two contrasting communication accommodation styles: convergence style and maintenance style.

Given the considerations, this study attempts to investigate: the effects of meal pace (slow vs. neutral vs. fast) on solo dining experience; the mediating effect of perceived fairness and threat to freedom in the relationship between meal pace and solo dining experience; and, the moderating effect of frontline service employees' action (using accommodating communication style: convergence style vs. maintenance style) in attenuating the negative impact of undesirable meal pace on solo diner's reactions. An online scenario-based survey for between-subject experiment design is utilized. The hypothesized models are tested by an ANCOVA and MANCOVA analysis. The results can help restaurants to understand solo diners' unique needs and experience mechanisms, manage their negative reactions by utilizing an appropriate communication style, and further establish enjoyable and profitable service delivery process for the solo diner market.

HYPOTHESES DEVELOPMENT

Slow meal pace could trigger stronger negative reaction from solo diners. Solo diners are aware that they are viewed as less profitable consumers and therefore could be given a lower priority in service. Hence, slow pace can trigger the perception of unfair wait (Walsh, 2009).

H1: Compared to neutral meal pace, both slow and fast meal pace will negatively influence solo dining experience, and the negative influence will be stronger in the case of slow meal pace than face meal pace.

A social comparison perspective explains, if solo diners experience (undesirably) slower service pace compared to other customers whom the solo diners observe in the restaurant, that the solo diners would feel unfairness in terms of service delivery process. On the other hand, a (undesirably) fast pace would make it difficult for solo diners to linger and enjoy their meal and dining experience—pleasant solitude purpose (Noone *et al.*, 2009). People feel unfairness from inequitableness between input and outcome. Thus, we propose that a low perception of fairness could lead to a negative evaluation on solo dining experience, and vice versa.

H2a: The impact of meal pace on solo dining experience is positively mediated by perceived fairness.

The reactance theory explains about human behaviors in response to perceived threat to freedom (Brehm, 1966; cited in Bock *et al.*, 2016). When individuals feel a threat to freedom, they express opposing opinions or are reluctant to accept (Brehm and Brehm, 2013). They would feel irritated when feeling disturbed, intruded and losing control of their freedom (Brehm, 1966).

H2b: The impact of meal pace on solo dining experience is negatively mediated by threat to freedom.

When a customer faces a slow serving pace at a restaurant, the slow pace is perceived as a barrier for the customer to achieve a hedonic eating experience than a fast pace (Noone *et al.*, 2009). On the other hand, a fast meal pace would psychologically drive a solo diner to attempt to secure their resources toward the goal of achievement of a hedonic eating experience in a waiting stage, but the psychological forces would disappear in an eating stage because they are already in the goal region (Noone *et al.*, 2009).

When diners perceive a fast meal pace, they feel rushed, watched and be inhibited from their dining purpose. They could not savor every dish they ordered and hurried to leave (Noone *et al.*, 2009). Therefore, perceived intrusiveness might exist, and they subsequently react greater to threat to freedom.

H3: Solo diners' immediate negative reaction to undesirable meal pace differ between fast versus slow pace. Specifically, slow pace will lead to stronger perceived unfairness, while fast pace will lead to stronger threat to freedom.

Customers experiencing slow service could feel irritated and worsen if the service provider fails to explain on the slow delivery and their behaviors look like underestimating the negative consequences of the slow pace (Bitner, Booms and Tetreault, 1990). Service providers who communicate in a convergence style makes customers feel that the service employee is empathetic on the customers' needs (Gallois and Giles, 2015). We suggest that when service providers use a convergence style, customers perceive interpersonal justice. Thus, we suggest that convergence style of service employees would attenuate solo diners' negative evaluation on perceived fairness. In addition, we propose that the convergence style of service employees could increase solo diners' perceived effort of the service employees, and subsequently mitigate the level of the solo diners' perceived unfairness.

H4a: The negative effect of fast or slow meal pace on solo diner's perceived fairness will be attenuated by a service employee's using a convergence (vs. maintenance) communication style.

Since convergence style of service providers can offer the function of understanding customers' feelings and well-being, empathizing with customer concerns and comprehending customers, we propose it could improve the similarity between the communicator and recipients (Sparks *et al.*, 1997) and reduce perceived threat to freedom subsequently.

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H4b: The negative effect of fast or slow meal pace on solo diner's threat to freedom will be attenuated by a service employee's using a convergence (vs. maintenance) communication style.

Figure 1 depicts our research model which incorporates all the hypotheses proposed above.

Figure 1: The proposed model
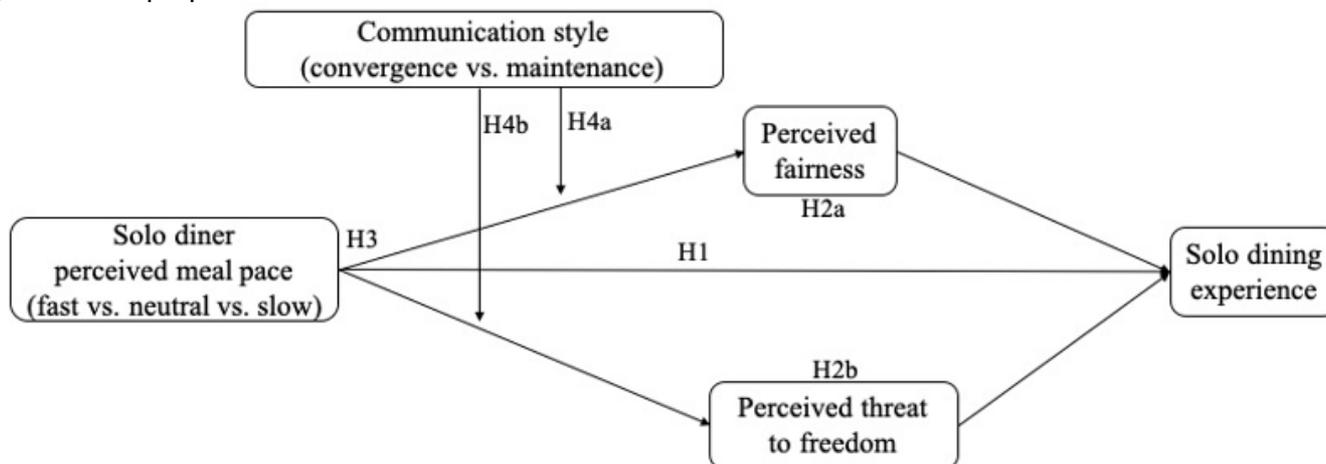
METHOD

Design

We test our hypotheses through online questionnaire manipulated by scenarios: A 3 (perceived meal pace: slow vs. neutral vs. fast) × 2 (communication accommodation style: convergence vs. maintenance) between-subjects experimental design. We manipulated actual meal duration in our experimental design to create variability in participants' responses with regard to their pace perceptions. In all six experimental conditions, participants were first asked to choose the proper duration for enjoying their dinner alone which consists of a set menu including an appetizer, a main dish, and a dessert in a casual dining restaurant (Q). In the fast-pace scenario, the meal duration was informed as (Answer to Q – 0.5*Answer to Q) minutes; in the neutral pace scenario, the meal duration was informed as (Answer to Q) minutes; in the slow meal pace scenario, the meal duration was informed as (Answer to Q + 0.5*Answer to Q) minutes. For the realism of the scenario, durations were all approximated with 10 rounds.

Sample

Data were collected through a MTurk (Amazon Mechanical Turk). Respondents were gathered from adult (18 years old or more) US residents who have dined alone in a casual dining restaurant at least once in recent six months for dinner. A total of 693 responses were collected and 197 valid responses were used for data analysis. At least 30 responses were secured for each of the six scenarios. The characteristics of the final sample deemed representative of solo dinners; many characteristics of respondents are aligned with those of the findings of Consumer Expenditure Survey (2018) conducted by the US Bureau of Labor Statistics.

RESULTS

Manipulation check

The manipulation check shows that this study successfully manipulated factors in scenarios. The realism check shows that all the six scenarios were recognized as real (M = 5.525, SD = 1.272), comfortable (M = 5.580, SD = 1.505) and familiar (M = 5.690, SD = 1.382).

Reliability and validity tests

We tested all variables used in the hypotheses testing: solo dining experience, perceived fairness, perceived threat to freedom, revisit intention, and word of mouth (WOM) intention. The reliability and validity tests were successful: The Cronbach alpha of all variables were higher than 0.70; The composite reliability (C.R.) of all

these variables were higher than 0.70; The values of average variance extracted (AVE) were higher than 0.50.

Hypotheses testing

To test H1, we first conducted ANCOVA. The ANCOVA results revealed that the perceived meal pace (F = 44.256, p < 0.001) was a significant predictor of the overall solo dining experience. The overall solo dining experience was the highest when solo diners perceived the meal pace as neutral (Mneutral = 5.782), followed by fast pace (Mfast = 3.938), and the lowest in slow pace (Mslow = 3.345). Thus, H1, which proposes the main effect of the perceived meal pace on solo dining experience, was supported.

To test H2, the SPSS 25.0's PROCESS Macro 3.4 Program (Preacher and Hayes, 2008) was used. This study performed 5000 bootstrappings at the significant level of 0.05 to verify the mediating effect of perceived fairness and perceived threat to freedom. The total effect of perceived meal pace on overall satisfaction was -0.326 (t = -2.061, p = 0.041, CI = -0.637 to -0.014), and its direct effect was -0.163 (t = -1.617, p = 0.108, CI = -0.361 to -0.036). The indirect effect through perceived threat to freedom was 0.145 (CI = 0.044 to 0.272), and through perceived fairness was -0.308 (CI = -0.545 to -0.093). The results confirmed the full mediation of perceived fairness and threat to freedom. Thus, H2 is supported.

To test H3, we conducted MANCOVA on both perceived fairness and threat to freedom. The results represented that the perceived fairness (F = 27.864, p < 0.001) and threat to freedom (F= 41.495, p < 0.001) were significantly depended on solo diners perceived meal pace. As expected, compared with neutral pace, solo diners perceived a higher threat to freedom when they perceived a fast meal pace and slow meal pace (Mfast = 4.298 vs. Mneutral = 1.688 vs. Mslow = 2.874), and the perceived threat to freedom was the highest when meal pace was fast. Compared with neutral pace it also showed a lower perceived fairness when perceived slow meal pace and fast meal pace, (Mfast = 4.464 vs. Mneutral = 5.696 vs. Mslow = 3.659), and the perceived fairness was the lowest when meal pace was slow. Therefore, H3 is supported.

To test H4, a MANCOVA was conducted. The results showed that the interaction effect of perceived meal pace and communication style was significant (p < 0.05). However, it was only significant on perceived threat to freedom (p < 0.001) and not significant on perceived fairness. Thus, H4a is not supported. When solo diners perceived a fast meal pace, service employee's convergence communication style leads to a lower perceived threat to freedom (Mconvergence = 3.262 vs. Mmaintenance = 5.352, p < 0.001). Thus, H4b is supported. The control effect of desire for social contact was significant on perceived threat to freedom (p < 0.01).

Additional results

Additional analysis was conducted and found that meal pace has an influence on the solo dining experience and could further influence on the revisit intention as well as positive WOM intention.

This study controlled the effect of desire for solitary on the enjoyment of solo dining experience and it showed a significant control effect. The control effect of desire for social contact was significant in H3 (on perceived threat to freedom) and H4 (on perceived threat to freedom). We controlled different levels of self-esteem on the evaluation of solo dining experience, and the control effect of self-esteem was significant in H3 (on the perceived fairness).

CONCLUSION

This study focuses on a solo diner's unique needs—fairness and freedom—and identifies and examines the mechanism among these two needs, meal pace, a solo diner's dining experience, and a server's communication style. The study results indicate that, like other diners, solo diners also react sensitively to fast or slow meal pace, but solo diners would assess dining experience more negatively when meal pace is slow, implying their higher degree of sensitiveness to slow meal pace.

In addition, the results show that the negative effect of slow or fast meal pace on solo dining experience would be mediated by perceived unfairness and threat to freedom. When meal pace is either faster or slower than expected, solo diners would perceive it to be unfair and threatening to their freedom. Fast meal pace

triggers stronger sense of threat to freedom than slow pace, whereas slow pace triggers stronger perception of unfairness than fast pace.

There is a significant moderating effect of service providers' communication accommodation style on the relationship between meal pace and threat to freedom. Solo diners' sensed threat to freedom due to fast meal pace can be reduced when service employees use a convergence communication style. However, its moderating effect on the relationship between meal pace and perceived fairness is not significant, implying that even if a service employee uses the convergence communication style to mitigate the negative effect of undesirable meal pace, the negative effect of meal pace on perceived fairness is still hard to be attenuated.

Lastly, the study results show that meal pace has an influence on solo dining experience and could further influence on the revisit intention and positive WOM intention of solo diners.

Therefore, given the increased attention on solo diners and their unique needs and behavioral patterns in a restaurant, research topics on solo diners have been expanded but still limited. Thus, this study contributes to the solo dining consumption literature, especially related to their psychological factors/reactions (i.e., perceived fairness, perceived threat to freedom, dining experience, WOM, revisit intention in this study), meal pace, and contextual factors (i.e., a communication style in this study).

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THE ROLE OF VALUE CO-CREATION IN THE B2B HOSPITALITY CONTEXT: RIVAL MODELS FOR HOTELS AND AGENCY MANAGERS

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ABSTRACT

Research on value co-creation (VcC) in B2B shows heterogeneites in two ways: no consensus on the role of VcC as antecedent or mediator, and same models work diffently for different stakeholders. The study adopts a comparative approach in hospitality services: two samples (269 hotels managers and 256 travel agency managers in Spain) and two different models for Trust, Commitment, VcC and Economic and Social Satisfaction. The rival models in both samples evidence better results when VcC is mediator than antecedent. But no model is entirely supported in none of the samples, eviddencing a high contingency effect in VcC for B2B services.

INTRODUCTION

Value is fully contextual (Holbrook, 1999), and so is Value co-Creation (VcC, henceforth) (Grönroos and Voima, 2013). Research on Value and VcC is therefore controversial (Wang, 2019) rarely extrapolable and replicable; accordingly, previous theoretical research on VcC suggests adopting a contingency approach. This is especially true in business to business (B2B, henceforth) service contexts. Indeed, latest research on VcC in B2B relationships shows how "uncertainties and heterogeneities are the key determinants that characterize collaborative interactions" (Wang 2019, p. 183).

Methodologically, these contingencies in B2B relationships result in a lack of consensus on the best model to address and assess VcC in B2B. More precisely, heterogeneities exist in two senses:

a) There is no consensus on the role of VcC in causal models. Different patterns of relationships among VcC, Trust, Commitment and (Social and Economic) Satisfaction coexist in the literature (Berenguer *et al.* 2020). Indeed, no agreement has been reached so far on the antecedents and consequences of VcC. Some will favor VcC as initiator of a chain of effects (e.g. Franklin *and* Marshall, 2019; Sales-Vivó *et al.* 2020), while others consider VcC as a central variable in a chain of effects (e.g. Berenguer *et al.* 2020; Chang *et al.* 2018; Hamid *et al.* 2018).

b) Same models work differently for different stakeholders, and in different contexts. Recent works based on different case studies of B2B service companies (e.g. Bomnamigo *et al.* 2021) showed varied levels of knowledge asymmetry in VcC. And comparative studies with different stakeholders from same B2B network (e.g. Sales *et al.* 2021) have also proven different results regarding effects of VcC on both Social and Economic Satisfaction.

This study adopts a double and comparative approach in the hospitality context: same questionnaire answered by two samples (269 hotels managers and 256 travel agency managers in Spain) and two different patterns of relationships among Trust, Commitment, VcC and Economic and Social Satisfaction (i.e. two rival models based on same questionnaire tested in two samples).

Findings on comparative research on different settings (here on 2 stakeholders of the hospitality service: hotels' and travel agencies' managers) is relevant, both academically and managerially. For scholars, the comparative approach allows deeping into the classic proposal of a "dynamic, networked and systems orientation to value creation" (Vargo and Lush, 2017, p. 181). Moreover, the comparative analysis coheres with latest interest in service literature as it regards B2B service settings (Pathak *et al.* 2021) as it helps to

understand the "environmental context of value co-creation" by analyzing same variables in two different contexts.

For practitioners, this inquiry provide knowledge on which role Trust or/and Commitment take for co-creation to happen successfully, and to produce higher levels of satisfaction among B2B partners. Understanding this chain plays a key role in the choice of resources, for co-creating services that can develop appropriate value propositions for each B2B partner.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Value co-Creation and related variables in B2B services literature

Both in B2C and B2B literature, VcC is an eclectic and elusive concept. Indeed different conceptual approaches exist and VcC is variously defined in the literature (Sales *et al.* 2020). As a result, as Marinova *et al.* (2020, p.180) there is scarce conceptual delimitation on value created and co-created in B2B: "While marketing literature has captured and discussed value, there has been little discussion on the value created by firms and co-created with other firms and both have been often used interchangeably".

In B2B literature, most of VcC research considers also Trust, Commitment and Satisfaction as key variables; but whether these are antecedents or consequences of VcC, is under discussion (Sales *et al.*, 2021). The B2B relationships have changed dramatically in recent years and are expected to evolve towards more complex and dynamic structures (Berenguer *et al.*, 2020). Indeed, managerially the rise of omnichannel strategies and multiple customer touchpoints (both before and during COVID-19) requires agility in adapting to new business models and competitors, especially in the service context (Sales *et al.*, 2021). Scholarly, these shifts can be envisioned through the topic of VcC. indeed, as Zhang *et al.* (2015, p. 48) pointed out for B2B marketing, "co-creation has become a central tenet". B2B literature recognizes as research on VcC "covers a myriad of viewpoints" (Kohtamäki *and* Rajala, 2016, p. 4) and stating its phenomenological, co-created, dynamic, and synergetic nature (Sales *et al.*, 2021; Berenguer *et al.*, 2020; Chen *et al.*, 2017; Zhang *et al.*, 2015). In this context, Service-dominant logic (SDL, henceforth) represents a turning point in marketing research (Vargo and Lusch, 2017). Moreover, in the VcC literature for the SDL mindset is its collaborative, interactive and reciprocal nature (Zhang *et al.*, 2015) and proclaim customer's centrality for value creation. Accordingly, the SDL literature underlines the ecosystems of relationships in VcC structures where the customer or the end-user holds a central spot (Vargo *et al.*, 2017).

Despite the agreement on customer centrality in B2B, the literature reflects difficulties for agreement on the antecedents and consequences of VcC. As recently reviewed in Berenguer *et al.* (2020, see Table 1 of this reference) different structures of relationships including VcC coexist in the literature.

On the one hand, Trust and Commitment can be considered precursors of customer value in a business relationship. Trust is identified as "the rely on an exchange partner in whom one has confidence" (Moorman *et al.*, 1993; p. 82). Commitment to the relationship is defined as "an enduring desire to maintain a valued relationship" (Moorman *et al.*, 1992; p. 316); it implies efforts and actions aimed at sustaining the relationship over time. Satisfaction is defined in B2B contexts as having both economic and social – or non-economic – dimensions (Geyskens and Steenkamp, 2000). Economic Satisfaction is a positive assessment that the firm makes on the economic benefits obtained in the relationship with another company (turnover, commercial margins, discounts, etc.). Social Satisfaction is defined as a gratifying assessment that the firms make on the interactions with a partner, and it is focused on psychosocial aspects of the relationship (manners and good treatment, communication, shared values, etc.) (Sales *et al.*, 2020).

Model A is therefore proposed (see Figure 1) that considers Trust and Commitment from B2B marketing literature as antecedents (Chen *et al.*, 2017; Franklin and Marshall, 2019) and Economic Satisfaction and Social Satisfaction as consequences (Fuentes-Blasco *et al.*, 2017). Among these two pairs of variables, we have considered VcC as a central construct in B2B relationships (see linkages supporting Model A, similarly to Berenguer *et al.* (2020) who proved the mediating effect of VcC between Trust and Commitment on both Social and Economic Satisfaction).

On the other hand, this relation (Trust and Commitment on VcC) is not always obvious in the literature. Franklin and Marshall (2019) empirically confirm that VcC exert a positive influence on Trust and outline the higher importance of Trust in the service industry. Similarly, Sales *et al.* (2020) propose VcC as antecedent of Trust and Commitment in the industrial business relationship. More recently, Sales *et al.* (2021) analyse the role of VcC as antecedent of Relationship Quality, where Commitment, Trust and Satisfaction play a central role. This discussion leads to the formulation of our second model, Model B (see Figure 2), with the objective of continuing the exploration of the antecedent role of VcC in the B2B relationship, less explored for the service context.

Additionally, Model A and Model B consider identically two extra relationships: a) Trust on Commitment which is supported by early works (e.g. de Ruyter et al, 2001) and very recent ones (e.g. Gansser *et al.* 2021) and b) The linkage between Social Satisfaction and Economic Satisfaction, wehre the differentiation of which is necessary to clarify the processes underlying successful inter-company relationships and collaborations (Ferro *et al.* 2016)

We therefore here propose two conceptual models of the VcC chain that depict all the above-mentioned patterns of relationships. We compare the two alternative models, whether VcC acts as a central construct between Trust and Commitment and Social and Economic Satisfaction (Model A). either as an
antecedent of relationships variables (Trust, Commitment, Social and Economic Satisfaction) in the B2B services context (Model B). Moreover, we aim at providing empirical evidence on how VcC in B2B takes place in an environment of tourism companies, analyzing whether these two patterns (Model A and B) depicting structures that are considered as dynamic (in the sense that they depict different sequential processes) remain similar for two different stakeholders in B2B relational services (Hotels and travel agencies).

Figure 1: Model A: Value co-Creation as central construct
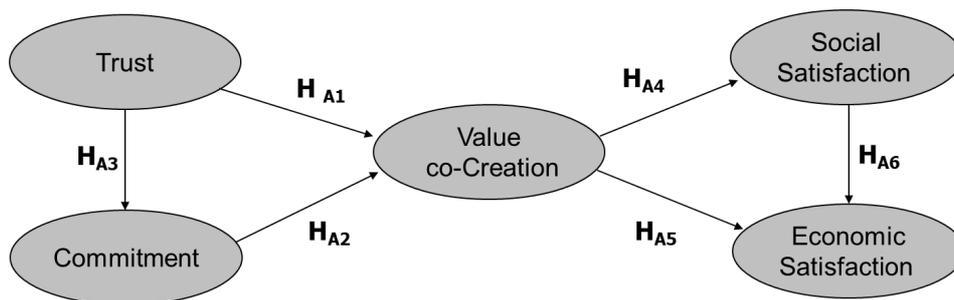
Figure 2: Model B: Value co-creation as antecedent
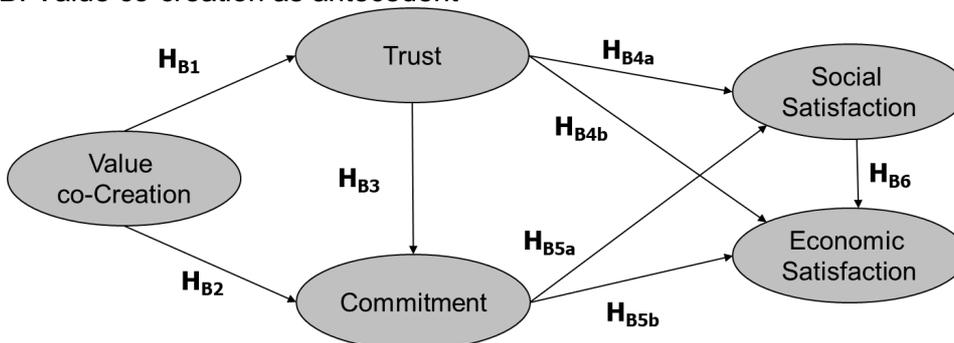
METHOD

To empirically test the models and the proposed hypotheses, we conducted quantitative research through a unique structured questionnaire (same variables and scale for both models and for both samples). For this purpose, we adapted the scales from previous studies in B2B contexts and contextualized for hotels and travel agencies. Trust and Commitment were measured with scales adapted from Ferro *et al.* (2016) and Morgan and Hunt (1994), respectively. The VcC scale was adapted from the items proposed by Zhang *et al.* (2015)'s, which in turn based their scale on Claro and Claro (2010). Last, the items to measure satisfaction

were adapted from Chung *et al.* (2011), based on the proposals of Geyskens and Steenkamp (2000), and Anderson and Narus (1990). All the items were measured using a seven-point Likert scale. The company classification variables were also considered at the end of the questionnaire.

To perform the present study, two types of tourism companies were considered: hotels and travel agencies. Regarding hotels, a data base of 750 hotels (3-5*) located in three autonomous regions of Spain (Catalonia, Valencia and Madrid), was created after consulting hotel directories in Spain, as well as the SABI and DUNS 100.0000 databases. These three regions were chosen as they have the highest occupancy rates in the Iberian Peninsula; all of them are above 50%. All the selected hotels were contacted, but finally, 268 surveys (83 in Barcelona, 104 in Valencia and 81 in Madrid) were completed by hotel managers, thus achieving a response rate of 39.5%.

Concerning travel agencies, the database of companies was obtained from the researchers' lists of participants in previous studies, as well as additional companies identified using the ALIMARKET and DUNS 100.0000 databases. Thus, a list of 900 travel agencies in the same three autonomous regions was drawn up. After contacting the listed travel agencies, their 256 respective managers completed their questionnaires (77 in Barcelona, 102 in Valencia and 77 in Madrid) thus achieving a 27.9 % response rate.

With the data collected from hotels and travel agencies, an exploratory analysis was carried out through Principal Component Analysis (PCA) to study the dimensional structure of the constructs in each of the settings under study. Based on this PCA, the one-dimensionality of Trust, Commitment, and VcC was confirmed for both hotels and travel agencies. With regards to satisfaction, the two of them, economic and social, are distinguished.

After these exploratory analyses, partial least square regression (PLS) was used to evaluate the measurement model and estimate the structural equation model (SEM) with SmartPLS3 (Ringle *et al.*, 2014) for hotels and travel agencies.

Regarding the evaluation of the psychometric properties of the measurement model, it is verified that the coefficients of composite reliability, factor loadings, and AVE for the reflective constructs in the final measurement model allow to confirm reliability and convergent validity. Also, the discriminant validity is confirmed following the Fornell-Larcker criteria (1981), as well as since heterotrait–monotrait ratios are all below the threshold of 0.90 (Gold and Arvind Malhotra, 2001; Teo *et al.*, 2008), so that discriminant validity between research constructs is met.

RESULTS

To compare two model structures, i.e. VcC as central construct (Model A) and VcC as antecedent (Model B) for two different B2B settings (hotel and travel Agency), estimations of these four models are performed using partial least squares regression. The path coefficients and determination coefficients of the estimated models are shown in Figures 3 to 6.
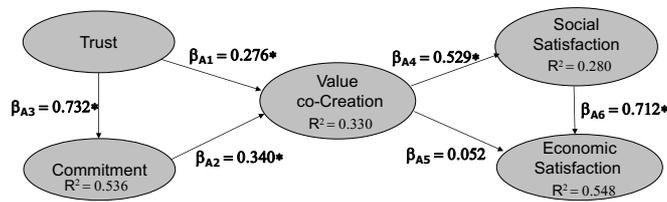
Figure 5: Model A: Value co-Creation as central construct in Travels agencies
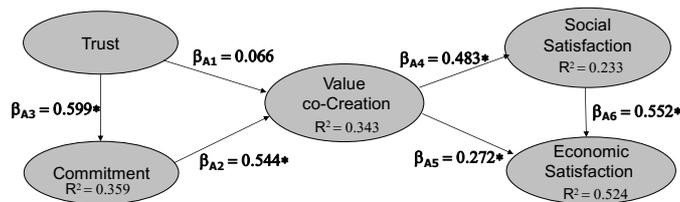
Figure 6: Model B: Value co-Creation as antecedent in Travel agencies
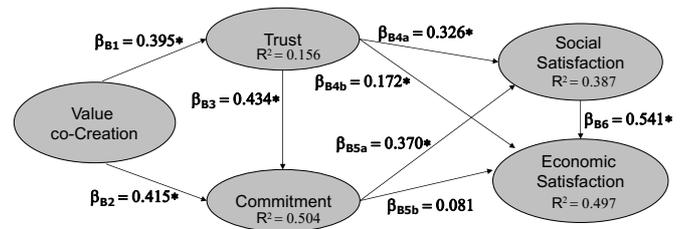
From the estimation of the two models for each research setting, we can conclude that both proposals are valid. In Model A, that places VcC as central construct, all the hypothesized relations are supported excepting the relation between VcC and Economic Satisfaction in the case of hotels, and the relation between Trust and VcC in travel agencies. In both settings, Trust influences positively Commitment, which in turn impacts VcC. Moreover, VcC influences Social Satisfaction, which drives to Economic Satisfaction. In contrast, while the impact of VcC on Economic Satisfaction is mediated through Social Satisfaction in hotels, the relation between Trust and VcC is mediated through Commitment in travel agencies.

Regarding Model B, VcC is an antecedent of Trust and Commitment both in hotels and travel agencies. The rest of the hypothesized relations are also supported, except the linkages Trust-Economic Satisfaction in hotels, and Commitment-Economic Satisfaction in travel agencies, which are found non-significant.

The performance of Model A (VcC as centrsal construct) seems to be superior to results for Model B (VcC as antecedent) for both hotels and travel agencies. First, for hotels, all determination coefficients of latent variables in common between Model A and Model B are higher for model B, so that the variability of Commitment, Social Satisfaction and Economic Satisfaction are better explained by the pattern of Model B in comparison to Model A. This is also the case for travel agencies, where the determination coefficients for Commitment and Social Satisfaction.

Moreover, as proposed by Tenenhaus *et al.*(2005), when calculating the goodness of fit (GoF) index (Guenzi and Georges, 2010), a slightly higher value is obtained in Model B in comparison to Model A both in hotels and travel agencies. In particular, for the sample of hotels, the GoF index for Model B is 0.472 in comparison to Model A, 0.457. For travel agencies, the GoF index is 0.417 for Model B whereas it shows the value of

0.404 for Model A. All values for the GoF index provide evidence of large effect sizes, since their values are higher than 0.36, according to Schepers *et al.* (2005).

CONCLUSIONS

Through a double comparison, this research enlarges a practical perspective in managing VcC and decision making in B2B environments. A comparative approach is tested on the Spanish hospitality sector: two stakeholders (hotel managers and travel agencies managers) and two different patterns of relationships--- Model A where VcC is a central variable between the Trust, Commitment, and Social and Economic Satisfaction, and Model B where VcC iniciates a chain between these two pairs of constructs.

A first result corresponds to the two dyads (Trust-Commitment and Social-Economic Satisfaction) which have been positively tested in all four models. Although the first linkage is more common in the literature, the second one is controversial (Ferro *et al.*, 2016) and therefore a first finding here is that the social understanding of the B2B relationship produces the economic outcome, and not the reverse. Managers are here valuing first the human touch they derive form their main partner, which in turn makes them more economically satisfied.

Second, regarding one model over the other, Model B where VcC initiates the chain of effects performs better in both services: managers are more satisfied (both socially and economically speaking) when their collaboration with their main partner is the driver of the relationship. However, contingencies appear somehow, as expected. When VcC is an antecedent of Trust and Commitment (Model B), the subsequent linkages Trust-Economic Satisfaction in hotels, and Commitment-Economic Satisfaction in travel agencies do not work. Managers don't derive better perceived economic outcomes in their relationship when having more Trust (in hotels) or more Commitment (in travel agencies) with their main partner, which is not the case for Social Satisfaction. A social reward is then easier than an economic reward when value is co-created initially. Besides, in Model A, that places VcC as a central construct, it is the relation VcC-Economic Satisfaction (for hotels), and Trust- VcC (for travel agencies) which perform badly (non-significant). In sum, it is difficult to identify clearly and across services the best antecedent of Economic Satisfaction, others than Social Satisfaction.

All these findings evidence how VcC in B2B is difficult and highly contextual: results show unequal findings for hotels and for agencies, and differences in direct and indirect effects on both economic and social satisfaction.

Extra research is therefore needed. When inquiring into the best chain of effects, firms can better allocate resources to co-create service value and develop appropriate value propositions (Bonamigo, 2021), to better satisfy each B2B partner. Differences by stakeholders are interesting, in both descriptive and confirmatory levels, and calls for more research with these stakeholders (hotels and agencies) and other networks (e.g. touroperators, consortia…). More agile monitoring of VcC processes in B2B service setting is needed. In this sense, replicating and enlarging this work into more stakeholders and other ecosystems, profiling different scenarios, will helps "firms' adaptations in the wake of crises (and) will lead to more resilient solutions… that do not fit neatly into existing typologies" (Bond III *et al.* 2020, p. 407), as shown in the present work.

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AUTHENTIC VIRTUAL CSR DIALOGS AND ONLINE CUSTOMER ENGAGEMENT

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ABSTRACT

Although the virtual CSR dialogs (VCSR) provide a co-creation strategy, existing empirical studies found that virtual CSR dialogs' interaction/co-creation function is still empty in most cases. Thus, we wonder how to motivate customer engagement in such virtual dialogues? Authenticity seems to offer such an opportunity. Therefore, we hypothesize that the authenticity of virtual CSR dialogs positively influences customer engagement behaviors. We also introduce the perceived cognitive proximity of CSR as the mediator in this paper. We believe this ongoing research will bring practical insights for both practitioners and scholars in CSR and online customer engagement.

INTRODUCTION

As the business ethics, corporate social responsibility (CSR) indicates that firms should consider environmental and social concerns to improve stakeholders' welfare when pursuing economic profits (European Commission, 2001). Morsing and Schultz (2006) encouraged firms to employ a stakeholder involvement strategy for transferring one-way CSR communication to co-created communication mode via various media platforms. Korschun and Du (2013) introduced the "virtual CSR dialogs (VCSR)" concept in which stakeholders could participate in designing or implementing firms' CSR activities. That is, VCSR stems from elaborating on social media by firms to encourage stakeholders to co-create with firms and is characterized by rapid spread, wide coverage, and high transparency compared to traditional CSR manifestation. Some scholars also perceive such dialogs as virtual CSR games, highlighting gamified experiences through online CSR activities (Jun, Jiao and Lin, 2020).

Existing studies in virtual CSR dialog describe how firms employ social media in the related communication process; however, scholars still call for more research in exploring underlying motives to know why consumers support CSR practices and a broader understanding of consumer response to CSR because of the heterogeneity of CSR across various contexts, initiatives, firms, and consumers (Sen, Du and Bhattacharya, 2016). Communication is a critical link for successful CSR implementation and has been strategically integrated into current cause-related marketing, CSR campaigns, and virtual CSR dialogs. For satisfying public expectations of CSR communication, facets of informativeness, personal relevance, consistency, transparency endorsed by the third party, and factual tone are crucial elements (Kim and Ferguson, 2018). Thus, we deduce that authenticity and proximity in CSR communication influence consumer response.

CSR authenticity seems to be the foundation of the factual tone, referring to CSR activities' genuineness, transparency, and trustworthiness (Song, 2021). In other words, authenticity demonstrates the firm's consistency between words and deeds in CSR activities. However, in most cases, current empirical studies overlook the multi-dimensional essence of CSR authenticity. For CSR proximity, most studies in CSR explore how spatial proximity influences consumer responses rather than non-spatial ones (Varadarajan and Menon, 1988). Hence, further discussion of the effect of psychological proximity and consumer performance in the CSR context needs to be explored. Furthermore, although authenticity and proximity impact consumer attitudes and behavior to specific firms or brands to varying degrees, their relationship is unclear.

Therefore, the present paper will empirically focus on how authentic CSR information influence customer engagement. Moreover, because perceived proximity, i.e., personal relevancy, is not only a motivator in existing customer engagement literature but also a critical part of CSR communication. Thus, we propose that CSR proximity mediates the relationship between CSR authenticity and customer engagement. To enrich

our research, we introduce the ethical ideology closely related to pro-social behavior to see how it influences individuals' judgments of CSR authenticity.

The present article responds to requests for empirical evidence on underlying motives of consumers engaging in firms' CSR, enriching literature in CSR authenticity and CSR proximity, these two relatively new research streams in CSR communication, and providing practical insights for firms who face the transformation of virtual CSR dialogs, from "what virtual CSR is to "how to do it well."

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

CSR authenticity and customer engagement

"Authenticity" is associated with notions of fact, truth, and genuineness (Beverland, 2006). In marketing, scholars suggest that authenticity only emerges in the eyes of the viewer (Chiu *et al.*, 2012). That is, authenticity is the subjective assessment according to perceivers' expectations and experience, which reflects how genuine market offerings are (Beckman *et al.*, 2009). In the CSR context, the firm is perceived as authentic when CSR programs based on the holistic perspective benefit all stakeholders and possess proximity and transparency (Beckman *et al.*, 2009). Furthermore, perceived authenticity determines CSR engagement's acceptance and success (Beckman, Colwell and Cunningham, 2009).

Alhouti, Johnson and Holloway (2016) describe perceived CSR authenticity as the genuine and consistent expression of firms' beliefs and behavior regarding social responsibility, beyond the scope of law requirements. In sum, CSR authenticity derives from consumers' belief that the companies' CSR activities are motivated by genuine concerns for the community, the environment, as well as public welfare. Authenticity is a multi-dimensional construct; however, most empirical research still perceives CSR authenticity as a unidimensional construct in current empirical research (Alhouti, Johnson and Holloway, 2016).

Therefore, future research considering the multi-dimensional nature of authenticity is necessary (Pérez, 2019). Besides, some scholars also call for more research in the potential interrelationship between different authenticity dimensions should be further examined from different perspectives (Lim and Yang, 2016). The impact of perceived authenticity of CSR activities on other outcome variables for empirically advancing knowledge in authenticity is also needed (Joo, Miller and Fink, 2019; Alhouti, Johnson and Holloway, 2016).

Authentic CSR is related to the information quality of actuality and genuineness in the communication process. Moreover, authentic CSR message benefits consumer attitudes, trust, and other internal outcomes and create external outcomes, such as customer engagement, i.e., purchase, loyalty, and advocacy (Pérez, 2019). Concerning delivered online information, the perceived authenticity consisting of brand essence and influencing consumer evaluations of brand-related information is also a key determinant of consumer response to brands' online engagement initiatives (Eigenraam, Eelen and Verlegh, 2021). Current research adopts a multi-dimensional construct of CSR authenticity from Joo, Miller and Fink (2019): community link, reliability, commitment, congruence, benevolence, transparency, and broad impact, and proposes that each dimension of CSR authenticity seems to influence consumer engagement behavior positively.

Hypothesis 1: Authenticity of virtual CSR dialogs positively influence online customer engagement.

The mediating role of cognitive proximity

Proximity derives from interactions between different entities (Lenglet and Mencarelli, 2020). Jones (1991) suggests that, as a crucial part of moral intensity, the proximity consists of physical, social, and psychological aspects. Physical proximity is related to geographical nearness, the most investigated dimension of proximity in CSR research (i.e., cause-related marketing). As a subjective experience, psychological proximity is a way to express individuals' high-level commitment towards a specific organization (Mencl and May, 2009).

Psychological proximity is also interchangeable with psychological distance or closeness in some empirical studies (Trop and Liberman, 2010; Mencl and May, 2009; Dubois, Bonezzi and De Angelis, 2016). Lee, Hon and Won (2018) further grouped psychological proximity into cognitive proximity and emotional proximity, and both are predictors of consumer participation intention in social issue campaigns via social media. Mainly,

cognitive proximity is related to individuals' perceived salience, knowledge, and personal relevance towards objects. Lee *et al.* (2020) further suggested that individuals' attitudes towards pro-environmental actions and intention to online engagement in firms for addressing social issues are better predicted by cognitive proximity than emotional proximity.

Cognitive proximity is associated with personal relevance; however, other factors, such as context- or personal-related elements, also need to be considered when analyzing this subjective cognition process. Besides, cognitive proximity is similar to the concept of "involvement" in customer engagement because both are related to perceived personal relevancy (Brodie *et al.*, 2011). Based on social identity theory, when consumers perceive themselves to be psychologically tied to a cause, they will, in turn, supports such activities (Christofi *et al.*, 2018). Empirical evidence has demonstrated that proximity influences consumer engagement in fair trade or second-hand online transactions (Gillani *et al.* 2021; Liu, Shao and Wang 2021). In the digital world, perceived content relevancy also stimulates customer engagement (Heinonen, 2018; Bazi, Filieri and Gorton, 2020). Hence, we propose that

Hypothesis 2: Cognitive proximity positively influences customer engagement in virtual CSR dialogs.

Perceived authentic CSR is inseparably associated with the proximity, transparency, and consistency of CSR activities in the implementation process (Beckman, Colwell and Cunningham, 2009; McShane and Cunningham, 2012). Furthermore, in response to the call for exploring more nuanced interactions among perceived authenticity of CSR and other relevant parameters (Joo, Miller and Fink, 2019), we also propose

Hypothesis 3: CSR authenticity positively influences perceived cognitive proximity in an online environment.

Hypothesis 3.1: Perceived cognitive proximity mediates the relationship between CSR authenticity and online customer engagement in a virtual CSR dialogs context.

Ethical ideologies and CSR authenticity

Because of the co-creation essence of virtual CSR dialogs, consumers' participation in such activities can be perceived as pro-social behavior. Therefore, we also introduce the "ethical ideology" associated with ethical decision-making and pro-social behavior (Barnett, Bass and Brown, 1994; McFerran, Aquino and Duffy, 2010).

As a moral philosophy, ethical ideology is frequently mentioned when exploring decision-making in business ethical issues (Barnett, Bass and Brown, 1994). The Ethical Position Questionnaire was created by Forsyth (1980), who divided ethical ideology into idealism and relativism. People with idealism usually possess altruistic minds and have genuine concerns for others and public welfare. In contrast, people who adopt relativistic ethical ideology believe that ethical decisions are determined by their trade-off between possible advantages and drawbacks of ethical dilemmas. In the CSR context, the ethically idealistic person is more sensitive towards socially responsible business practices than relativistic ones (Kolodinsky *et al.*, 2010). In addition, ethical ideologies (i.e., idealism and egoism) also impact consumer perceived CSR (Palihawadana, Oghazi and Liu, 2016). Therefore, we hypothesize that

Hypothesis 4: Idealistic person has a more favorable impression of CSR authenticity than people with relativism

From the above literature review, the conceptual framework is shown in the picture below:

Figure 1: A proposed conceptual framework
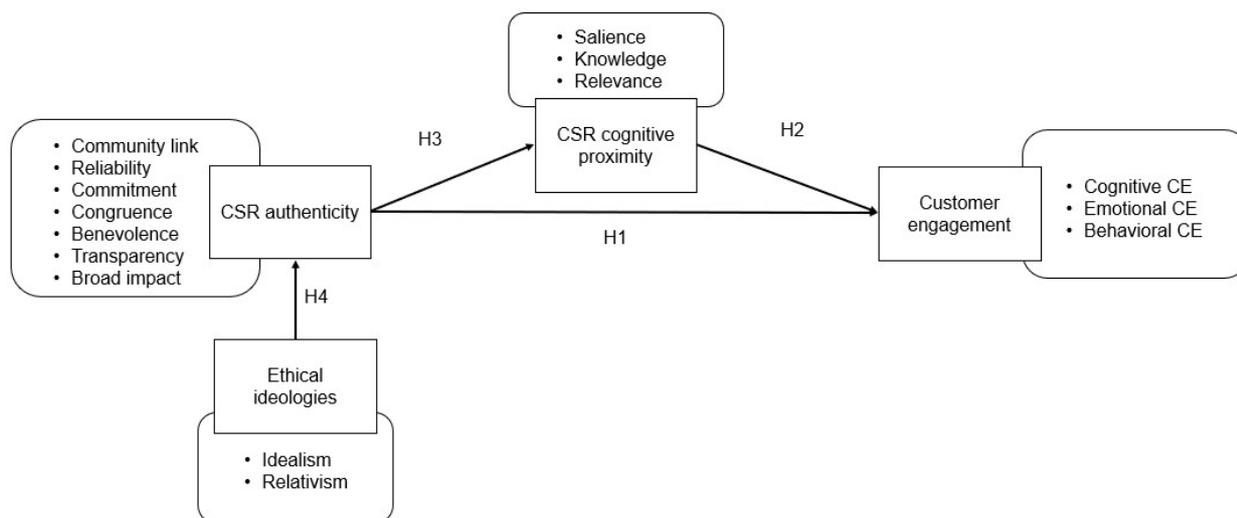
METHODOLOGY

We currently conduct the quantitative study and are now in the questionnaire design phase. For ensuring the reliability of constructs, we directly adopt related constructs, i.e., ethical ideologies, CSR authenticity, CSR cognitive proximity, and online customer engagement, from previous empirical studies.

Table 1: Key constructs in the questionnaire

Key constructs	Operational definitions	Cite
Ethical ideology	Ethical ideologies guide individuals in judging ethical issues. Idealism and relativism are two main groups of ethical ideologies.	Forsyth (1980); Zou and Chan (2019)
CSR authenticity	The consumer-based CSR authenticity is based on consumer evaluations of firms' CSR activities involving community link, reliability, commitment, congruence, benevolence, transparency, broad impact, seven different but interconnected dimensions.	Joo, Miller, and Fink (2019)
CSR cognitive proximity	Cognitive proximity is a mental representation of the proximity toward specific objects formed by individuals' perceived salience, knowledge, and personal relevance.	Lee, Hon, and Won (2018)
Customer engagement	Customer engagement towards a foci brand in online settings presents the underlying cognitive, emotional, and behavioral dimensions.	Vinerean and Opreana (2015)

EXPECTED CONTRIBUTIONS

Authenticity and proximity are significant components for creating effective communication. This paper will further reveal their relationships and roles in virtual CSR dialogs and online customer engagement. We are convinced that we could further illustrate detailed information regarding sample selection, even data analysis at the conference as much as possible.

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CHRONOS AND KAIROS: RECONCEPTUALIZING TEMPORALITY OF CUSTOMER EXPERIENCES

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ABSTRACT

While time flow is said to be a credential quality of the customer experience, research on its temporal facets remains scarce and fragmented. We provide a state-of-the-art review on temporal aspects resulting in three facets of temporality: scope of time, time parameters, and temporal relations. Building on these findings, we develop a more comprehensive and integrative framework regarding the chronology and dynamics of the customer experience based on a more differentiated understanding of time as chronos and kairos. Finally, the paper outlines a research agenda based on the components of the framework: time frame, structure, and dynamics.

INTRODUCTION

From a dynamic perspective, the customer experience has been closely tied to the customer's service journey (Jaakkola and Terho, 2021; Lemon and Verhoef, 2016; Voorhees *et al.*, 2017). That is, customer experience unfolds over time across different touchpoints (Bolton, 2019; Lipkin, 2016). Hence, temporality has been widely acknowledged as a feature of the customer experience (Bitran, Ferrer and Rocha e Oliveira, 2008; Bolton, 2019; de Keyser *et al.*, 2020; Jaakkola, Helkkula and Aarikka-Stenroos, 2015; Kranzbühler *et al.*, 2018; McColl-Kennedy *et al.*, 2015). In fact, in their recent review de Keyser *et al.* (2020) point out that time flow – that is aspects of duration, tempo, and rhythm – is an inherent quality of the customer experience reflecting its dynamics. Yet, despite highlighting the importance of temporal aspects (Bolton, 2019; de Keyser *et al.*, 2020; Jaakkola, Helkkula and Aarikka-Stenroos, 2015; Woermann and Rokka, 2015), existing research presents a rather fragmented picture with respect to temporal aspects, resulting in an incomplete understanding of the importance of time for the customer experience (Bitran, Ferrer and Rocha e Oliveira, 2008; Bolton, 2019; Kranzbühler *et al.*, 2018). This manifests in the fact that research either emphasizes the temporal structure of the experience (Bolton, 2019; Lipkin, 2016), considering the linear progression and chronological structure of the customer experience (i.e., phases) (Verhoef *et al.*, 2009; Voorhees *et al.*, 2017) or the temporal dynamics (i.e., duration, tempo, and rhythm) of events (i.e., touchpoints, encounters, or interactions) as a means to shape the chronology of the experience (Klaus and Kuppelwieser, 2021; Stein and Ramaseshan, 2016).

However, both views only represent one side of the coin as they detach chronological time flow and variation of the experience – termed dynamism – from each other. Moreover, the limited number of studies addresses only specific temporal aspects. For instance, Lim, Kum and Lee (2015) investigated how speed influences time judgement, Stein and Ramaseshan (2016) measured experience of individual touchpoints along the journey, and Verhulst *et al.* (2020) measured the variations of emotions along different phases of the customer journey. Altogether, as highlighted by de Keyser *et al.* (2020), temporal aspects of the customer experience are fairly under-researched.

We attribute this to the fact that an isolated view of temporal aspects limited researchers to understanding time and timing in the customer experience fully. Therefore, our aim is to provide structure to the fragmented literature on the temporality of the customer experience, thereby, taking a comprehensive and integrative view on temporal facets of the customer experience to understand the significance regarding its temporal flow. Deriving from that, we address the following research questions (RQ):

RQ1: What does the literature understand by temporality of the customer experience?
RQ2: What are future avenues for research regarding temporal aspects of the customer experience?

First, we examine the body of knowledge regarding temporal aspects of the customer experience and map out its temporal facets presented in current research to showcase the state of the art. Building on this, we develop a unifying conceptual framework against the backdrop of a broader understanding of time that highlights the importance of time and timing for the customer experience. In doing so, we draw on the Greek time concepts of chronos and kairos. This framework unites chronologic and dynamic aspects of time of timing prevalent to creating meaningful customer experiences, thus, raising new questions for research, which we present as an outlook at the end of this paper.

RESEARCH METHODOLOGY

To provide structure and a more comprehensive understanding (MacInnis, 2011), we conducted an integrative review, following the proposed guidelines (Snyder, 2019; Torraco, 2005). An integrative review aims for critical assessment of literature on a specific topic enabling synthesis of knowledge into a new framework (MacInnis, 2011; Torraco, 2005). Thus, it contributes to existing research by advancing knowledge rather than merely giving an overview over a research topic (MacInnis, 2011; Snyder, 2019).

We used an approach involving four phases, (1) identifying relevant research on experience-related temporal features, (2) coding, structuring and critical assessment of temporal facets of the customer experience, (3) synthesizing our findings with the concept of chronos and kairos to provide a unifying, integrative framework of temporality in the customer experience, and (4) presenting avenues for future research on temporal aspects of the customer experience.

First, we carried out an extensive literature search to identify and select relevant articles using the databases made available by Web of Science, Scopus, and Dimensions. We first sampled articles from the vast body of literature mentioning time aspects in general. To narrow down our initial sample (n = 1327), we reviewed the sample for the integrative review and purposefully kept articles - as suggested by Snyder (2019) – that contributed meaningfully to defining the depth and breadth of time aspects pertaining to the temporality and dynamism of the customer experience. This process resulted in 51 full-text articles, forming the foundation for our qualitative analysis and synthesis. Second, we conducted a more in-depth analysis of the 51 articles regarding temporal aspects of the customer experience. We deployed qualitative content analysis using the MAXQDA software package to exploit the richness of temporal facets represented in our literature base. Thereby, two researchers independently coded the 51 papers in order to minimize subjectivity and enhance intercoder reliability (Sinkovics, Penz and Ghauri, 2005). Third, we synthesized our findings by integrating them into a unifying framework (MacInnis, 2011) based on a more comprehensive understanding of time aspects.

FINDINGS OF THE LITERATURE REVIEW

We review 51 articles, published in peer-reviewed journals between 1982 and 2021 (reference list available under https://osf.io/n2ymd/?view_only=5c2bcfcf973241bbae8ed50398091085). The majority of the reviewed articles (n = 48) was published from 2005 to 2021, since research on the customer experience only gained momentum in the early 2000s. It should be noted that most of the articles are conceptual (n = 28), while empirical studies (n = 23) make up a smaller proportion. Among the empirical studies (n = 23), the ratio is balanced between qualitative (n = 11) and quantitative (n = 12) studies.

Because the 51 essays addressed the temporal aspect of customer experience in a variety of ways and to varying degrees, we were able to identify a range of temporal facets by open coding the essays and then aggregating them into categories. As shown in Table 1, aggregation of the verbatim codes yielded three categories of temporal facets: (1) scope of time, (2) temporal parameters, and (3) temporal relations.

Table 1: Verbatim codes and temporal facets of the customer experience

exemplary articles	verbatim codes	temporal facets
Brakus, Schmitt and Zarantonello (2009); Palmer (2010)	relationship	

exemplary articles	verbatim codes	temporal facets
Becker and Jaakkola (2020); Ponsignon, Durrieu and Bouzdine-Chameeva (2017); (Stein and Ramaseshan, 2020); van Vaerenbergh *et al.* (2019); Voorhees *et al.* (2017)	journey	
Dube and Helkkula (2015); Kranzbühler *et al.* (2018); Lipkin (2016); Verhulst *et al.* (2020); Voorhees *et al.* (2017)	phase	scope of time
Becker and Jaakkola (2020); Grove and Fisk (1997); Palmer (2010); Schembri (2006); Voorhees *et al.* (2017)	encounter	
Dube and Helkkula (2015); Hellén and Gummerus (2013); Lim, Kum and Lee (2015); Scott, Cayla and Cova (2017); Walter, Edvardsson and Öström (2010)	episode	
de Keyser *et al.* (2020); Flacandji and Krey (2020); Hellén and Gummerus (2013); Lim, Kum and Lee (2015); Woermann and Rokka (2015)	duration	temporal parameters
Becker and Jaakkola (2020); Flacandji and Krey (2020); Keiningham *et al.* (2017); Siebert *et al.* (2020); Walter, Edvardsson and Öström (2010)	timing	
Flacandji and Krey (2020); Voorhees *et al.* (2017)	temporal delay	
de Keyser *et al.* (2020); Keiningham *et al.* (2017); Kranzbühler *et al.* (2018); Verhoef *et al.* (2009); Woermann and Rokka (2015)	speed	
de Keyser *et al.* (2020); Dube and Helkkula (2015); Ponsignon, Durrieu and Bouzdine-Chameeva (2017); Roederer (2012); Siebert *et al.* (2020)	pace	
de Keyser *et al.* (2020); Lim, Kum and Lee (2015); van Vaerenbergh *et al.* (2019); Walter, Edvardsson and Öström (2010); Woermann and Rokka (2015)	tempo	temporal relations
Ponsignon, Klaus and Maull (2015); Siebert *et al.* (2020); Woermann and Rokka (2015)	rapidness	
de Keyser *et al.* (2020); Hirschman and Holbrook (1982); Schmitt (2010); Woermann and Rokka (2015)	rhythm	
Becker and Jaakkola (2020); Hoffman and Novak (2018); Ponsignon, Klaus and Maull (2015); Schembri (2006); Schouten, McAlexander and Koenig (2007)	flow	
Kranzbühler *et al.* (2018); Payne *et al.* (2009); Scott, Cayla and Cova (2017); Siebert *et al.* (2020); Zomerdijk and Voss (2010)	peak	

With reference to the scope of time, we find research to consider the customer experience as emerging in an event (Palmer, 2010) – that is an incident, which is "a definite occurrence" (Wilkes and Krebs, 1985) – or a sequence of events, varying in scope (Becker and Jaakkola, 2020). Thereby, the event is considered as the temporal frame for the customer experience (Hoffman and Novak, 2018; Woermann and Rokka, 2015). While some authors take the view at broader events – i.e., the relationship with a brand (Payne *et al.*, 2009) or the customer journey (van Vaerenbergh *et al.*, 2019) – others consider more narrow events – i.e., a phase or service encounter (Grove and Fisk, 1997; Lemon and Verhoef, 2016).

Temporal parameters delineate temporal design parameters for an event and draw on factors as duration and timing. Duration delineates the length of an event (Davies, 1994) and is considered to be important for the customer's evaluation of the temporal quality of an experience as an event that is lasting for too long can be a perceived as a pain point within the experience (de Keyser *et al.*, 2020). Timing depicts the positioning of an event 'at the right time' on the ongoing timeline (Bolton, 2019) and is highlighted as being crucial in order to create favorable experiences (Walter, Edvardsson and Öström, 2010).

Temporal relations refer to the facet of how events are sequenced and aligned. The latter is crucial as misalignment of events and especially frequent misalignment can impact the customer experience (Voorhees *et al.*, 2017; Woermann and Rokka, 2015) – i.e., through creating temporal lags between events that are temporally interrelated (Voorhees *et al.*, 2017). However, successful alignment of events may create positive effects such as a sense of flow, meaning that the customer is completely absorbed in the event and thus,

forgets about temporal embeddedness (Becker and Jaakkola, 2020; Hoffman and Novak, 2018; Roederer, 2012; Schouten, McAlexander and Koenig, 2007). However, the term 'flow' is used ambiguously in current research. While some studies consider flow as an experiential state (Palmer, 2010), others view it as a linear flow of events (Helkkula, Kelleher and Pihlström, 2012).

Speed, rapidness and pace all relate to the tempo of events and thereby, determine the succession of events (i.e., fast or slow) or respectively their acceleration or deceleration (Lim, Kum and Lee, 2015; Woermann and Rokka, 2015). Rhythm inherits a horizontal as well as a vertical dimension on the ongoing timeline, thereby, shaping the dramatic structure of an experience (Siebert *et al.*, 2020; Zomerdijk and Voss, 2010). The horizontal dimension relates to the speed pattern of events – i.e., how fast or slow events within a sequence follow each other, if events are sequenced in a constant tempo or if tempo changes within a series of events (Woermann and Rokka, 2015). The vertical dimension delineates the intensity and thereby, upward swings, which we refer to as peak moments (Kranzbühler *et al.*, 2018; Zomerdijk and Voss, 2010) characterized as experiences that are perceived as especially pleasant (Siebert *et al.*, 2020). The interplay between the temporal parameters and the linkage of events characterize the time flow of the experience and thereby, contribute to the quality of the overall customer experience (de Keyser *et al.*, 2020; Kranzbühler *et al.*, 2018; Woermann and Rokka, 2015).

However, besides taking a view at how an event should be temporally designed with regard to creating a positive or even extraordinary experience (de Keyser *et al.*, 2020), research suggests to equally consider the dynamics of the customer (Walter, Edvardsson and Öström, 2010). Regarding the temporal parameters of an event this means that the event – i.e., its duration – has to fit in with the customer's time budget, as the customer's preference for the duration of an event is distinct and contextual (Durrande-Moreau and Usunier, 1999). Likewise, with reference to the relation between events, considering customer dynamics implies to keep them in line with the tempo and rhythm of an event (Ponsignon, Durrieu and Bouzdine-Chameeva, 2017; Siebert *et al.*, 2020).

## A CONCEPTUAL FRAMEWORK FOR THE TEMPORALITY OF THE CUSTOMER EXPERIENCE

To understand the findings regarding the multitude of temporal aspects in the literature, we first introduce a more detailed understanding of time and timing distinguishing subjective and objective features of time.

Time is an established fundamental dimension of social life (Adam, 1994; Jacoby, Szybillo and Berning, 1976) both unconsciously tacit and explicit when experienced and measured (Flaherty, 1993). Typically, time is framed as either subjective or objective (Shipp and Jansen, 2021), with latter emphasizing discrete points in time (e.g., 8:32 am on Dec 25th, 2020) in the ongoing time flow (Weisbord, 1988). Objective time, hence can be measured and calculated (Durrande-Moreau and Usunier, 1999), because it posits time as "a constant rather than a variable" (Das, 1993, p. 268) external to the individual (Usunier and Valette-Florence, 2007). Subjective time, in contrast, is socially and culturally constructed (Carlson *et al.*, 2019), leading to perceptions based on each individuals cognitive temporal system (Usunier and Valette-Florence, 2007), thus, being flexible and changeable (Durrande-Moreau and Usunier, 1999). However, time is simultaneously both objective and subjective, so the two concepts of time are closely intermingled (Jaques, 1982). Or as Weisbord (1988) puts it: Objective time refers to "snapshots" of experiences in the real passage of time; subjective time, on the other hand, highlights the meaning of these snapshots from the perspective of the past, present, and future so that they become a meaningful "movie". Hence, the distinction of subjective and objective time relies on the internal versus external reference point for the perception and judgment of time flow (Vázquez Campos and Liz Gutiérrez, 2015).

Additionally, we introduce the concept of chronos and kairos which both refer to how humans experience time (Smith, 1986). The distinction between chronos and kairos (time originates in classical Greek literature (Roberts, 2003; Stephenson, 2005), referring to two gods – Chronos, the god of time, constantly measured time and divided it into intervals, and Kairos, the god of proper time, jumped time, fasted forward, omitting periods, or slowed down to dwell in others (Czarniawska, 2004, p. 775). Roberts (2003, p. 203) defines chronos (Χρόνος, Chrónos) as "the progression of linear time", hence, adhering to the time flow on the continues timeline (in life). It denotes the linear, quantifiable and passing of time (Kumagai and Naidu, 2020, p. 512).

That is, clock time (e.g., 8:32 am) and calendar time (e.g., Dec 25th, 2020) – the chronological measurement of time quantified in seconds, hours, days, months, and years in regard to the cyclic astronomical patterns (i.e., the rising and setting of the sun, orbiting of the moon, and seasons) in nature (Smith, 1969). In contrast, kairos (Καιρός, Kairós) denotes "a moment in time" (Roberts, 2003, p. 209). It features the qualitative nature of time by indicating "a 'critical moment' in time that assumes special significance" (Kumagai and Naidu, 2020, p. 513). Kairos is experienced when something profound happens that has impact on the person, which we call an event. This moment is often described as if time stands still and everyday events temporarily cease to be relevant (Brux, Hilden and Middelthon, 2019), thus, distinguishing events qualitatively. Hence, kairos directly links the significance and intensity of experience (Gelter, 2010). Therefore, Gelter (2006, p. 34) contrasts the quality of kairiotic time experience as peak or flow and slow experiences and distinguishes them from less intense, everyday (mundane) experiences. Similar to the distinction of subjective and objective time, chronos and kairos relate to each other as kairos denotes a meaningful (cross-sectional) event in the time frame, thus, providing structure and significance to infinite longitudinal chronological time flow (Roberts, 2003; Smith, 1986). Both, objective and subjective time derive meaning of the experience from how events unfold along the flow of time, hence, adhering to chronos (Halinen, Medlin and Törnroos, 2012). Kairos, however, refers to the event, a structuring unit within the chronological time flow (Smith, 1969), thus, providing variation in time flow (Ancona, Okhuysen and Perlow, 2001). Therefore, kairos establishes significance and meaning to human understanding of time flow (Halinen, Medlin and Törnroos, 2012). Following from this understanding of temporal features the findings pertaining temporal aspects of the customer experience may be grouped into (1) time frame, (2) time structure, and (3) temporal dynamics. This results in the framework, as presented in figure 1, which starts with the time frame and links time structure und dynamics based on the understanding of kairos events and on the chronos timeline, distinguishing subjective and objective time features.

Figure 1: Conceptual framework for the temporality of the customer experience (for a larger version of the figure consider the web appendix)

Time frame (TF) is defined by the referenced macro-level event – i.e., relationship, journey, phase, encounter/touchpoint, episode, activity –, which expands on the timeline of ongoing time flow within the customer's (daily) life. The TF has a defined starting point (s), duration (d), and endpoint (e), thereby, becoming the temporal frame for the customer's perception and appraisal of micro-level events within that macro-level event. Thus, the TF contains nested micro-level events within its temporal boundaries (i.e., starting point and endpoint). For instance, an encounter/touchpoint includes one to several episodes, which themselves consist of one or more activities.

Time structure (TS) delineates the position and duration of the micro-level events within the temporal boundaries of the referenced macro-level event (TF) – each defined by a starting point and endpoint. Positioning denotes the alignment of same-level events on the timeline within the TF and in relation to each other (Davies, 1994). Thereby, events can be arranged consecutively or with a temporal gap (Ancona, Okhuysen and Perlow, 2001). Duration is a function of its start and endpoint. The duration of micro-level events varies depending on the number of events on the same level within the referenced macro-level event, where the micro-level event may be of equal length, as in the case of only one event, or shorter than the referenced macro-level event, as is the case with multiple events. The first micro-level events share the same starting point with its superordinate event while the last micro-level events endpoint equals the endpoint of its superordinate macro-level event. In-between the first and last micro-level events other events on the same level may fill the residual time completely - as is with consecutive events where the subsequent event shares its start with the end of the preceding one – or may have time gaps in between events.

Finally, temporal dynamics (TD) arise from the temporal structure (TS) of micro-level events at each level and across levels within the referenced macro-level event. Therefore, temporal dynamics illustrate the temporal interplay of events with each other including time gaps. Dynamics are reflected in the sequencing of events building (dense) clusters within the time frame and within and across levels. The sequence of subordinate events both determine the tempo – i.e., how fast or slow a macro-level event proceeds (objective time) or is perceived (subjective time) –, the rhythm – i.e., the alternation of fast and slow micro-level events within a superordinate event –, as well as temporal frictions within the time frame caused by temporally dense sequences of events (e.g., time pressure) or extensive time gaps (e.g., waiting time). As such temporal dynamics within the referenced time frame guide the time flow of the customer experience, thus, shaping its dramatic structure (Zomerdijk and Voss, 2010). In particular, temporal structure is created through placing particularly intense (kairos) events on the (chronos) timeline, resulting in the perception of dynamics of overall experience. Hence, it is noteworthy that experience can either refer to the particular micro-level event with its structural features as well as to the total experience within the time frame (macro-level event). However, as Kranzbühler *et al.* (2018) highlights that both the micro and macro-level are related, creating the dynamics of the experience.

FUTURE RESEARCH DIRECTIONS

In line with the presented framework, we suggest some directions for future research to enhance how we understand the customer experience through the lens of time and timing.

Considering the time frame as a starting point to investigate how to structure and orchestrate the customer experience provides researchers as well as practitioners with a common language and vocabulary (Aksoy *et al.*, 2019) as to what level of experience (Kranzbühler *et al.*, 2018) is addressed. The main focus of understanding the customer experience has been the journey with its touchpoints (Lemon and Verhoef, 2016); lower levels like episodes and higher levels like the customer-provider relationships, however, are equally important from a temporal perspective in orchestrating the total customer experience. This mirrors in references to past and future journeys when it comes to memorability and extraordinariness of the experience (Dixon *et al.*, 2017; LaTour and Carbone, 2014; Ryynänen and Heinonen, 2018; Steadman, Banister and Medway, 2019). To account for the fact that customer experiences emerge from the use of services (and products) throughout the customers life, researchers need to consider the halo effects of the chronology from past (retrospection) and future (anticipation) when trying to understand current customer experience. That is, to extend their view of customer experience formation from a single customer journey to the customer-provider relationship and beyond to the experience with different providers (Bettencourt *et al.*, 2021; Tax, McCutcheon and Wilkinson, 2013). Likewise, when considering a particular service journey, it is important to understand what the customers time frame regarding that particular service is (Fliess, Dyck and Schmelter,

2014), to take pre- and post-phases into account (Voorhees *et al.*, 2017). Diving deeper into the structure of each of the service encounters and touchpoints within a particular journey is a new avenue for research. These micro-structures are currently only marginally considered as temporal entities that add to the formation of the customer experience. However, Fliess, Dyck and Volkers (2020) recently highlighted that service co-creation processes follow an inherent structure that provides units of meaning to the customers thus structuring the customer experience.

Going further from delineating the scope of the time frame, it is necessary to consider the chronological structure (time structure) and its impact on the experience's temporal dynamics simultaneously since the structure creates the dynamics both objectively and subjectively experienced. In particular, understanding the lateral impact of a sequence events on the timeline in affecting the experience of tempo and rhythm is crucial to understanding the dynamics of customer experience (Woermann and Rokka, 2015). Moreover, as highlighted by Kranzbühler *et al.* (2018), research is needed to understand the upward cascading impact of temporally dense or wide lower level time frames to the superordinate levels. That is for instance, how does a temporally dense episode is perceived on a touchpoint/encounter level creating tension and relaxion for the customer. Similarly, it would be worthwhile to not only consider service recovery (van Vaerenbergh *et al.*, 2019) but also service failure from a temporal perspective. That is, temporal friction caused by unplanned or unanticipated waiting within the journey causing time pressure for customers (Fliess and Nenninger, 2019). Moreover, temporal friction at a specific point in time may bring a whole journey to halt. Since events are interlinked and create dynamics with upward cascading effects, it is necessary to understand temporality as a critical and inherent factor of experience management (Bitran, Ferrer and Rocha e Oliveira, 2008). To this end, existing concepts that aim at taking a temporal perspective on the customer experience, like the customer journey (Lemon and Verhoef, 2016; Voorhees *et al.*, 2017) suggests, need further clarification. For instance, Jaakkola and Terho (2021) recently highlighted seamlessness, coherence and personalization as critical factors for the quality of the service journey. However, these three dimensions are considered only in terms of content of the experience with no explicit mention of time and timing. What would it then look like to understand seamlessness, coherence and personalization from a temporal strand?

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SHOW ME WHAT YOU GOT!
ANALYSING CO-LABELLING EFFECTS IN ONLINE GROCERY SHOPPING

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ABSTRACT

With more and more companies engaging in CSR activities, consumer scepticism increases. In this study, we investigate the effect of sustainability labels on the credibility of CSR messages in an online grocery-shopping context. In two experiments, we show that co-labelling of corporate-cause partnerships (CSR) with sustainability labels lead to higher credibility and better product evaluations. However, these effects are only significant for green consumers. Moreover, co-labelling of one CSR message type (CRM) results in stronger feelings of warm glow and better product evaluation. Also, co-labelling with the same sustainability dimension (environmental, social) leads to higher credibility and better partnership evaluation.

PURPOSE AND MOTIVATION FOR THE STUDY

Consumers are increasingly questioning the social and environmental standards of the companies they buy from and considering a company's corporate social responsibility (CSR) initiatives and partnerships when making purchase decisions (Lii *et al.*, 2013). Consequently, CSR initiatives have become a new form of competitive advantage and a distinguishing feature for manufacturers and retailers (Lii *et al.*, 2013). Accordingly, more and more companies around the globe incorporate CSR initiatives within their business practices, often applying these as corporate-cause partnerships, which are especially popular and widely used among companies today (Bergkvist and Zhou, 2019). However, with more companies communicating their CSR initiatives (Gosselt *et al.*, 2019) some use this for greenwashing (Leonidou and Skarmeas, 2017). Therefore, consumers become more and more sceptical towards sustainability messages of firms (Leonidou and Skarmeas, 2017). As credibility is a prerequisite for effective communication (Lock, 2016), it is crucial for companies to communicate their corporate-cause partnerships credibly. Especially since consumer scepticism is the strongest predictor of negative consumer reactions to CSR messages (Rim and Kim, 2016). While consumer scepticism is an increasing issue for companies engaging in CSR, research on this topic is still in its infancy (Leonidou and Skarmeas, 2017). One way to face consumer scepticism is the use of sustainability labels, which find growing attention in literature. It was found that sustainability labels can serve as credence anchors for other product messages, which positively influence consumers' perception of these messages (Gosselt *et al.*, 2019; Kim *et al.*, 2019). However, this was not studied in the context of corporate-cause partnerships so far. Therefore, this study aims at painting a more complete picture of the influence of sustainability labels on consumer evaluations of CSR messages by answering the following research question: *How can sustainability labels influence the credibility of corporate-cause partnerships?*

CONCEPTUAL AND THEORETICAL FOUNDATIONS

Companies can use many different forms of CSR initiatives to contribute to society and communicate their efforts as good corporate citizens. One way to do this is through corporate-cause partnerships, in which a company contributes to a non-profit organization and can use the partnership for promotional messages in exchange (Kim *et al.*, 2019). The partnership with a known trustworthy organization can signal trust in the company's CSR initiative (Darnall and Vázquez-Brust, 2018). There are different ways to communicate these partnerships. The one, which we will call partnership message, refers to advertising the corporate-cause partnership with a claim about the company's engagement in the cause. In contrast, a cause-related marketing (CRM) message, as we will use it in this study, is transaction-based and refers to communicating a CSR activity where the company donates a specific amount to a certain cause every time the consumer makes a purchase (Varadarajan and Menon, 1988). Research suggests that it is important for corporate-cause partnerships to have a good corporate-cause fit (Lii *et al.*, 2013). If there is a good fit, CRM messages can offer an advantage over other communication activities as they actively involve the consumer in the

altruistic initiative of the company (Westberg and Pope, 2014). On the other hand, CRM messages can also evoke a higher level of consumer scepticism as they directly link a cause to the company's profit generating activities (Lii *et al.*, 2013). To gain the trust of consumers, companies strive for the utilization of sustainability labels on their products (Kim *et al.*, 2019). Research on sustainability labels suggests that they are most effective if certified by a third party (Gosselt *et al.*, 2019), such as the Fairtrade organization or the European Commission. Such labels demonstrate the sustainability of the products on one or more dimensions: The ecological (conservation of natural resources) or the social and economic (ensuring the well-being of society) dimension (Gröppel-Klein *et al.*, 2019). While most literature studied the effect of sustainability labels in isolation, some researchers also focused on a potential "co-labelling" effect. Following Gröppel-Klein *et al.* (2020), we define co-labelling as the combination of a CSR message with a sustainability label on the same product packaging. Literature implies that labels have an indirect positive effect on the perception and the credibility of other messages conveyed with it (Gosselt *et al.*, 2019; Gröppel-Klein *et al.*, 2020; Kim *et al.*, 2019). However, this co-labelling effect was not studied in the context of corporate-cause partnerships yet.

Drawing on attribution theory (Fiske and Taylor, 1991), we infer that consumers collect and use product information to arrive at causal explanations as to why companies engage in corporate-cause partnerships. The cause of a behaviour is attributed to an internal or external factor that has the highest perceived consensus and therefore most closely covaries with the behaviour (Heider, 1958). External information, such as independent and credible third-party sustainability labels, can help consumers to develop more informed attributions about a company's CSR initiatives and partnerships (Parguel *et al.*, 2011). We assume that a sustainability label displayed next to the CSR message signals a consistent motivation to engage in multiple sustainability-related activities and is therefore more likely to be attributed internally. Therefore, it can be hypothesized:

H1: Corporate-cause partnerships communicated on *co-labelled products (vs. no product label)* will lead to a *higher attribution* of (a) a company´s intrinsic motivation to engage in the partnership and will thus result in significantly higher perceptions of (b) credibility of the partnership, (c) attitude towards the partnership and (d) product evaluation. Furthermore, they will evoke stronger feelings of (e) warm glow.

Investigating the moderating effect of the message type in CSR communication, we can find ambiguous implications from research in the cognitive effects of different message types. While some studies underline the better effectiveness of CRM campaigns (Westberg and Pope, 2014), they also tend to evoke cynical reactions among consumers (Web and Mohr, 1998). However, we can assume that CRM messages have a stronger affective effect. When purchasing a product with a CRM message, consumers can directly engage in a social or ecological cause without additional cost and effort. When being involved in a sustainable cause, consumers perceive a moral satisfaction (Lin *et al.*, 2017), which is referred to as warm glow (Andreoni, 1990). This may also improve their opinion about the product or the company, as they become part of their engagement (Lafferty *et al.*, 2016). For the partnership message type however, consumers do not perceive to directly help a cause (Westberg and Pope, 2014) and therefore may not feel warm glow. The CSR message type will therefore moderate the positive co-labelling effect on the dependent variables.

H2: The CSR message type moderates the co-labelling effects for the communication of corporate-cause partnerships, such that *a label will only increase the attributions* of (a) warm glow and (b) product evaluation for *CRM messages but not for partnership messages*.

Green consumers have been found to being as motivated to minimize effort and time in their shopping as non-green consumers (Thøgersen *et al.*, 2012) while at the same time showing higher levels of involvement for products with green attributes. Ecolabels can serve as green attributes and therefore guide green consumers in their decision-making (Thøgersen *et al.*, 2010). Barbarossa and Pelsmacker (2016) suggest that consumers with a green identity may satisfy their self-definitional needs and enhance their personal satisfaction when purchasing eco-friendly products. This is because even consumers who genuinely want to be green to support the environment are likely to also have a strong self-interest in being perceived as green by others and themselves (Freestone and McGoldrick, 2008). Thus, we assume that green consumers will more strongly perceive the positive effect of a sustainability label displayed next to a CSR message when making a purchase decision, because a product with a sustainable attribute serves their motive to be green. Whether or not a consumer perceives himself as a "green consumer" will therefore moderate the positive co-labelling effect on the dependent variables. This leads us to the following hypothesis:

H3: The consumer type moderates the co-labelling effects for the communication of corporate-cause partnerships, such that a *label will only increase the attributions* of (a) a company´s intrinsic motivation to engage in the partnership, (b) credibility of the partnership, (c) attitude towards the partnership and (d) product evaluation *for green consumers but not for non-green consumers*.

To study the effect of co-labelling of sustainability initiatives holistically, it is important to consider the different sustainability dimensions (Catlin *et al.*, 2017) and their fit. CSR-related and sponsorship-research has examined to a great extent, that the effectiveness of a partnership between two actors depends on the perceived fit between the two partners (e.g., Guzman and Davis, 2017). However, the concept of fit has not yet been applied to the perception of CSR messages and sustainability labels, which are often displayed next to each other on product packages. Regarding the fit of a message and a label, only Gröppel-Klein *et al.* (2020) take the effect of different sustainability dimensions on the perception of health claims into account and suggest that a health claim is best supported by a label which has a high similarity in its message dimension. In the context of CSR messages, companies usually draw on activities which can be categorized in a social or ecological dimension (Janßen and Langen, 2017). We assume that a CSR message and a label, which are both categorized in the social/ecological dimension, are more likely to be attributed with a better fit than a CSR message and a label addressing two different dimensions. Therefore, we hypothesize:

H4: Corporate-cause partnerships communicated on co-labelled products with the *same sustainability dimension (vs. different sustainability dimensions of partnership and label)* will lead to a *higher attribution* of (a) perceived fit of the sustainability dimensions and will thus result in significantly higher perceptions of (b) credibility of the partnership and (c) attitude towards the partnership.

METHODOLOGY

To empirically test the influence of co-labelling on consumers' perceptions of CSR messages, we test our hypotheses in two studies in the online grocery-shopping environment. Study 1 tests the predicted relationships by H1, H2 and H3 by comparing the effect of labelling (labelled product vs. no product label) and CSR message type (CRM message vs. partnership message). Study 2 then tests H4 and the effect of sustainability dimension fit between a CSR message and a sustainability label on a co-labelled product. Figure 1 illustrates our studies and depicts the conceptual model.

Figure 1: Conceptual Model for the Effect of Co-Labelling of CSR Messages
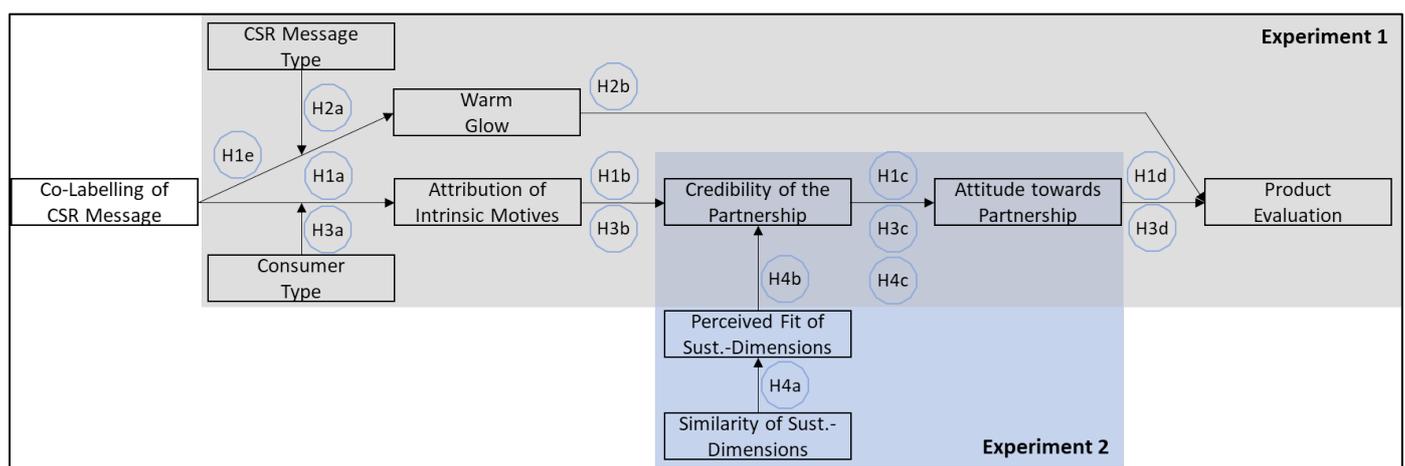
In both studies, participants were directed to the product page of a chocolate bar in an online grocery store and had to report their perceptions of the product presentation afterwards. We chose a chocolate bar as the context for both studies because sustainability labels as well as CSR messages are often used on chocolate bar packaging and it therefore serves as a realistic scenario for our experiments. The brand name "Meyer's" was chosen as a fictitious chocolate brand to avoid pre-existing associations with a real brand.

Study 1 employed a 2 (CSR message type: CRM message vs. partnership message) x 2 (co-labelling of CSR message: yes vs. no) between-subjects design. The fictitious "Forest Life Foundation" was chosen as partner for the corporate-cause partnership and was displayed with a corresponding logo on the packaging. For the CRM message condition, it said *"with the purchase of a chocolate bar, you protect 1 m2 of the Amazon rainforest"* on the packaging. For the partnership message it said, *"together with our partner we protect the Amazon rainforest"*. For the co-labelling effect, the Fairtrade label was chosen as sustainability label, as it is very popular and much used for chocolate bars in Germany. Data was collected online in January 2021. Each respondent (N=278) was randomly assigned to one of the four experimental conditions.

In Study 2, we used a 2 (sustainability dimension of corporate-cause partnership: environmental vs. social) x 2 (sustainability dimension of label: environmental vs. social) between-subjects design. The context from experiment 1 was maintained. The fictitious "Forest Life Foundation" and the CRM message from experiment 1 represented the environmental corporate-cause partnership. As a social partnership, the fictitious organization "Amazon School Foundation" and a respective logo were used together with the social CRM message, *"with the purchase of a chocolate bar, you enable an indigenous child to attend one school lesson"*. For the manipulation of the different sustainability dimensions of the labels, the Fairtrade label was chosen for the social, and the German organic label for the environmental dimension. These two labels were chosen as most consumers are familiar with them and they therefore signal a trustworthy third party certification of the product. The experiment was conducted online in May 2021. Respondents (N=276) were randomly assigned to one of the four experimental conditions.

FINDINGS AND DISCUSSION

Our findings from study 1 reveal that CSR partnerships communicated on co-labelled products (vs. no product label) lead to better evaluations of the partnership and the displayed product. Planned contrasts show that co-labelled products (vs. no product label) increase the attribution of intrinsic motivations for engaging in the partnership (M_{Label} = 3,15, $M_{NoLabel}$ = 2,97; t = 1,691, p = 0.092) and the credibility of the partnership (M_{Label} = 4,61, $M_{NoLabel}$ = 4,18; t = 3,115, p = 0.002). The means for attitude toward the partnership were higher for co-labelled products than for non-labelled products (M_{Label} = 5,40, $M_{NoLabel}$ = 5,21). However, we cannot report significant results (t = 1,407, p = 0.161). Besides the positive effects on the partnership, also the product is evaluated on a significantly better level (M_{Label} = 4,88, $M_{NoLabel}$ = 4,49; t = 2,911, p = 0.004) if a sustainability label is displayed next to the CSR message on the product packaging. Furthermore, co-labelling evoked significantly stronger feelings of warm glow (M_{Label} = 4,69, $M_{NoLabel}$ = 4,40; t = 1,658, p = 0.099). These findings support H1a, b, d, and e.

To test H2a and H2b we split our data into the subsample, which was given a partnership message and the subsample, in which the corporate-cause partnership was communicated as a CRM message. In line with our hypotheses, we find that the CSR message type moderates the co-labelling effects of the communication of corporate-cause partnerships. For the CRM message, a co-labelled product (vs. no product label) led to higher levels of warm glow (M_{Label} = 4,90, $M_{NoLabel}$ = 4,49; t = 1,820, p = 0.071) and product evaluation (M_{Label} = 4,91, $M_{NoLabel}$ = 4,38; t = 2,746, p = 0.007). However, as we expected for the partnership message, a co-labelled product (vs. no product label) does not result in significantly higher levels of warm glow (M_{Label} = 4,46, $M_{NoLabel}$ = 4,32; t = 0,532, p = 0.595) and product evaluation (M_{Label} = 4,86, $M_{NoLabel}$ = 4,57; t = 1,473, p = 0.143).

We split the sample into green and non-green consumers using median split to transform a green consumer scale into a dummy variable. The results indicate that the consumer type moderates the co-labelling effects for the communication of corporate-cause partnerships, which is consistent with H3a, b, c, and d. For green consumers, a co-labelled product (vs. no product label) led to higher levels of intrinsic motivation for engaging in the partnership (M_{Label} = 3,26, $M_{NoLabel}$ = 2,92; t = 2,309, p = 0.022), credibility of the partnership (M_{Label} = 4,68, $M_{NoLabel}$ = 4,07; t = 3,004, p = 0.003), attitude toward the partnership (M_{Label} = 5,50, $M_{NoLabel}$ = 5,18; t = 1,757, p = 0.081), and product evaluation (M_{Label} = 5,04, $M_{NoLabel}$ = 4,29; t = 3,803, p = 0.000). However, as we expected, for non-green consumers, co-labelled products (vs. no product label) did not result in significantly higher levels of intrinsic motivation for engaging in the partnership (M_{Label} = 3,03, $M_{NoLabel}$ = 3,03; t = 0,061, p = 0.952), credibility of the partnership (M_{Label} = 4,54, $M_{NoLabel}$ = 4,29; t = 1,350, p = 0.179), attitude toward the partnership (M_{Label} = 5,29, $M_{NoLabel}$ = 5,24; t = 0,276, p = 0.783), and product evaluation (M_{Label} = 4,73, $M_{NoLabel}$ = 4,68; t = 3,269, p = 0.788).

In study 2, our findings indicate that corporate-cause partnerships communicated on co-labelled products with the same sustainability dimension of message and label (vs. different dimensions) lead to better evaluations of the partnership. Planned contrasts show that the perceived fit is higher when the sustainability dimensions of label and message are both categorized in a social/ecological category ($M_{Similar}$ = 5,76, $M_{NotSimilar}$ = 5,42; t = 2,621, p = 0.009). Consequently, credibility of the partnership ($M_{Similar}$ = 4,55, $M_{NotSimilar}$ = 4,28; t = 1,837, p = 0.067) and attitude toward the partnership ($M_{Similar}$ = 5,75, $M_{NotSimilar}$ = 5,45; t = 2,114, p = 0.035) are higher for co-labelled products. These findings support H4a, b, and c.

ACADEMIC AND PRACTICAL IMPLICATIONS

The findings of our study contribute to existing literature on CSR communication, and in particular to the communication of corporate-cause partnerships, by considering sustainability labels in their message environment. Thereby our study also advances the hitherto scarce literature on co-labelling. Moreover, it responds to the call for more holistic research on sustainability (Catlin *et al.*, 2017) by considering the ecological as well as the social dimensions of sustainability and their effect on consumers' perceptions of CSR messages. Additionally, we complement the extensive research in food retailing with research in an online context. Practitioners may use the findings of our study as a guide for the selection of their CSR partnerships, for the design of their product packaging, as well as for the credible presentation of their CSR messages in online shops. For consumers the findings can help receiving clearer communication when choosing the right product and to be encouraged to make more sustainable consumption choices.

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THE DEVELOPMENT AND EXAMINATION OF A VOICE TYPOLOGY

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ABSTRACT

Voices are important in many areas of marketing communications such as in tv and radio advertisements. Also in service interactions, for example, with frontline employees and voice-based technologies (e.g., smart assistants; Dawar and Bendle, 2018) voices are ubiquitous. Nevertheless, it remains unclear which voice types companies and brands may use for different purposes as marketing research did only investigate single voice characteristics (e.g., Chattopadhyay *et al.* 2003). Consequently, this research has the goal to develop a typology of voices used in marketing communications considering perceptual characteristics by the use of cluster and factor analysis.

INTRODUCTION

Voices have been omnipresent in marketing communications ever since as they are, besides others, an important component of tv and radio ads. As customers increasingly interact with brands via smart assistants like Apple`s Siri or Amazon`s Alexa, they become even more important nowadays (Dawar and Bendle 2018). Research from psychology suggests that humans infer speaker characteristics like trustworthiness and competence from voices (Oleszkiewicz *et al.* 2017). Such inferences can shape the effects of marketing messages and become part of a brand`s identity. To actively manage these inferences, companies and brands must understand which voice types they can use and how they differ in their effects on marketing outcomes.

Marketing research shows that voice can have effects on marketing outcomes. Several findings on the effects of voice pitch (Lowe and Haws 2017; Zoghaib 2017), voice quality (Wiener and Chartrand 2014), and speech rate (Chattopadhyay *et al.* 2003; Megehee *et al.* 2003; Rodero 2019) exist. Other studies examining the general use of voice without considering voice characteristics focus on a comparison of voice with other sensory elements (Pagani *et al.* 2019), the number of voices being used (Neeley and Schumann 2004), and the use of female vs. male voices (Whipple and McManamon 2002). Nevertheless, these findings can guide further research and managerial decision-making only partially as a focus on certain voice characteristics does not appropriately reflect the phenomenon voice neglecting interdependencies with other voice characteristics. On the other side, not considering any voice characteristics at all is rather unspecific.

We argue that the joint effects of different voice characteristics are the main driver of voice effects on marketing outcomes. This view is in line with Gestalt psychology (e.g., Koffka 1922) suggesting that people evaluate sensory elements in a manner where the whole is different from the sum of its parts. Therefore, we propose that the effects of voice can be best understood and managed by examining, which types of voices exist, including their specification by managerially relevant characteristics, and how they impact marketing outcomes.

Consequently, the goal of this research project is twofold: (1) the development of voice types and (2) the empirical examination of their impact on important marketing outcomes such as brand personality. To achieve the first goal, we systematically collect voice characteristics (i.e., adjectives used in research and practice that adequately describe the phenomenon voice) and we create a sample of voice recordings representing how voices are used in marketing communications. In a large-scale study, the voice recordings are judged based on a systematically reduced set of adjectives capturing a wide range of voice characteristics. The resulting data serves as the input for a cluster and factor analysis revealing voice types and factors that capture the most important characteristics of voice. The second goal is achieved by examining the effect of voice types on important marketing outcomes such as brand personality by measuring brand personality

perceptions in the cluster and factor analysis study and by experimentally examining voice types in scenario experiments.

With our research, we provide several contributions for research and practice. First, we develop a voice typology and, therefore, foster the theoretical understanding of voice in research and practice. Second, we show that voice can affect important marketing outcomes as we establish relationships between voice types and brand personality. These findings guide further investigations as well as practical decision-making. Third, we propose a new way to examine voice in marketing research. In our studies, we develop voice types that consider the holistic nature of sensory elements which is different from existing literature on voice in marketing research and may ground the way for similar examinations.

METHODOLOGY

Overview

To achieve our research goals, we employ a four-step approach, which has been established by Henderson, Giese, and Cote (2004) and Orth and Malkewitz (2008): (1) the collection of adjectives that describe voice, (2) the collection of stimulus material (i.e., voice recordings), (3) a cluster and factor analysis based on adjective judgments, and (4) the examination of the impact of voice types on relevant marketing outcomes (i.e., brand personality).

Collection and reduction of adjectives

In the first step, we collected adjectives that are used in research and practice to describe voices. These adjectives shall (1) cover all common ways of how voices can be described by the use of adjectives (e.g., "a [enthusiastic] voice"), (2) describe voice from a perceptual perspective (i.e., no technical features such as average frequency), (3) be balanced concerning somewhat noticeable categories (i.e., a similar number of adjectives describing different noticeable categories such as enthusiasm, warmth, or naturalness), (4) not be evaluative (e.g., a "perfect" voice), and (4) be understandable and applicable by practitioners (no technical terms such as a "laryngeal" voice). For the collection of adjectives, we used two sources: journal articles from research disciplines that examine voice (e.g., acoustics, communication research, computer science, medicine, and psychology) and websites of voice actor agencies and market places for professional voice actors (e.g., Fiverr 2021; Voice Crafters 2021).

To collect adjectives from research articles, we employ a systematic literature review in Web of Science using the following search string: "ts=((speak* or speech or voice) near/5 ("characteristics" or "properties" or "features" or "traits" or "qualities" or "attributes"))". A forward and backward search resulted in a total number of about 2,000 articles. Adjective lists have been found in 36 articles. In total, we found 395 different adjectives. For the collection of adjectives from practice, we employed a systematic google search for websites of voice actor agencies and marketplaces for professional voice actors. We collected adjectives provided by voice actor agencies or voice actors themselves from 38 websites resulting in 543 different adjectives. In total, we collected 850 different adjectives from research and practice.

To reduce the total number of adjectives from research and practice to a manageable amount and to ensure the usage of adjectives in common language, we eliminated adjectives that are not listed in the Frequency Dictionary of Contemporary American English (Davies and Gardner 2010) resulting in 260 adjectives. To further reduce the number of adjectives and to create a balanced list of adjectives, these 260 adjectives have been ordered thematically and grouped in synonym sets based on three different online dictionaries (Merriam-Webster, Collins Dictionary, and Cambridge Dictionary). Following this, two voice experts independently selected adjectives within each synonym set that best reflect the synonym set. If the first and the second coder did not agree, the disagreement has been resolved in discussions. A third coder checked the coding. Also here, disagreements have been resolved in discussions. All other adjectives have been eliminated resulting in a final number of 68 adjectives.

Collection of voice recordings

We collected a sample of about 462 voice recordings in different areas of marketing communications like radio and tv ads, online ads, corporate communication (e.g., image films), artificial voices in products like smart assistants, voices used for services (i.e., telephone services), and voices from sales (i.e., home shopping). For each of the fields of application, we employed a systematic approach for recording voices. For radio and tv ads, we recorded about 260 voices from the tv (Schneider 2019) and radio channels (Nielsen Company 2019, 2020) with the highest reach in the USA at different times of the day and week. We collected the highest number of recordings here as this is a key field of application for voice which additionally covers a broad spectrum of different voices. For all other fields of application, we collected about 40 voice recordings. Online ads have been collected on YouTube channels with the highest reach in the USA (Social Blade 2020). Artificial voices have been collected from some of the largest technology companies such as Apple, Amazon, Google, and Microsoft (Slickcharts 2020). We collected voices used in hotlines and corporate communications from the largest companies according to the S&P 500 (ibid.). Finally, we collected voices from home shopping networks that are considered being key players in the market (Danzinger 2019).

Study design and analysis

We conduct a large-scale study in which about 2,600 US consumers judge to which degree the 68 adjectives are descriptive for the 462 voice recordings. In the study, each participant judges one voice recordings so that we obtain about 5 judgments per recording. We also ask participants to report the degree to which each of the voices might represent a certain brand personality dimension. We derive voice types based on an exploratory approach by applying cluster and factor analysis with the means of the adjective evaluations per recording as the input data. The resulting clusters represent voice types that are homogeneous within each cluster and heterogeneous between the clusters (Hair *et al.* 2019). The means of the adjective judgments within each cluster describe the degree to which each adjective can be used to describe a voice type. To further simplify the interpretation and description of the voice types, we then run a factor analysis to reduce 68 adjectives to relevant factors. The described procedure will be primarily applied for the sample of tv and radio ads. As robustness checks, we then include the other subsamples and run the analysis again.

Further examination of voice types

In the final step, we examine the effects of voice types on important marketing outcomes. The goal of this step is to provide evidence for the importance of the voice types for managerial decision-making. We will experimentally show, that the use of different voice types affects important marketing outcomes such as brand personality.

FINDINGS

In this section, we report a preliminary analysis with a reduced number of 2,000 participants of our cluster and factor analysis study considering all 462 recordings. For the analysis, we use data on the stimulus level instead of the level of individual subjects. To do so, we calculate the average judgments for each variable and voice recording across subjects. With this data, we ran a cluster analysis which resulted in a five-cluster solution. Based on the adjectives that are highly descriptive for a cluster (high scores of an adjective in the respective cluster) and those that are highly undescriptive for a cluster (low scores of an adjective in the respective cluster), we named the clusters warm, professional, rapid, dramatic, and neutral. Seven factors describe the clusters (i.e., friendly, calm, heroic, persuasive, professional, rough, and strange).

The scores of brand personality dimensions for each cluster can be found in Table 1. Nearly all means differ significantly from the overall mean. Warm voices score significantly higher compared to the overall mean considering all brand personality dimensions whereby the difference is rather small for ruggedness. Professional voices score higher on sincerity, sophistication, competence, and excitement, whereby the actual difference from the overall mean is rather small for all these dimensions. Professional voices are less perceived to be rugged. Rapid voices do not differ from the overall mean considering ruggedness. On all other dimensions, rapid voices score lower than the overall mean. Dramatic voices score higher than than the overall means on all dimensions whereas the differences are largest for ruggedness. Neutral voices negatively differ from the overall mean considering all dimensions meaning that customers do not attribute any brand personality based on these voices.

Table 1: Brand personality means and deviations from the overall mean

	Warm voices	Professional voices	Rapid voices	Dramatic voices	Neutral voices	Overall mean
Sincerity	5,31 (+0,96*)	4,77 (+0,42*)	3,47 (-0,88*)	4,48 (+0,13*)	3,74 (-0,61*)	4,35
Sophistication	4,85 (+1,04*)	4,21 (+0,40*)	2,84 (-0,97*)	3,94 (+0,13*)	3,21 (-0,60*)	3,81
Competence	5,36 (+0,73*)	4,92 (+0,29*)	3,77 (-0,86*)	4,82 (+0,19*)	4,29 (-0,34*)	4,63
Excitement	4,97 (+0,97*)	4,20 (+0,20*)	3,36 (-0,64*)	4,27 (+0,27*)	3,20 (-0,80*)	4,00
Ruggedness	3,03 (+0,22*)	2,50 (-0,31*)	2,74 (-0,07)	3,50 (+0,69*)	2,27 (-0,54*)	2,81

Values in brackets: deviation of the respective mean from the overall mean; * $p < .05$.

IMPLICATIONS

Research

With our research, we provide three contributions for research. First, we develop a voice typology. We thereby foster the theoretical understanding of voice in marketing research. Second, we show that voice can affect important marketing outcomes as we establish relationships between voice types and brand personality. These findings guide further investigations that may, for example, assess boundary conditions to these effects. Third, we propose a new way to examine voice in marketing research. In our studies, we develop voice types that consider the holistic nature of sensory elements such as voice and do not focus on single voice characteristics. This procedure differentiates our study from existing literature on voice in marketing research and may ground the way for similar examinations focussing on voice types and perceptual characteristics instead of technical characteristics.

Practice

Our findings have crucial implications for practitioners. First, we systematically derive options practitioners have considering the choice of voices. We show that they may use warm, professional, rapid, dramatic, or neutral voices. Second, we guide managerial decision-making in that we show which voice type should be employed to evoke desired outcomes. For example, warm voices lead to higher perceptions of brand sophistication and dramatic voices score higher on brand ruggedness. This knowledge helps to manage impressions created by a brand's voice(es). Third, we underpin the importance of voice for marketers as we show their differential effects. We suggest that practitioners make conscious choices for voices and consider voice effects in all fields of application.

SUMMARY

Voice is an important phenomenon that will be more frequently employed by companies in the future due to current technological developments. In this research, we develop a voice typology considering the holistic perception of sensory elements. Additionally, we show that our newly developed voice typology is relevant in terms of its impact on marketing outcomes such as brand personality. With our typology, we provide a theoretical contribution and guide further empirical investigations. Practitioners can benefit from our research in that we show options considering different voice types and their effects on marketing outcomes.

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DISTRUST AND SUSPICION ON PEER-TO-PEER PLATFORMS: HOW PLATFORM'S AFFORDANCES FOSTER VULNERABILITIES OF ITS USERS

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ABSTRACT

This study investigates building of trust between service providers and consumers on peer-to-peer tourist accommodation platforms by focusing on their affordances. Trust is necessary for peer-to-peer exchanges to happen. Platforms, as technological intermediaries afford specific actions that can result in trust, for example mutual consumer-provider reviews. Use of the same measures may imply suspicion towards the users' misconduct. A qualitative research design is used to analyze how trust or distrust develops between users of Airbnb platform as its affordances for trust building are actualized. The results suggest that the trust building systems may leave tourists in a vulnerable position.

INTRODUCTION

For exchanges to happen on peer-to-peer platforms, a certain level of trust between their users needs to be established (Perren and Kozinets, 2018). Platforms often use user generated online reviews of both service providers and consumers to provide them with information necessary for establishing trust. The information about a user, whether it was a service provider or consumer, collected in his public evaluations constitutes their online reputation, which serves as a measure of their trustworthiness (Zloteanu *et al.*, 2018). It helps other platform's users make decisions and form expectations about future interactions. At the same time, the platforms that set rules for engagement between service providers and consumers are often distant, not taking a direct part in their interactions. Instead, user reviews serve as a self-governance mechanism based on users' online reputation. However, user reviews on peer-to-peer platforms are also commonly biased, inaccurate, and overly positive (Zervas, Proserpio and Byers, 2021). The expectations formed according to them may be unrealistic as well. When such discrepancy between expectations and reality are noticed, they may foster distrust based on suspicion towards other users.

This is particularly problematic in peer-to-peer tourist accommodation context, where tourists often rely on their hosts as the primary contacts during stays abroad. Tourists and their hosts often interact in a close setting, leaving possibilities for infringement of privacy or harmed property (Lutz *et al.*, 2018). Also, research about Airbnb platform note that often hosts present fake or inaccurate information about themselves and their listings, for example, pretending to be private individuals when there is actually a company taking care of the listing (c.f. Gil and Sequera, 2020). Although such issues are noted, they are still present.

This study looks into how the mechanisms of governing the platforms that rely on building trust have a way to foster them. Building trust is one of the overall affordances of the so-called sharing economy platforms (Sutherland and Jarrahi, 2018). However, there is a lack of more detailed research about the specific affordances for trust building in peer-to-peer setting. Taking that as a starting point, this study investigates the process of trust building within the Airbnb platform. Analytically, the concept of affordances is used, as it shows how consistent changes in social behavior are sanctioned by technology (Treem and Leonardi, 2013). This allows analyzing how a digital platform sanctions the actions of service consumers and providers as an intermediary. The analysis shows that as a result tourists are often left in a vulnerable position. The study contributes to a discussion about the use of information systems for mediating services on peer-to-peer platforms. It suggests that the platform, as a material entity has an important role for the outcomes of the tourists' stays.

AFFORDANCES

The main analytical concept used in this study is platform's affordances. It has recently attracted more attention in tourism studies for defining the physical and social setting of tourism operations (Tomej and Xiang,

2020), or tourists' practices when using technology (Molz and Paris, 2015). The concept is particularly suitable to researching use of technology, such as ICT platforms in peer-to-peer setting. It defines both the technological properties of ICTs, as well as the social settings that determine the possibilities for action platform users have.

Described simply, affordances are the resources and constraints that an individual has when using things. In the original definition from ecological psychology, Gibson (1979) defines affordances as the properties of the environment relative to the actor in it. In technological artifacts, affordances can be created by the designing process, also the user has to be able to perceive affordances in order to actualize them (Lanamäki, Thapa and Stendal, 2016). Therefore, affordances are relative to the actor's capability to perceive and actualize them (McGrenere and Ho, 2000). This capability depends on the actors' prior knowledge, cultural background and ability to learn (Dohn, 2009). This signifies the relationship between the environment or technology and the actor using it.

Affordances provide an actor with a range of possibilities, but they do not cause action themselves (Gibson, 1979). For example, in a more technical sense, a peer-to-peer platform affords writing and publicly announcing an evaluation of a service provider, however, it is up to the consumer to decide how to phrase the review, and even whether to write it at all. Similarly, the platform may provide specific guidelines for writing reviews, which constitutes its social affordances by indicating what is acceptable as a review. As such, the platform's affordances are not a purely technological concept, but a definition of overall resources and constraints platform users have when interacting with the platform and each other.

TRUST AND DISTRUST

Platforms often use online mutual reviews to facilitate building of trust between their users. Trust is a psychological state involving a willingness to be vulnerable towards another person, based on positive expectations towards their motivations and actions (Rousseau *et al.*, 1998). However, actual trust develops as individuals engage in interactions that benefit each other (Korsgaard, 2018). Online reviews testify about previous such interactions, however, they only provide information for perceiving trustworthiness rather than building actual trust (Zloteanu *et al.*, 2018).

Information from reviews and ratings provides a basis for positive expectations that are an antecedent to trust when they are fulfilled (Korsgaard, 2018). However, not fulfilling the expectations may result in distrust – having further negative expectations towards people's intentions and behavior (Bies *et al.*, 2018). Distrust can result in overall suspicion towards the service providers or consumers met through the platform, and lead to diminishing intention to cooperate. This is particularly important when issues are encountered during touristic stays – a lack of willingness to cooperate may lead to issues being unresolved, in which case tourists, especially on stays abroad may be left in a vulnerable position. Notably, even with initial basis for trustworthiness, the service relationship can still turn towards distrust.

METHODOLOGY

This paper draws on a qualitative case study of Airbnb platform users. Airbnb is a globally used accommodation rentals platform, which allowed for observing rather diverse members of its user base. Qualitative design allowed accounting for individual differences in perceptions of the platform, it's afforded uses, subjective differences in building an online reputation. Accounting for these elements allowed understanding how affordances are actualized. The data is comprised of 15 interviews, paired with observations of Airbnb platform use, and information the platform itself provides about its use in the form of articles from Airbnb's Terms of Service, Help Center, and Airbnb's official blog.

The interview participants were recruited in Sweden and Denmark with the main criterion of having used Airbnb for booking touristic accommodation within the last 6 months. Interviews lasted from 40 to 70 minutes, were recorded and transcribed. The interviews were organized in two stages, along with consecutive data analyses. Five initial interviews were conducted on the first stage, with interview participants selected through the researcher's personal networks and snowballing in order to access initial exploratory data. This data was used in combination with theoretical knowledge about developing trust and Airbnb platform to construct a more detailed interview guide. At the second stage, 10 interviews were conducted following a purposive

sampling, interviewing people that reside in Southern Sweden, have recently travelled and used Airbnb for arranging accommodation.

The data was coded using grounded theory techniques of open and axial coding. Open coding allowed identifying people's understanding, possible objects of interests, tentative relationships between concepts that appear in the data, for example perceptions of platform's features, and how they relate to expectations towards hosts. Axial coding was conducted at the further step, re-reading the interviews to ascertain relationships between identified concepts and categories (Hoddy, 2019). This allowed making explicit the connections between identifying and laying out the properties of platform's affordances and events that reoccurred in different interviews and marked common experiences of different participants.

FINDINGS

The analysis has identified three main affordances related to trust building on Airbnb platform. They are based on the participants' perceived use of the platform at different stages on their stays. The affordances include: (1) perceiving trustworthiness of other users, (2) building trust in interactions, and (3) maintaining a positive online reputation.

A perception of trustworthiness is developed by using available information about hosts. Most interview participants perceived the platform's role primarily as providing information for them to be able to form expectations about how their planned stays will look like. On the platform, hosts and guests disclose enough information about themselves for developing tentative attitudes towards each other (Moon *et al.*, 2019). These attitudes translate into expectations towards the stay. This affordance is actualized with the help of written reviews, rating and host's profile and listing information on the platform. This information is used in various ways. Participants noted that especially information provided by hosts is viewed with suspicion, as hosts can manipulate information, e.g. enhancing pictures of the listing. Reviews are seen as more trustworthy; however, participants often note encountering uninformative or even fake reviews. Participants that use the platform more often, usually engage in a longer research of their upcoming stays, indicating that they view the information on the platform with suspicion.

During the stay, the perception of trustworthiness can become a source of specific expectations towards the service provider. The most important noted expectations include cooperativeness and willingness to communicate clearly. Other related expectations were named as being clear about who is hosting, helping with practicalities, designating arrival time and handing the keys. Most platform users prefer listings that are not shared with the host (Guttentag *et al.*, 2018). Participants indicated that in such cases, the handling of practicalities is especially important, as that is the main point of contact with the host. Since before meeting the host is only represented by a profile on the platform, there is no feasible way to know if this information represents reality. Meeting for taking care of practical matters therefore serves as a way to ascertain the host's identity and cooperativeness.

This is a particularly important point where the service relationship can also turn towards distrust. Distrust appears when host does not show a willingness to cooperate, or the expectations built initially are violated, e.g. the host turns out to be a previously unidentified individual. Participants in this study reported that in such cases they would experience a lack of safety and themselves becoming unwilling to approach the host about issues that need to be resolved. The overall intentions of the hosts also become questioned.

Once a stay is complete, Airbnb asks all users to write a review, giving each other feedback that should help other users know what to expect from them. Honesty and transparency are highlighted in Airbnb's description of reviewing process (Airbnb, 2021). The platform provides a framework for reviewing and the infrastructure required to publish reviews. However, participants identify different ways to write reviews, such as highlighting the positive and negative aspects other people would want to know; providing recommendations to others that come after a reasonable time; indicating whether the place felt safe. These reasons are usually coupled with an attitude that the guests are responsible to provide as accurate information as possible. However, participants also noted that they often would try to focus on the positive aspect of the stay, or downplay some of the negatives due to various reasons.

VULNERABILITIES

During stays in peer-to-peer accommodation, tourists may encounter various issues. Huang, Coghlan and Jin (2020) suggest that issues related to service performance may leave consumers to experiencing a sense of loss, such as financial and temporal loss. The analysis in this study suggest that the platform may make consumers more vulnerable to such issues, due to its affordances for building trust. Situations that result in distrust between guests and hosts were identified as particularly problematic. For tourists this can result in additional costs, not only in terms of money spent, but also time spent looking for new accommodation and possible distress. Participants experienced situations ranging from direct privacy infringement by hosts, staying in unsafe locations, identifying fake hosts, to unexpected cancelations. Such issues were rarely reported in reviews, as often the participants did not feel competent to provide an unbiased opinion about an incident. Especially, experiencing conflict with hosts makes tourists doubt if approaching the host with complaints would be a good idea due to a risk of later receiving a negative review.

As the findings suggest, the platform often does not afford forming realistic expectations, especially due to underreporting of negative experiences. The same participants that reported problematic situations also commonly noted not reporting them in public reviews. However, in addition, they were often unable to receive help from the platform organization either or were unwilling to ask for such help. The guarantees and refunds from Airbnb were seen as unreliable or not timely, noting that they do not cover the additional expenses. This suggests that although the platform affords building trust, the process is often not carried out in a way that results in trust. Since the platform itself is not a part of the interaction, it is often perceived as distant and not trusted to be able to help. As a result, consumers may need to solve complications during their stays on their own.

CONCLUSIONS

The study contributes to a discussion about the use of information systems for mediating services on peer-to-peer platforms. It suggests that the peer-to-peer platform, as a material entity has an important role for the outcomes of the tourists' stays. The platform sets not only technological affordances that determine possible actions on the platform, but also the overall potentials for action in the meetings of its users, whether they are digital or physical. However, the platform's users actualize these potentials. Tourists perceive specific uses of the platform and ways to interact with their hosts. The results suggest that the investigated platform is unable to ensure the building of trust due to possible manipulation of information and lacking resources to form realistic expectations about the stays.

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A CONCEPTUAL FRAMEWORK OF DELIGHTFUL SERVICE EXPERIENCES IN "NEW NORMAL" CONDITIONS

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ABSTRACT

In order to thrive and lead the post-Covid pandemic crisis recovery, service managers are seeking effective ways to design and stage delightful experiences. Thus, this paper reviews relevant findings in the existing literature and provide critical new perspectives from cognitive psychology, transformative service and service marketing. Continuous business communication with the customer focusing on the authenticity of the service provider and service design to fulfil changing consumption goals/need in the new normal context consist of possible avenues to offer delightful service experiences. Research gaps and remaining research questions are also discussed to recommend directions for future studies in this area.

INTRODUCTION

Although the COVID-19 pandemic has been the most unprecedented and disruptive event in the service industries, there have been signs of re-opening and travel recovery in many countries. In "new normal" conditions, service providers are forced to revise customer experience management and find new ways to delight customer (Barnes *et al.*, 2020). Previous research findings on customer delight are currently challenged by the pandemic impacts on service delivery process when customer expectations are changing and novel service elements (e.g., wearing masks, contactless service encounters) due to the pandemic context are not necessarily desired (Hao and Chon, 2021).

Against this background, this paper aims to structure our current understanding of customer delight, critically review pre-Covid findings and develop a conceptual framework of delightful service experiences based on cognitive psychological theories (Ma *et al.*, 2013, Johnson and Stewart, 2005), transformative service research (TSR) (Anderson and Ostrom, 2015) and service marketing (Barnes *et al.*, 2020). The contribution of the paper is threefold. First, it discusses previous research findings on customer delight from a new perspective, with consideration of "new normal" context, and suggest relevant practical implications. Second, various psychological and marketing theories are integrated to form a reliable theoretical foundation for designing and managing delightful customer experiences. Third, it identifies current research gaps and poses research questions for future research.

RESEARCH BACKGROUND and GAPS

Delightful service experiences

The concept of customer delight originates from an unanticipated exploration that satisfied customers do not equate to repeated purchase intentions (Jones and Sasser, 1995). This in turn prompts service firms to rethink their customer relations strategies to warrant economic long-term viability, which has still remained a gap in marketing research (Barnes *et al.*, 2021). The concept of customer delight was officially introduced by Oliver *et al.* (1997) to overcome this challenging reality, which refers to a condition when a firm goes beyond customer satisfaction by exceeding their expectation to a considerably surprising degree.

Past research has suggested the triple effect of customer delight on service firms, that is, "delight begets delight" (Barnes *et al.* 2021, p. 131) - a situation in which positive emotions generated by delighted customers are contagious to service employees, which helps stimulate their positive emotions and mood, and eventually benefiting their co-workers and future customers (Guidice *et al.*, 2020). This contagion effect is why it is

imperative for service firms to strategically focus on shaping customer delight, which evidently impacts not only the customer's well-being (Barnes *et al.*, 2021), but also attachment to brands and products as well as brand loyalty. Brand attachment is defined as "the strength of the cognitive and affective bond connecting the brand with the self" (Park *et al.*, 2006, p.4). The relationship between delightful experiences and brand attachment, therefore, is worthy of investigation given the substantial existing research focus on customer loyalty, which can be leveraged easily and thus not viable in the long term (e.g. switch the brand to lower the cost, to have better loyalty programs) (Roy, 2018).

Previous research demonstrates two key components of customer delight: one is attitudinal (i.e. disconfirmation) and the other is affective (i.e. arousal). However, to differentiate customer delight experiences from merely satisfaction, it is suggested that the emotional component plays a more important pathway to achieve customer delight and could explain up to 70% of delight variations (Barnes *et al.*, 2011; Oliver *et al.*, 1997). As a result, we support the proposition of customer delight as an emotion-driven construct.

In order to deliver delightful experiences, the existing literature has been heavily focusing on service attributes which are designed and managed by service providers. A wide range of service attributes have been examined in previous studies, from servicescape/physical facilities (Ahrholdt *et al.*, 2017; Torres *et al.*, 2017), sensory/experiential elements (e.g., complementary items, surprising sensory elements, unrelated supporting service such as a massage at a restaurant) (Wang, 2011), human elements (e.g., employee friendliness, staff professionalism, communication, flexibility) (Barnes *et al.*, 2011; Torres *et al.*, 2014) to service recovery efforts (Torres and Kline, 2013).

Paying attention to customers' emotions and salient needs are even more imperative in the crisis context given the important role of mental health and well-being during the COVID-19 pandemic (Barnes *et al.*, 2021). The unprecedented COVID-19 pandemic has forced service firms to re-imagine the customer experience and find innovative ways to ensure positive service encounters and to adapt to disruptions and customer's behavioural changes (Le and Phi, 2021). Nevertheless, there have been very few investigations conducted into how different psychological factors such as fulfillment self-esteem needs (Torres and Kline, 2013) or goal relevance, goal congruence (Ma *et al.*, 2013) contribute to customer delight or delightful experiences. Further examination of psychological determinants of emotions is necessary to deliver delightful experiences in pandemic crisis and "new normal" context.

Appraisal theories of emotions

Appraisal theories provide possible explanations on differences in customer emotions in response to similar services provided. An appraisal can be defined as "cognitive process [and] the way an individual defines and evaluates relationships with the environment" (Lazarus, 1991, p. 3). Appraisal process consists of various subconscious evaluations of a stimulus (i.e., appraisal dimensions). There is a core set of appraisal dimensions (i.e., novelty, goal relevance, goal congruence, certainty) that have been investigated as determinant factors of specific emotions (Le *et al.*, 2020; Ma *et al.*, 2017; Skavronskaya *et al.*, 2017). Novelty is the primary appraisal and novel consumption attributes elicit surprise (Dalakas, 2006; Hosany, 2012) and unexpectedness enhances customer delight (Ma *et al.*, 2017). Novel or surprising service elements, thus, have been recommended as important antecedents of delightful service experiences by many researchers (Bartl *et al.*, 2013; Crotts and Magnini, 2011).

Goal-related appraisal dimensions (goal relevance and goal congruence) are the most important to explain customers' positive emotions from joy to delight. Goal congruence determines whether service encounters will lead to positive or negative emotions: joy signals that a goal/need has been fulfilled in the service consumption, whereas anger or sadness may arise as results of goal/need fulfilment failure. In addition, goal relevance reflects the degree by which service experiences are considered as important and/or of interest to satisfy one's current goals/needs (Johnson and Stewart, 2005). The appraisal dimension of goal relevance is of high value to explain customer emotions in times of crisis (e.g., the COVID-19 pandemic) and "new normal" service consumption situations because the pandemic has leveraged the importance of some service elements (i.e., safety) and reduce consumer interest of interpersonal interactions with staff (Le and Phi, 2021; Pham *et al.*, 2021).

Certainty is also an appraisal dimension that lacks investigation in the non-crisis scenarios to understand consumer emotions. Given high levels of uncertainty caused by the global pandemic, certainty is further

worthy to investigate since it could lead to higher intensity of positive emotions of love, happiness and gratitude (Ruth *et al.*, 2002). Consumers today prefer to be well informed about the outcomes of service consumption and less likely to accept paying for uncertain outcomes (Golets *et al.*, 2021; Mason *et al.*, 2020).

Transformative service research (TSR): hedonic versus eudaimonic values

By critically challenging the commonly held beliefs about customer delight and re-conceptualising the construct from a combined lenses of transformative service research (TSR) (Anderson and Ostrom, 2015) and psychological theory on hedonic and eudaimonic human needs (Fiske, 2008), Barnes *et al.* (2021) evaluated the extent to which need fulfilment is the root of customer well-being and that meeting well-being needs ultimately promotes delightful experiences. They argued that in crisis scenarios, the salience of eudaimonic needs become more prominent and that service providers are more likely to stimulate perceptions of delight when they leverage meeting eudaimonic needs over the hedonic needs, which have long been emphasised in the conventional service encounters. Barnes *et al.* (2021) put that, although it may be counterintuitive, delightful experiences are still possible even in times of crisis.

By adopting the combined lens of TSR and social psychology theories on identifying precursors of delightful experiences, TRS research has shown that delight resulting from all service encounters is predictive of well-being created by the fulfilment of salient needs (Ryan and Deci, 2001), yet, which needs are salient (hedonic versus eudaimonic, and thus predictive of well-being and delight) depends on the context (e.g., crisis or non-crisis) (Barnes *et al.*, 2021). For instance, when the context is more positive in nature, hedonic needs are more salient (since eudaimonic needs are certainly and easily fulfilled - Fiske, 2008). Thus, service encounters that play on these needs are more likely to fulfill hedonic values, well-being and customer delight. In contrast, eudaimonic needs are likely to be salient if the context is more negative in nature. It is therefore important for service providers to evaluate the salience of those needs in order to maximise fulfillment of the customer's salient needs, which in turn enhances their well-being and delightful experiences.

Authenticity of the service provider

From the lens of TSR, the customer–service provider interaction is framed with the ultimate goal to create well-being by fulfilling the customer's salient needs (Anderson and Ostrom, 2015; Barnes *et al.*, 2021). Previous research has stressed the importance of the service personnel in creating customer delight (Lee and Shea, 2015; Wang *et al.*, 2016). The vitality of service personnel has been evident given that the service personnel is often the "service" (Le *et al.*, 2019; Zeithaml *et al.*, 2006), but even more so in times of crisis. In fact, the employee's role is strategically important in uncertainties and disruptions because service personnel's attitudes/behaviours are most proximal to fulfilling needs associated with trust, self-enhancement, belonging and understanding (Barnes *et al.*, 2021; Steffensen *et al.*, 2018). This calls for the important role of projecting saliently the authenticity of service personnel as parts of the service provider in an attempt to enhance delightful service experience in a crisis context.

In addition to customer–service provider interaction, Parasuraman *et al.* (2020) revealed several instances that interactions between employees and their managers or other customers also influenced assessments of customer delight. Indeed, whether as a source of empathy for a service provider or a justification for critique, having experience "in the shoes" of a service provider influences customer's assessment of the current experience (Parasuraman *et al.*, 2020). All of the aforementioned elements are seen as organisational attributes, thus service-provider-focused. These elements help project the "authenticity" - the true reflection - of the service firm, or so-called authenticity of the service provider (Le *et al.* 2019, 2021). This current paper argues that, while recent research advocates the pivotal role of fulfilling customer eudaimonic needs in promoting self-transformation and thus creating a delightful experience in the crisis contexts (Barnes *et al.*, 2021), it is imperative for service firms to convey clearly and saliently their true identity, in other words, the authenticity of the service provider, through various organisational attributes translated via firm communications to customers, to shape delightful service experiences.

The role of peer-to-peer communications in times of crisis

Thanks to rapid technological advances and the rise of social media, social networking sites have become dominant peer-to-peer communication platforms dedicated to various customer communities exchanging their testimonials about products and services. These sites also allow brands to spread positive electronic word-of-mouth for the purposes of building awareness and acquiring new customers (Moran *et al.*, 2017). Such peer-to-peer communications offer researchers and service firms even more crucial implications for understanding how the customer's self is constructed, what happens to self-identity when it is presented through networks of social connections in online media environments (Papacharissi, 2010), as well as how those networking sites are leveraged by both firms and customers to maintain and enhance customer well-being and existential meanings in the wake of disruptions and crises.

The important role of peer-to-peer communications in enhancing identity formation, which in turn harnesses relationships, reciprocity and meaningful connections among peers has been emphasised in education and coaching (Simmonds and Dicks, 2018), public health (Lazard *et al.*, 2019), restaurant experiences (Kim and Jang, 2018; Vásquez and Chik, 2015), tourism experiences (Kim and Tussyadiah, 2013), and hotel experiences (Leung and Baloglu, 2015). Nevertheless, there has been limited investigation into the role of peer-to-peer communications from social networking sites in leveraging customer's self-image, sharpening customer identity, and thus contributing to enhanced eudaimonic well-being in service businesses. In line with the call for more attention to effective communications of firm's service attributes through official channels (e.g., advertising) (Rybak *et al.*, 2021) and social media (Mundel and Yang, 2021) to improve a sense of trust and certainty among customers, it is imperative for service providers to monitor their customers' peer-to-peer communications on the online domains, subsequently contributing to self-image building and well-being enhancement in times of crisis.

Research gaps

The above critical review of significant progress in the current literature on customer delight and delightful experiences over the two contexts, including non-crisis and times of crisis, has offered four critical research gaps to be addressed when the world is (hopefully) approaching a "new normal" condition in the wake of the COVID-19 pandemic. In a non-crisis service world, despite the importance of emotions in consumer behaviour studies which have been widely supported by most service researchers, the answer to how to elicit customer emotions in service consumption remains debatable. Indeed, extant service research has only showcased direct elements involved in the consumption stage such as service attributes to create a delightful experience, with only a few recent studies calling for more scholarly attention on customers' emotion conditions, needs and this study argues for the importance of customer emotions, needs and attributes in contributing to delightful experiences (Gap #1).

Secondly, the customer delight literature conceptualised in a non-crisis scenario considered customer loyalty as a significant consequence of delightful experiences, which is usually not a linear relationship. There will be avenues to examine brand attachment as a more specific and controllable consequence of delightful experiences (which can be manipulated by different delight-producing tactics of the firm) (Gap #2). Brand attachment as a result can be seen as a direct consequence of delightful experiences.

Delightful experiences in times of crisis have been conceptualised using a combined lens of transformative service research (TSR) and psychological theory on hedonic and eudaimonic human needs (Barnes *et al.*, 2021). Barnes *et al.* (2021) highlighted a lack of research examining the fulfilment of salient eudaimonic needs in times of crisis, and argued that in a crisis scenario, eudaimonic needs appear to be more salient than hedonic needs. Nevertheless, recent literature in customer delight in times of crisis has overlooked the important role of projecting saliently the authenticity of the service personnel (as an integral part of the service provider) in an attempt to enhance delightful service experience. As a result, there are potential avenues for examining how service firms can convey clearly and saliently their true identity (the authenticity of the service provider) to shape delightful service experiences (Gap #3).

In addition, there is a possibility to further investigate the role of peer-to-peer communications in enhancing customer identity formation, which in turn harnesses their relationships, reciprocity and meaningful connections with service firms (Gap #4). It is therefore imperative for service providers to monitor their customers' peer-to-peer communications on the online domains, subsequently contributing to self-image building and well-being enhancement in times of crisis. Addressing these four gaps lays a foundation for

developing a framework for conceptualising delightful service experiences in "new normal" conditions, in which the pandemic will (hopefully) be settled with certain restrictions remaining in such "new normality".

DELIGHTFUL SERVICE EXPERIENCES IN "NEW NORMAL" CONDITIONS

In order to address the above-mentioned research gaps, a conceptual framework of delightful service experiences in "new normal" conditions is much needed. Grounded on the appraisal theories of emotions, TSR, and authenticity theories, psychological processes underlying customer delightful experiences, particularly taking into account the disruptiveness and uncertainty that crises and disasters have imposed on the service industries. Based on the critical literature review and discussion on research gaps above, the following research questions are proposed to direct future research examining delightful experiences in "new normal" situations:

1. Which psychological goals/needs (i.e. hedonic, eudaimonic) generate longer-lasting delightful experiences?
2. What are most important appraisal dimensions in understanding delightful experiences in new normal context?
3. What role does the authenticity of service provider play in shaping customer emotions and delightful experiences through communication attributes?
4. Which communication attributes make significant contributions to the generation of existential meanings and self-transformation?
5. In what situations can both hedonic and eudaimonic goals/needs be fulfilled to create the best delightful service experiences?

While recent literature argues for the pivotal role of fulfilling customer eudaimonic needs in promoting self-transformation (via a combined lens of TSR and psychological needs of hedonic and eudaimonic values) and thus creating a delightful experience in the crisis contexts, this adoption does not guarantee customer's realisation of self and identity affirmation, thus the achievement of self-transformation and existential meanings is not warranted. Therefore, it is imperative for service firms to convey clearly and saliently their inherent characteristics through various consumption attributes and communication attributes to project their true identity, in other words, authenticity of the service provider. Authenticity of the service provider can be shaped by two elements: service attributes which are consumed in the service encounter, and communication attributes which consist of organisational attributes, firm communications, interaction between employees and managers, as well as peer-to-peer communications and social networking sites.

Authenticity of the service provider can take part in the emotion-building in two ways. Firstly, it can be embedded in the true reflection of the firm's identity (i.e. authenticity of the service provider), which interacts with various customer attributes to fulfil their hedonic and eudaimonic needs through the appraisal process. The two outcomes generated from this appraisal process include two routes to delightful service experiences respectively: (1) hedonic route by pleasure and (2) eudaimonic route by existential meanings and self-transformation. Authenticity of the service provider conveyed via their communication attributes will also directly trigger customer's existential meanings and self-transformation, which in turn engage customers in an inherently individualised way, thus leading to delightful service experience. Customers may realise their personal values converge with the firm's values to a certain extent, which subsequently reinforces a sense of belonging and thus enhances brand attachment.

CONCLUSION AND IMPLICATIONS

By critically accessing extant literature in psychology, marketing and service management and taking into account the disruptiveness and uncertainty that crises and disasters have imposed on the service industries, this study points out current research gaps in the existing literature and suggest future research to go beyond the dominant discussion on service attributes in creating delightful service experiences. It provides valuable insights into psychological processes forming delightful service experiences, involving key contributing factors such as customer attributes, service and communication attributes, emotions, and the authenticity of the service provider.

Academic implications

This study broadens current academic discussion on delightful service experiences by emphasising the appraisal process of emotions, and thus supporting the view of customers as experience co-creators. More importantly, amid exogenous shocks and disruption imposed to the service industries, this paper calls for more research attention on the pivotal role of the service provider and the communication of brand identity through the concept of authenticity of the service provider, which has been overlooked in the extant service research. Proposed research questions shed light on the potential research avenues on delightful service experiences in "new normal" conditions post COVID-19 pandemic. Furthermore, this study not only touches upon the research gaps emerging in the wake of the pandemic but also identifies overlooked elements in a non-crisis context, which provides a comprehensive picture of delightful service experiences that is applicable even in a non-crisis situation.

Practical implications

This study emphasises strongly the importance of using appropriate communication techniques and strategies to project organisational attributes clearly and saliently through firm communications and peer-to-peer communications in social networking sites. A service provider with authenticity gains more attention, gathers stronger appeal, conveys better credibility and thus is more likely to deliver delightful service experiences. Authenticity becomes an advantage for service providers in the experience economy. This study also suggests the importance of service firms using different communication tactics to influence delightful service experiences and thus eliciting stronger attachments towards the brand. These recommendations are deemed useful for service providers in both crisis and non-crisis contexts.

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A B2B OUTLOOK ON CUSTOMER EXPERIENCE AND ITS INFLUENCE ON FINANCIAL AND BEHAVIORAL CUSTOMER OUTCOMES

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ABSTRACT

This paper focuses on customer experience in the B2B context and proposes that customer experience through brand experience, service provider experience and post-purchase experience will influence financial (i.e. profitability) and behavioral (i.e. customer retention and customer cross-buy) customer outcomes. The research takes a longitudinal perspective and examines this impact over time. A panel dataset of 2,970 B2B customers is obtained to estimate the model, using GMM estimations. Results indicate that customer experience determines both types of outcomes, providing the first empirical evidence of the impact of the B2B customer experience on future customer outcomes.

INTRODUCTION

Customer experience has revolutionized practitioners' concerns as regards their marketing efforts and academic literature alike, with increasingly more work being developed around this concept (e.g., Bolton *et al.*, 2018; Gonçalves *et al.*, 2020). From a theoretical perspective, customer experience is considered a multidimensional construct characterized by a dynamic nature (Verhoef *et al.*, 2009; Becker and Jaakkola, 2020). It has been argued that customer experience refers not only to current experiences, as it can have a pivotal role on determining future encounters with the focal firm as well (Lemon and Verhoef, 2016). A large body of research has acknowledged that past experiences shape customer perceptions and future responses since customers will form expectations toward the provider and the future of the relationship based on their past interactions (McColl-Kennedy *et al.*, 2019).

Literature reveals that desirable customer outcomes of a positive customer experience include customer retention, satisfaction or commitment (e.g., McLean, Al-Nabhani and Wilson, 2018; Barari, Ross and Surachartkumtonkun, 2020). This further supports the relevance of adopting a customer experience approach in the customer-firm relationship. What is more, recent studies suggest that the need for meaningful experiences occurs for a great variety of products and services (e.g., Grewal, Levy and Kumar, 2009; Lemke, Clark and Wilson, 2011; Witell *et al.*, 2020), and the proliferation of available touchpoints and channels between customers and firms creates an ever bigger challenge for managing the experience (Lemon and Verhoef, 2016). In order to measure customer experience, a multi-item scale called EXQ was developed, validated (Klaus and Maklan, 2012, 2013) and further revised (Kuppelwieser and Klaus, 2021). The revised EXQ scale entails three dimensions (i.e. brand experience, service provider experience and post-purchase experience), associated with the three stages of the customer journey (pre-purchase, purchase, post-purchase) (Kuppelwieser and Klaus, 2021).

Over the last few years, the research priorities proposed by the Marketing Science Institute have been repeatedly focused on further examining the customer experience (MSI, 2018, 2020), yet there are some areas that still require more attention. While it is true that, traditionally, research on customer experience management has usually been concentrated on consumer markets, there is some evidence on the significance of customer experience in business markets as well (Witell *et al.*, 2020). The limited emphasis in B2B research is partially explained by the conventional belief that business transactions involve more rational decision making processes (Hadjikhani and LaPlaca, 2013). However, Witell *et al.* (2020) argue that focusing on the business customer's experience is extremely relevant for B2B providers, given that interactions between individuals in B2B settings are similar with those that take place between individuals within consumer markets. However, specific B2B studies are still required considering the specific

characteristics of B2B settings (Witell *et al.*, 2020). Even so, up until now studies that specifically focused on the customer experience of the business customer present limited empirical evidence of the role it might play on determining customer responses and outcomes. More importantly, given the dynamic nature of customer experience, the need for more research adopting a longitudinal perspective is exposed. In this sense, McColl-Kennedy *et al.* (2019) urge practitioners to monitor customer experience over time in order to truly observe its evolution.

In this context, more research is needed in order to obtain a better understanding of customer experience in a B2B context. Additionally, current literature acknowledges the dynamic nature of customer experience, yet no empirical research has corroborated the role of business customer experience in determining outcomes in time. To the best of our knowledge, no prior study has demonstrated its long-term impact on future customer outcomes in B2B settings. This evidence reveals important research gaps in the B2B marketing literature, which this study aims to fill by providing the much needed empirical evidence of customer experience's impact.

As a result, we develop a study in a B2B setting, examining the role of each customer experience dimension based on the revised EXQ scale (i.e. brand experience, service provider experience and post-purchase experience) in determining financial (i.e. profitability) and behavioral (i.e. customer retention and customer cross-buy) customer outcomes. We go a step further by proposing that these effects will take place in time, from one time-period to another, adding a longitudinal perspective on the influence of brand experience, service provider experience and post-purchase experience on future customer outcomes. What is more, we also take into consideration the moderating effect of relationship strength, arguing that customer experience's positive effect on customer outcomes will be intensified by a higher customer-firm relationship strength. In order to achieve these objectives, this study empirically tests the conceptual model through a 2,970 panel dataset of B2B customers. Thus, this research has relevant implications for the literature by contributing to the current understanding of the customer experience's impact, which also leads to several recommendations for a better B2B customer experience management from a managerial perspective.

The overall structure of the study is described as follows. This paper begins by presenting an overview of the theoretical background, the conceptual framework and the hypotheses development. It will then go on to describe the method, data analysis and the results. To conclude, theoretical contributions and implications for best practice are discussed.

THEORETICAL BACKGROUND AND CONCEPTUAL FRAMEWORK

Customer experience in B2B settings

The last decades have seen a growing trend towards customer experience and customer experience management (Bolton *et al.*, 2018; De Keyser *et al.*, 2020). A large and growing body of research has been dedicated to this topic, especially in consumer research, revealing the importance of customer experience as a source of competitive advantage and differentiation from competitors (Roy, 2018; Cambra-Fierro *et al.*, 2021). Customer experience is usually conceptualized as "as a customer's *journey* with a firm over time during the purchase cycle across" (Lemon and Verhoef, 2016, p. 74). Customer experience also refers to the customer's assessment of all encounters with a provider (Biedenbach and Marell, 2010; Klaus and Maklan, 2013). It is also recognized as a multi-dimensional construct, given that it involves multiple customer responses to a provider's offering throughout the entire purchase journey (Lemon and Verhoef, 2016).

However, customer experience's multi-dimensional nature and complexity make it difficult to operationalize. Several attempts have been made, yet measuring customer experience was proven to be challenging (Lemon and Verhoef, 2016). One of the most employed measures of customer experience in the literature is the EXQ scale (Klaus and Maklan, 2012, 2013) and its revised version (Kuppelwieser and Klaus, 2021). The revised EXQ scale comprises brand experience, service provider experience and post-purchase experience. Each dimension is associated with each stage of the customer journey (i.e. pre-purchase, purchase and post-purchase) (Lemon and Verhoef, 2016; Kuppelwieser and Klaus, 2021). The use of this scale has been recently validated for B2B contexts as well (Kuppelwieser and Klaus, 2021). This is especially important given that current empirical contributions to the literature have been mostly based on consumer research.

Recent developments in customer experience research have further heightened the need for more research pertaining to the B2B domain, given that substantially more research has focused on customer experience and customer experience management in consumer markets (Witell *et al.*, 2020). The specific characteristics of B2B purchases, such as the involvement of multiple actors in the decision and buying processes (Mora Cortez and Johnston, 2017), lead to an increased difficulty in accurately assessing the experience of business customers. Witell *et al.* (2020) argue that actors involved may present differences in terms of customer experience assessment given that each of them can have a unique and subjective experience. This could lead to mismatches and further hinder the efforts of accurately evaluating customer experience. Even so, business customer experience should not be overlooked, as it yields numerous benefits for providers able to provide a superior business experience (Roy, Sreejesh and Bhatia, 2019). Interactions between business customers and providers may entail some similarity to those in consumer markets (Witell *et al.*, 2020); thus, the consequences of customer experience may be just as pivotal to the continuity of B2B relationships. However, specific B2B research is needed given the particularities of business relationships.

Current literature provides some empirical evidence of the importance of customer experience in the B2B context. One of the first empirical evidence of the B2B customer experience is the work of Biedenbach and Marell (2010). In their study, the authors confirmed the effect of customer experience on brand awareness, brand associations, perceived quality and brand loyalty (Biedenbach and Marell, 2010). Other authors such as Zhang *et al.* (2016) focused on the influence of customer experience on word-of-mouth and brand association. In another study, Roy, Sreejesh and Bhatia (2019) identified the importance of customer experience in determining relevant perceptions such as perceived value and satisfaction. Additionally, other research focused also on online business customer experience (McLean, 2017) and the use of pioneer technologies such as AI, chatbots and Big Data analytics (Kushwaha, Kumar and Kar, 2021).

Nevertheless, critical understanding of the real impact of customer experience on concrete customer outcomes is still missing in the B2B literature. No evidence was found on the role customer experience plays in determining concrete financial outcomes such as profitability and neither behavioral outcomes such as customer retention or cross-buy behavior. Additionally, given the dynamic nature of B2B customer experience, it is imperative to determine its impact over time. However, no prior study has been found examining the role business customer experience plays in determining long-term customer outcomes.

Hypothesis development

Based on prior customer experience and customer journey literature, we develop a conceptual framework that examines the influence of brand experience, service provider experience and post-purchase experience on future customer outcomes as regards profitability, customer retention and customer cross-buy. We also take into consideration the moderating effect of relationship strength, arguing that the effect of a superior brand experience, service provider experience and post-purchase experience on the customer outcomes analyzed will be amplified by the perception of a stronger relationship with the provider. Figure 1 points to the proposed model. In the subsequent paragraphs, we develop the hypotheses of the proposed model.

Customer experience has been acknowledged as being dynamic over time (Verhoef *et al.*, 2009). Given its dynamism, it is widely accepted that customer experience influences both current and future encounters, affecting the continuity of the overall customer-provider relationship (Verhoef *et al.*, 2009; Lemon and Verhoef, 2016). Based on this evidence, it becomes clear that the future of a relationship may be strongly influenced by the assessment of customer experience. The literature has highlighted that focusing on developing and providing a superior customer experience has numerous benefits for firms. Its critical influence on valuable responses such as purchase intentions (e.g., Chen and Yang, 2021) and customer retention (e.g., Cambra-Fierro *et al.*, 2021), among others, has been acknowledged by a considerable amount of research. As a result, we propose the following hypotheses:

H1: Customer experience through brand experience, service provider experience and post-purchase experience will influence future profitability.

H2: Customer experience through brand experience, service provider experience and post-purchase experience will influence future customer retention.

H3: Customer experience through brand experience, service provider experience and post-purchase experience will influence future customer cross-buy.

Figure 1: Proposed model
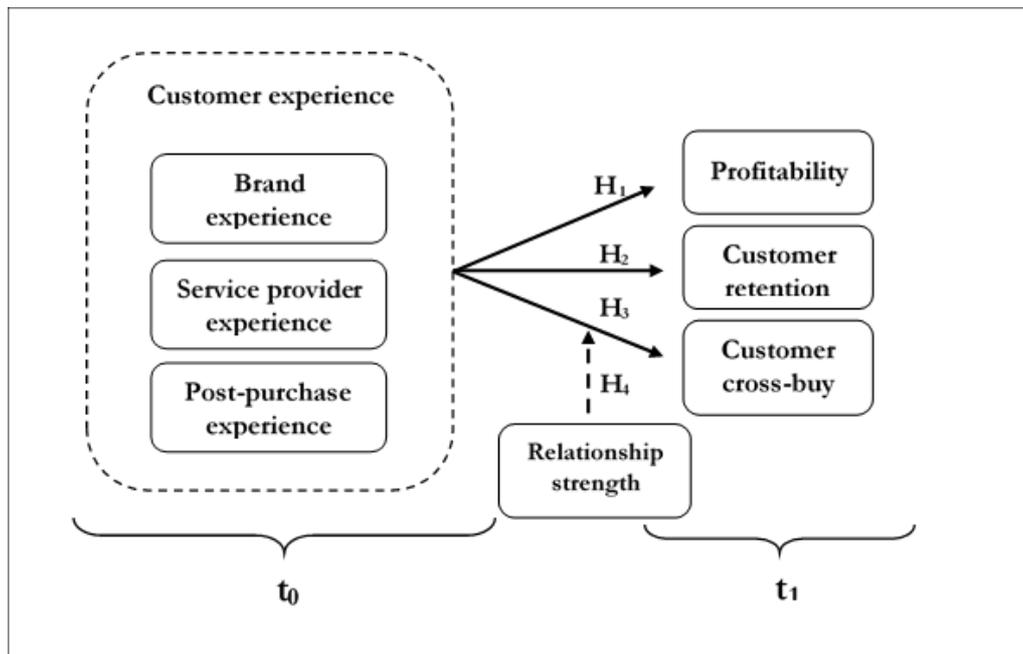
Relationship marketing literature has widely acknowledged the importance of establishing strong long-term relationships with customer (Dwyer, Schurr and Oh, 1987). Customer-firm relationships evolve in time (Dagger, Danaher and Gibbs, 2009; Chang *et al.*, 2020) and relationship strength indicates the bonds developed, being especially relevant in B2B relationships (Barry, Dion and Johnson, 2008). A series of benefits emerge from establishing solid ties with customers, such as a higher probability of repurchase and a longer customer-firm relationship (Dawes, 2009; Giovanis, Athanasopoulou and Tsoukatos, 2015). Given this evidence, we propose that a stronger relationship amplifies the positive effect of brand experience, service provider experience and post-purchase experience. We argue that customers with whom the provider developed a solid relationship are more likely to consider a superior customer experience during all customer journey stages as part of preferential treatment towards long-term and important customers. Therefore, the following hypothesis is put forward:

H4: Relationship strength will positively moderate the effect between brand experience, service provider experience and post-purchase experience, and (a) profitability, (b) customer retention, and (c) customer cross-buy.

METHOD

This section presents our approach to empirically test the proposed model. We relied on data obtained from a multinational leader, specializing in the B2B insurance sector. This company currently operates in 120 countries and counts on a workforce of approximately 50,000 employees around the world. Data consisted in a random sample of 2,970 B2B customers from the provider customer database. The B2B customers included in the sample operate in a variety of different sectors (e.g., distribution, energy, finance, construction, IT, etc.). This diversity of sectors reveals a wide range of customer profiles, with most customers operating in services industries, followed by the industrial sector and the primary sector. Moreover, the size of these firms is also varied, as the sample encompasses firms ranging from small to medium and large firms.

Given the profile of the sample, results of this research can be easily extrapolated to more business contexts. Lam *et al.* (2004) argued that employing data from a single industry increases the potential explanatory power of the model and its internal validity, and a large number of prior B2B studies also relied on data from a single provider (e.g, Roy, Sreejesh and Bhatia, 2019; Mostafiz, Sambasivan and Goh, 2021).

The panel dataset contained data collected over five years (i.e. between 2013 and 2017). Objective data was provided and included data on customer profitability, customer retention and customer cross-buy. Subjective data were also comprised in the dataset. These data were collected in the form of a yearly survey administered to the customer directly by the provider. The survey included information on customer perceptions regarding several aspects of the provide and the customer-firm relationship. All variable measurements were based on the dataset as provided by the company. The authors adapted the data provided and operationalized each variable based on academic literature as indicated in table 1.

Table 1: Operationalization of variables

Variable	Operationalization	References
Customer experience Brand experience Service provider experience Post-purchase experience	The customer's evaluation of the brand experience, service provider experience and post-purchase experience based on data from a customer survey. The measurement was adapted based on the revised EXQ scale (Kuppelwieser and Klaus, 2021).	Adapted from Kuppelwieser and Klaus (2021)
Profitability	Difference between revenues from customer i and the cost associated with the customer i during t: Profitability = Revenues – (Direct cost + Indirect cost + Business development)	Pfeifer, Haskins and Conroy (2005)
Customer retention	Dichotomous variable, yearly measured: Customer i's decision to remain with the current provider at the time t; (yes: 1; no: 0)	Verhoef (2003); Dawes (2009); Cambra-Fierro et al. (2021)
Customer cross-buy	Total number of product categories purchased from the same provider	Kumar, George and Pancras (2008)
Relationship strength	Customer i's evaluation of their solid ties with the current provider.	Barry, Dion and Johnson (2008); Ruz-Mendoza et al. (2021)

Panel datasets are widely acknowledged as presenting a series of benefits, such as controlling for possible measurement errors (Wansbeek, 2001). This way the estimation bias and data multicollinearity are also reduced (Hsiao, 1985). To estimate the proposed model, several estimations were developed based on the Generalized Method of Moments (GMM) methodology (Blundell and Bond, 2000). This specific methodology was employed, given its wide adoption in the literature for analyzing dynamic panel data (e.g., Gafter and Tchetchik, 2017; Lim and Zhu, 2018; Lin et al., 2021). Other methods used for panel dataset are represented by fixed-effects estimations and random-effects estimations (Antweiler, 2001; Lee and Yu, 2010). However, these methods are suitable for static panel data (Egger and Pfaffermayr, 2005; Schunck, 2013) and present limitations such as potential bias generated by unobserved heterogeneity or developing a less efficient estimation given by a greater variance (Stock and Watson, 2008).

Based on this evidence, we decided on using the GMM estimator proposed by Arellano and Bond (1991) and Blundell and Bond (1998), which is more appropriate given the dataset employed. We controlled for endogeneity by using as internal instruments the lagged values of the dependent variables (Ullah, Akhtar and Zaefarian, 2018). The estimations were performed using STATA 16.

RESULTS

A series of tests have been performed so as to verify the model fit. Given the results of the Wald test, the Hansen test and the Arellano-Bond test for second order (AR2), the validity of the model is corroborated. On this basis, the estimation results are available in table 2.

Table 2: Estimation results

Independent variables	Dependent variables		
	Profitability (t_1)	Customer retention (t_1)	Customer cross-buy (t_1)
Intercept	0.6656***	0.8505***	0.1039***
Customer experience			
Brand experience (t_0)	0.0527***	0.1128*	0.0736***
Service provider experience (t_0)	0.0848***	0.0308*	0.0225
Post-purchase experience (t_0)	0.0347***	0.1306**	0.0839***
Moderating effect			
Brand experience x Relationship strength	0.1013***	0.0182	0.1051***
Service provider experience x Relationship strength	0.0041***	0.0501	0.0183
Post-purchase experience x Relationship strength	0.0066***	0.0328*	0.0930***

Note: ***$p < .01$, **$p < .05$, *$p < .10$.

As regards the impact of customer experience on future profitability, results indicate significant effects of brand experience (β = .0527, $p < .01$), service provider experience (β = .0848, $p < .01$) and post-purchase experience (β = .0347, $p < .01$); therefore, H1 is supported. Our results also confirm statistical significance for the influence on customer retention of brand experience (β = .1128, $p < .10$), service provider experience (β = .0308, $p < .10$) and post-purchase experience (β = .1306, $p < .05$); these findings support H2. We also found some significant effects on future customer cross-buy. Results indicate that brand experience (β = .0736, $p < .01$) and post-purchase experience (β = .0839, $p < .01$) positively affect customer cross-buy, while for post-purchase experience no significant effect was found; thus, H3 is partially supported. Based on these results, we corroborate that brand experience and post-purchase experience positively affect all customer outcomes analyzed, while service provider experience positively affects future profitability and future customer retention.

With respect to the moderating effect of relationship strength, results indicate that relationship strength positively moderates the effect of brand experience (β = .1013, $p < .01$), service provider experience (β = .0041, $p < .01$) and post-purchase experience (β = .0066, $p < .01$) on future profitability; thus, these findings support H4a. We also found statistical significance for the moderating effect in relation with the impact of post-purchase experience on customer retention (β = .0328, $p < .10$), yet no significant effects for brand experience and service provider experience; hence, H4b is partially supported. Last but not least, relationship strength also positively moderates the effect of brand experience (β = .1051, $p < .01$) and post-purchase experience (β = .0930, $p < .01$) on future customer cross-buy, yet no effect was found for the moderating effect in the case of service provider experience; therefore, H4c is partially supported. Table 3 reviews the result of the hypotheses tests.

DISCUSSION AND CONCLUSIONS

Theoretical contributions

This research was developed in a B2B setting and identified the impact of customer experience through brand experience, service provider experience and post-purchase experience on a series of key customer outcomes. After presenting the findings of this study, we will now examine the major theoretical contributions and managerial implications.

First, customer experience and customer journey have become some of the most important research priorities of the last few years. Numerous studies focused on customer experience (e.g., De Keyser *et al*, 2020; Gonçalves *et al.*, 2020); however, much of the literature also lacks a representation of the B2B customer experience, as further empirical research is needed for better understanding the B2B context (Witell *et al.*, 2020). In this context, this study focused on the B2B context and provided much needed empirical evidence of the importance of customer experience for the business customer, contributing to the literature's understanding of the B2B customer experience.

Table 3: Results of hypotheses tests

Hypothesis	Relationship	Result	Support
H1	Brand experience → Future profitability	Significant	
	Service provider experience → Future profitability	Significant	Supported
	Post-purchase experience → Future profitability	Significant	
H2	Brand experience → Future customer retention	Significant	
	Service provider experience → Future customer retention	Significant	Supported
	Post-purchase experience → Future customer retention	Significant	
H3	Brand experience → Future customer cross-buy	Significant	
	Service provider experience → Future customer cross-buy	Not significant	Partially supported
	Post-purchase experience → Future customer cross-buy	Significant	
H4a	Brand experience x Relationship strength → Future profitability	Significant	
	Service provider experience x Relationship strength → Future profitability	Significant	Supported
	Post-purchase experience x Relationship strength → Future profitability	Significant	
H4b	Brand experience x Relationship strength → Future customer retention	Not significant	
	Service provider experience x Relationship strength → Future customer retention	Not significant	Partially supported
	Post-purchase experience x Relationship strength → Future customer retention	Significant	
H4c	Brand experience x Relationship strength → Future customer cross-buy	Significant	
	Service provider experience x Relationship strength → Future customer cross-buy	Not significant	Partially supported
	Post-purchase experience x Relationship strength → Future customer cross-buy	Significant	

Second, this study further contributes to the customer experience and customer journey literature by providing the first empirical evidence on the impact of B2B customer experience on customer outcomes. In this sense, up until now, the current literature relied on fragmented evidence of the impact of customer experience in the B2B context (e.g., Biedenbach and Marell, 2010; Zhang *et al.*, 2016; Roy, Sreejesh and Bhatia, 2019). No prior study specifically considered both financial and behavioral outcomes. As a result, determining the real impact of customer experience on specific outcomes from an empirical perspective has become an imperative for the B2B research. In this context, this study is the first to corroborate that each stage of the customer journey through brand experience, service provider experience and post-purchase experience determines a series of vital customer outcomes in B2B settings. Several discrepancies in effects are identified, demonstrating that each stage of the journey affects differently a variety of customer outcomes.

Finally, several authors recognized the need for more studies taking longitudinal approach in examining customer experience (McColl-Kennedy *et al.*, 2019). Given the dynamic nature of the customer experience (Lemon and Verhoef, 2016), longitudinal studies are needed to determine its impact over time. However, up until now, no B2B study focused on customer experience's impact over time. On this basis, this research significantly contributes to the literature by analyzing the B2B customer experience from a longitudinal perspective, corroborating the role of customer experience in determining future profitability, customer retention and customer cross-buy.

Managerial implications

Customer experience has also become one of the main concerns for practitioners, given the extraordinary investments made in customer experience management (Lemon and Verhoef, 2016). As a result, the findings of this study also entail some key managerial implications. In what follows, we turn to presenting the major recommendations for best practice given the findings of this research.

First, we advocated for providing a superior experience during all customer journey stages, as each plays a distinctive role in determining key customer outcomes over time. For this reason, practitioners are encouraged to constantly monitor customer experience by receiving regular feedback from customers. In this sense, managers could employ surveys to assess the brand experience during the pre-purchase stage of the customer journey, the service provide experience for the purchase stage, and the post-purchase experience (Kuppelwieser and Klaus, 2021). We recommend to determine the customer's evaluation of each stage, instead of overall evaluations of the customer experience. This is especially important, since counting

on customer feedback during the different stages of the purchase journey is a more reliable measure of the likelihood of continuing the relationship with the provider.

Second, practitioners should not overlook the importance of each and every touchpoint in determining the B2B customer experience throughout the customer journey (Lemon and Verhoef, 2016; Witell *et al.*, 2020). In this sense, we encourage managers to rely on techniques such as customer journey mapping in order to identify each touchpoint of their customer journey with the firm. Identifying each touchpoint provides the unique chance to recognize opportunities for improvements. This is vital for resource allocation, as practitioners could focus their efforts on those specific aspects that need amelioration and, this way, improve the customer experience.

Third, customer-firm interactions entail numerous touchpoints, involving increasingly more the use of new technologies such as AI or chatbots (Sidaoui, Jaakkola and Burton, 2020). These new touchpoints generate a large quantity of valuable data that can be employed to further improve the customer experience. In this context, we recommend managers to rely on big data analytics so as to manage each stage of the customer journey and every touchpoint (Malthouse *et al.*, 2019; Hallikainen, Savimäki and Laukkanen 2020).

Last but not least, owing to the influence of relationship strength, we recommend managers to employ customer relationship management (CRM) systems (Stein, Smith and Lancioni, 2013; Garrido-Moreno *et al.*, 2020). This way, firms benefit from more detailed information on the relationship with every customer, which can be employed to further strengthen it. By doing this, companies have the opportunity to develop more solid bonds with their customers.

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DESIGNING CUSTOMER ENCOUNTER FROM THE PERSPECTIVE OF RESOURCE UTILIZATION

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ABSTRACT

With the development of technology, services are becoming more and more electronic and automated. A conditional control experiment is conducted to evaluate the impact of customer service on customer impressions. Using a budget hotel as an example, the 27 participants playing the role of customers experience three patterns of check-in and completes a questionnaire. As a result, memorable situations were divided according to the attitude of the staff not to the device a customer use. What this result suggests is that it is necessary to consider more effective processes even with the same type of human and technological resources.

INTRODUCTION

With the development of technology, services are becoming more and more electronic and automated (Wells *et al.* 2004). One of the objectives of technology adoption to service is to improve and enhance business operations by focusing human resources on customer contact points (Chathoth 2007) (Shin *et al.* 2019). On the other hand, there are some companies and stores that are cautious about implementing the technology due to risks and concerns such as undesirable reactions from customers (Mick and Fournier 1998).

The introduction of technology change or replace a part of service operations. In particular, technology that allows customers to receive services independently is called "self-service technology" (Dabholkar 1996) (Meuter *et al.* 2000). Related research focuses on how the introduction of technology can make the activities of staff and customers more efficient, and analyzes the adaptability of them to technology. From the perspective of resource utilization, this study identifies the impact of service processes including technology on customers' impressions of staff.

This study will compare the combination of two types of technology and staff attitude through experiment on service experience at check-in process of a budget hotel. With a result of the experiment, the introduction of self-service technologies and service design is discussed.

TECHNOLOGY RESOURCES IN THE HOTEL INDUSTRY

Technologies are being introduced to save labor power at the customer encounter of services. Self-service technologies are the technologies that are used to replace the work of front-side staff. A part of the service process proceeds through the interaction between a customer and a device. The introduction of technology affects not only the efficiency and effectiveness of operations, but also the customer experience (Dabholkar 1996) (Meuter *et al.* 2000).

On the other hand, there is the introduction of technology to improve the customer experience through making staff and customer activities more efficient and effective. The adaptability of the staff and customers who use the technology influences the utility of technology (Bitner *et al.* 2000) (Dabholkar 1996).

In addition, Shin *et al.* (2019) discussed technology adoption from a service management perspective (Figure 1). As an approach to technology adoption, the study stated that a qualitative analysis of utility, a framework for understanding effectiveness, and a deeper understanding of management's perception of the impact on customer experience were needed.

Figure 1: The front desk technology operations framework(Shin *et al.* 2019)
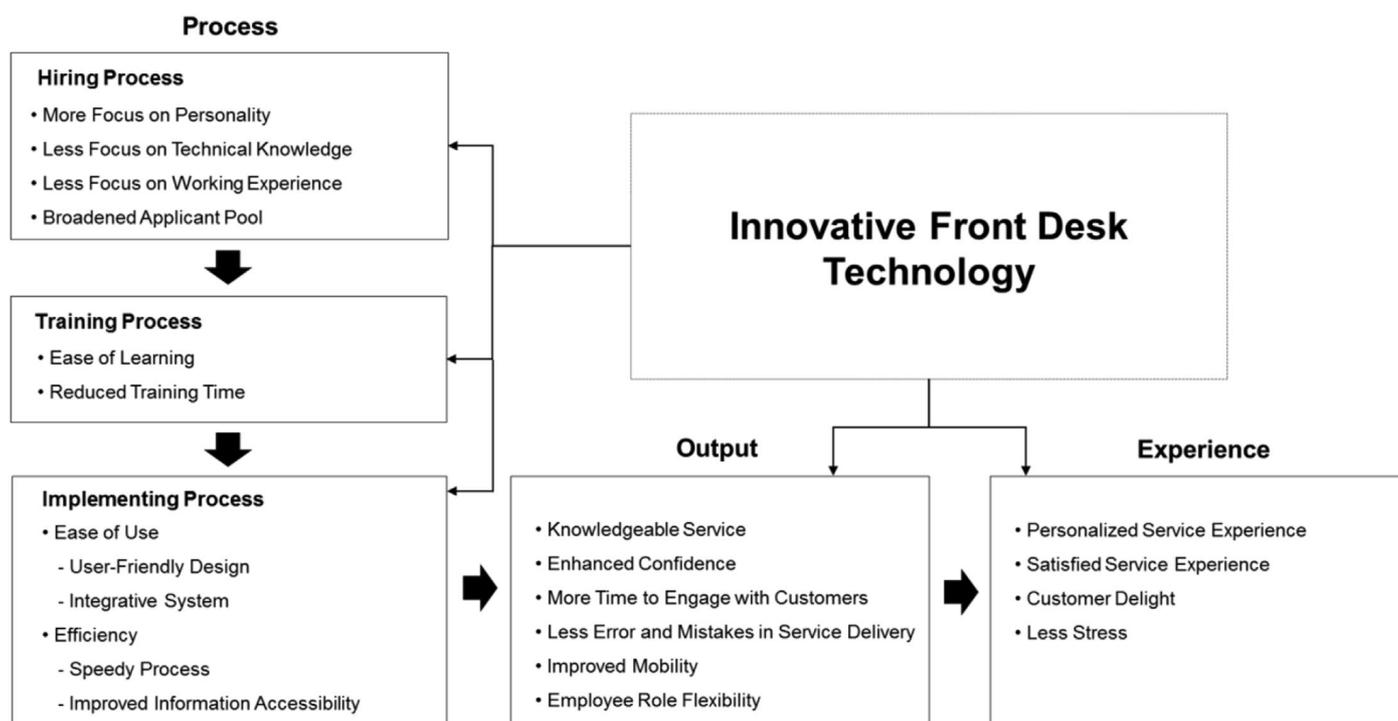
HUMAN RESOURCES IN THE HOTEL INDUSTRY

In the hotel industry, human resource management (HRM) is one of the most important topics, as in other service industries. The hotel's success depends on its HRM (Murakami *et al.* 2011) and HRM is universally relevant within the hotel industry (Hoque 1999) An algorithm to derive effective resource allocation of staff by matching the skills required for the job with the skills possessed by the staff is also being investigated (Murakami *et al.* 2011).

In addition, the impact of business activities on the environment has become a hot topic from the scope of sustainability. In human resource management, the utility of the related concept of GHRM (Green Human Resource Management) has also been analyzed, and GHRM is effective for hotel performance (Kim *et al.* 2019).

METHOD

A conditional control experiment will be conducted to evaluate the impact of customer service on customer impressions. Using a specific budget hotel as an example, we conduct an experiment on check-in at the front desk, which is the main contact point with customers. With the cooperation of Super Hotel Co., Ltd., which operates a hotel chain specializing in accommodation, I conduct an experiment using the environment of an actual hotel in Hommachi, Osaka (Super Hotel Co., Ltd. 2020).

The 27 participants playing the role of customers experience a check-in and complete a questionnaire to evaluate the experience and the staff. For the experimental conditions, the attributes of the participants are controlled. Specifically, occupation (student), gender (male), age (20s), and experience of using accommodation services are limited. For the experience of the target accommodation services, the participants have to have stayed at a business hotel and have not used the hotel.

The experiment employed three types of customer encounters, which are designed with 2 devices and 2 types of staff's attitude. One of the devices (Device1) is located on a front counter and customers are supposed to follow the instructions given by the staff to confirm and enter their information on its interface(Figure 2). With the other device (Device2), customers perform the operations based on the instructions displayed on its screen (Figure 3). The second device is a kind of SST and the basic check-in process can be carried out by the customer him(her)self.

Figure 2: Device 1 used for check-in with staff's support (Super Hotel 2020)

Figure 3: Device 2 used for check-in by customers (SST) (Super Hotel 2020)

One pattern of staff attitude is "proactive", where the staff tries to help the customer. On the other hand, the condition of "passive" means that they will not do anything until the customer asks them to. In the first device, the passive attitude condition is excluded because it presupposes instructions from the staff. In the following, the condition with the first device is called CE1(Customer Encounter type 1), the one with the second device and with "proactive" is CE2, and the other one with the second device and with "passive" is CE3. Six different orderings are assigned with the consideration of the order effect (Table 1).

Table 1: Orderings of experienced encounters

Order of encounters	No. of participants(sum:27)
CE1 - CE2 - CE3	4

CE1 - CE3 - CE2	4
CE2 - CE1 - CE3	5
CE2 - CE3 - CE1	4
CE3 - CE1 - CE2	5
CE3 - CE2 - CE1	5

The staff member who served the customers in the experiment is an employee of the Super Hotel, and she is in charge of serving the customers in all the surveys. The staff simulates each of the three types of processes to familiarize with each condition, before the survey. The survey is conducted during the hours of 10:00 am to 3:00 pm, when the staff are removed from the front desk in daily operations. This is also the time when real customers are not allowed to check in. Since there is a possibility that real customers might be present in the research environment, I have the participants carry a suitcase prepared for the experiment as their luggage in addition to their daily bag so that the staff can identified the research subjects.

The process of data collection includes a role-play of a customer whose experience as a traveler staying in the target chain hotel is described in a short movie. The experiment participants firstly watch the movie and then answer a pre-questionnaire. Pre-questionnaire is about their expectation to related service (budget hotels). In the main phase of the experiment, they check-in at the front desk once and complete a questionnaire about their service experience at that check-in for each of the three conditions.

The front desk is located on the second floor of the hotel building, and when real customers visit this hotel, they enter the building and take the elevator up to the second floor. As shown in the Figure 4, the front desk is located on the left side of the lobby. The flow of check-in experiment is constructed as follows.
- Start from the entrance of the building on the first floor.
- Take the elevator up to the second floor.
- Check in at the front desk.
- After the check-in procedure, take the elevator (back to the first floor in this survey).

Figure 4: A view of front desk from an elevator

The measurement scales for customers' evaluation are designed about the service staff based on SERVQUAL. Staff's appearance is set for tangibility, for example. In addition to five dimensions of SERVQUAL, total customer service is evaluated and the most memorable situations are asked. The participants are asked to answer with a 7-point scale(1: I don't agree at all 7: I strongly agree) and to choose one scene from a list of candidates.

Those questions are as follows;

Pre-questionnaire
- Q2 Appearance of staff should be neat and tidy
- Q3 The behavior of staff should be trustworthy
- Q4 Staff should respond quickly for customers
- Q5 Staff should be well-informed and courteous
- Q6 Staff should be aware of needs and respond to requests
- Q7 Staff's attitude and impression should be good

Main-questionnaire
- Q2 The appearance of the staff was neat and tidy
- Q3 The behavior of the staff was trustworthy
- Q4 The staff was quick to respond for you
- Q5 The staff was knowledgeable and courteous
- Q6 The staff was aware of your needs and responded to the requests
- Q7 The staff's attitude and impression was good
- Q8 Which scene did the staff leave the most positive impression on you?

A list of candidates of scenes for Main-Q8
- Welcoming
- Guide of where and how to check-in
- Reservation confirmation
- Guide of whole stay
- Guide of nightwear
- Guide of pillow
- Seeing off (a customer in front of an elevator)
- Help for a trouble
- Responding to questions

RESULT AND DISCUSSION

As a result, there was no significant difference in each evaluation item regarding the quality of customer service. The table 2 shows the gaps between answers to pre-questionnaire and those of main-questionnaire. There were actually some differences, among types of CE on the same dimension. For example, Q5 "The staff was knowledgeable and courteous" was smaller on CE2 rather than CE1 and CE3. Additional investigation and the experimental configuration for more detailed analysis should be considered.

Table 2: Result of evaluation to each dimension

	Q2	Q3	Q4	Q5	Q6	Q7
CE1-Pre	Mean : 0.815	Mean : 0.444	Mean : 1.07	Mean : 0.78	Mean : 1.15	Mean : 0.889
	S.D. : 1.27	S.D. : 1.25	S.D. : 1.44	S.D. : 1.15	S.D. : 1.66	S.D. : 1.53
CE2-Pre	Mean : 0.852	Mean : 0.333	Mean : 1.22	Mean : 0.48	Mean : 1.33	Mean : 0.926
	S.D. : 1.32	S.D. : 1.24	S.D. : 1.25	S.D. : 1.25	S.D. : 1.44	S.D. : 1.30
CE3-Pre	Mean : 0.852	Mean : 0.296	Mean : 1.19	Mean : 0.704	Mean : 0.926	Mean : 0.704
	S.D. : 1.35	S.D. : 1.27	S.D. : 1.62	S.D. : 1.30	S.D. : 1.57	S.D. : 1.68

The following Table 3 was the result of the most memorable "scenes" for the staff.

Table 3: Result of scenes impress most

Q8 : Scenes	CE1	CE2	CE3
Welcoming	2	2	3
Guide of where and how to check-in	1	2	0
Reservation confirmation	10	10	1
Guide of whole stay	5	5	12

Guide of nightwear	0	0	1
Guide of pillow	0	1	0
Seeing off (a customer in front of an elevator)	7	7	10
Help for a trouble	1	0	0
Responding to questions	1	0	0

CE2 and CE3, which share the same device used, differed greatly in the situations that left a lasting impression. On the other hand, CE1 and CE2, which share the same staff attitude of "proactive," showed a great deal of similarity in their responses. Although the activities that the customers do differ depending on the device, the attitude of the staff has an influence on the impression of customer experience.

CONCLUSION

The same kind of human and technology resources can change the way customers perceive them. What this result suggests is that it is necessary to consider more effective processes even with the same type of human and technological resources. In other words, it shows the potential of service design for resource utilization. Particularly in recent years, due to the influence of COVID-19, there are studies that recommend the introduction of more technology into customer contact points (Gonzalez *et al.* 2020). Although the introduction of technology is necessary, it is more desirable to consider the value that can be provided by interpersonal interaction and the provision of better services at necessary points of contact. Therefore, even if it is self-service technologies that aim to save manpower, service design is important for their effective utilization.

The survey was conducted in a specific hotel with a narrow focus on the customer domain. Thus, the generality of the results needs to be investigated in the future. On the other hand, the differences of customer impression were clear, and I believe that the results show a certain importance of the usefulness of service design for resource utilization. Through experiments at actual service sites, it was shown that the impact on customer evaluation cannot be managed simply by replacing technology, but requires the use of resources in accordance with the desired effect. This provides a perspective on the interpolation of the roles of human and technological resources in the further development of the use of technology in customer contact.

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RETHINKING THE TOURIST EXPERIENCE VIA EXPLICIT ONLINE RECOMMENDATIONS

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ABSTRACT

This study examines the impact of recommendations made about specific features of tourism attractions on the overall sentiment of online reviews. We have four goals: (i) to identify online reviews with explicit recommendations using deep-learning; (ii) to analyse the most important topics in the tourist experience through content analysis; (iii) to examine how the valence of service-based aspects determine overall sentiment; (iv) to assess the impact of photos on the polarity of explicit recommendations. We crawled 19,962 online reviews posted on TripAdvisor during 2015-2019 about three key Venetian attractions. Understanding customers' sentiments helps tourism managers to improve service performance.

INTRODUCTION

Customers are increasingly valuing tourism service experiences; they are looking for destinations that have the potential to meet their needs with unique, memorable and positive experiences (Bigne *et al.*, 2020). Attractions are the core products of tourism destinations. Customer experience is particularly relevant to tourism attractions because consumers spend time and money on them and are highly involved in the consumption of the attractions and their complementary services (Simeon *et al.*, 2017). Notwithstanding the growing interest of academics in examining customer experiences of tourism services, a recent bibliometric analysis (Kim and So, 2022) showed that, surprisingly, very few studies have investigated the structure of customer experience with tourism services. Hence, understanding customers' sentiments and evaluations of attractions as a result of their experiences may generate a sustainable and unique advantage for destination marketing organisations (DMOs).

The increasing number of online reviews of attractions makes it difficult for readers to consult all reviews to make an informed decision. For example, there are more than 41,000 reviews about the Grand Canal on TripAdvisor. Furthermore, potential travellers may have concerns about the professionalism of the gondoliers, being overcharged or facing long queues, and they may doubt if the canal is worth visiting. Explicit recommendations are the "speaker's declaration that the object is appropriate for others" (Packard and Berger, 2017, p. 573). Reviewers who make explicit recommendations of services by using expressions such as "a must visit", "don´t miss" or "beware of" may help other consumers in their decision-making processes. Explicit recommendations have a strong persuasive effect on consumers because they reveal the endorsers' considered opinions of the service experience (Guerreiro and Rita, 2020); for example, if the reviewer did not enjoy the experience, s(he)would recommend the attraction be avoided. While previous studies have provided valuable insights into the role of online reviews in the field of consumer purchase decision-making, little attention has been focussed in the tourism literature on the sentiments reflected by explicit recommendations made on social media sites (Siering, 2018; Guerrero and Rita, 2020).

Recent studies have identified various elements that influence the online ratings of tourism services (Taecharungroj and Mathayomchan, 2019; Yoon *et al.*, 2019). However, there has been limited research into how reviewers' sentiments at the attribute level of attractions (e.g., value for money) affect their overall assessments of tourism services (Bigne *et al.*, 2021; Siering, 2018). Sentiment polarity analysis is based on techniques that assign polarities, positive, neutral, and negative, to opinions, and provides valuable information through text analysis (Duan *et al.*, 2016). A second theoretical gap is that the literature treats tourist experience as either a positive or negative construct. However, consumers often have mixed feelings about their experiences. For example, a tourist visiting the Grand Canal may be happy with the vistas but unhappy with the gondolier. The *accessibility-diagnosticity* (AD) model (Feldman and Lynch, 1988) and

literature on compensatory models (Johnson and Meyer, 1984) provide theoretical grounds to argue the asymmetric effects of positive and negative experiences on behaviours. In this context, testing the effects of the positive and negative aspects of each of the dimensions of the tourist experience on his/her overall assessment of the attraction may prove valuable.

Photos posted by reviewers are currently the most important information transmitter in the sharing of travel experiences (Hunter, 2016). Previous research has focussed on the impact of images on the tourist's behavioural patterns (Miah *et al.*, 2017), feelings (Pan *et al.*, 2014), perceived helpfulness (Ma *et al.*, 2018) and destination image (Hunter, 2016), while neglecting the impact of photos on the sentiment of explicit recommendations.

The key aim of this research is to examine the impact of mixed (positive and negative) sentiments about specific features of attractions and pictorial content on the polarity of online reviews containing explicit recommendations. This research adds to the tourism literature by combining deep learning applied to natural language processing and regression analysis to identify how the positive and negative components of the tourist experience impact on the overall sentiment of online reviews with explicit recommendations. Drawing on the accessibility-diagnosticity model, we examine the role of sentiments related to five dimensions of the tourist experience (cognitive, social, affective, sensory and behavioural). We followed a four-step process: (i) classification of online service reviews containing explicit recommendations versus general reviews through a deep learning-based sentiment analysis; (ii) identification of the most important aspects of the tourist experience in reviews containing explicit recommendations through content analysis; (iii) combining machine-learning techniques and regression analysis we identify the relationships between the positive/negative valence of service-based aspects of online reviews and the overall sentiment of explicit recommendations; (iv) we assess the effect of photos on the overall polarity and service aspect-based polarity of explicit recommendations.

LITERATURE REVIEW

Customer service experience

The term 'experience' is often used to refer to the subjective mental state felt by consumers towards product offerings in service settings that involve hedonic consumption, for example, in travel, restaurants, hotels and the arts (Holbrook and Hirschman, 1982). Customer experience has emerged as a key concept throughout the customer journey (Lemon and Verhoef, 2016). A review of the literature suggests there are several components of the customer service experience (Brakus *et al.*, 2009; Homburg *et al.*, 2017; Schmitt, 1999). Homburg *et al.*, (2017) proposed a five-dimensional customer service experience model comprising sensorial, affective, cognitive, relational and behavioural facets, and Brakus *et al.* (2009) a four-dimensional model with intellectual, affective, sensory and behavioural experiences. Schmitt (1999) argued that customers may be affected by sensory, affective, behavioural, intellectual and social experiences. Verhoef *et al.* (2009) viewed the customer experience as a multidimensional construct comprising cognitive experiences (THINK), sensory experiences (SENSE), affective experiences (FEEL), physical experiences, behaviours and lifestyles (ACT), and social-identity experiences (RELATE).

Tourist experiences are recognised, by their complex nature, as having several dimensions (Kim and So, 2022). The experiential concept has been widely examined in tourism studies since experience is the core benefit consumers derive from service-oriented offerings. In this study we follow Homburg *et al.*'s (2017) conceptualisation of an experience construct composed of five dimensions: sensory (stimulation of any of the five senses: sight, hearing, touch, taste and smell), affective (emotions elicited through interaction with the attraction that makes the experience memorable), behavioural (interactions with the physical environment of the attraction), social (interactions with staff and with other customers) and cognitive (problem-solving and intellectual experiences). We posit that the tourist experience is derived not only from the core experience at the attraction, but also from the supporting facilities and complementary services (cafes, shops, public seating, etc.), sensory experiences (e.g., vistas, music) and the transport used to get to and move between attractions, and interactions with service employees and other customers in overcrowded destinations. Based on a literature review of the dimensions of the customer experience we propose the following research question: *RQ1. Which are the most important aspects of the tourist experience in reviews containing explicit recommendations?*

Sentiment analysis

The *accessibility-diagnosticity* (AD) model (Feldman and Lynch, 1988) explains how people form attitudes that guide behaviour (or proximate determinants of behaviour such as judgments) based on the accessibility and diagnosticity characteristics of inputs. In the case of tourist attractions, the service experience generates sentiments that serve as a set of inputs that are based on different aspects of that service. For instance, reviewers may draw on their experiences with different aspects of the service, such as the attraction guide, its value for money, ease of access to the attraction or the negative effects of overtourism (queues, etc.) in mature destinations. The AD model proposes that reviewers' judgments (recommendations) of a service are likely to be influenced by sentiments formed about relatively accessible individual service-specific aspects that, therefore, readily come to mind when making recommendations. Drawing on the AD model we propose that all dimensions of the tourist experience (cognitive, social, sensory, affective and behavioural) have a direct impact on the customer's overall assessment of a tourism attraction.

H1. Consumers' sentiment polarity about the (a) cognitive, (b) social interaction, (c) sensory, (d) affective and (e) behavioural dimensions of the tourist experience have a significant impact on their overall polarity.

Online reviews give insights that help tourism providers understand service evaluations. Sentiment analysis of negative reviews might highlight where attractions have failed to deliver services, while an analysis of the most enthusiastic reviews posted by loyal visitors can provide suggestions as to how to reach more visitors and reinforce revisit intentions among these loyal tourists. Compensatory models (Johnson and Meyer, 1984) propose that consumers make trade-offs, by a type of linear compensation, between attributes when choosing products. In a non-compensatory decision-making process some attributes are not considered. This perspective suggests that only relevant attributes will be considered because consumers use only limited cognitive effort (for details, see Hoyer, 1984). In a compensatory model the overall sentiment should reflect the summary effect of the content of a post covering various specific attributes. However, if consumers follow a non-compensatory process, only some attributes will determine the overall sentiment. Extending this view into the social media context, we propose that users search for information and take into account all relevant data when making decisions, and that the valence of online comments might affect overall polarity in different ways due to compensatory information processing. Therefore, we posit;

H2. The number of positive words in a review about the (a) cognitive, (b) social interaction, (c) sensory, (d) affective and (e) behavioural dimensions of the tourist experience has a positive relation to its overall polarity.

H3. The number of negative words in a review about the (a) cognitive, (b) social interaction, (c) sensory, (d) affective and (e) behavioural dimensions of the tourist experience has a negative relation to its overall polarity.

Photos posted by reviewers can easily communicate the primary tourism activities, experiences and complementary aspects of an attraction often ignored in posts or comments (Ma *et al.*, 2018). When reviewers add images of attractions they enhance their reviews' diagnosticity as they communicate emotion, increase content vividness and increase the reader's empathy with the reviewer (Bigne *et al.*, 2021). The photo background a tourist chooses can convey his/her feelings and admiration of the pictured destination (Deng and Liu, 2021). Pictorial content increases vividness because it is more salient than text and, thus, attracts more attention. Furthermore, customers' sentiments about specific aspects of attractions perceived to be diagnostic are likely to influence their recommendations (Bigne *et al.*, 2021; Simeon *et al.*, 2017). Therefore, we pose the following research question: *RQ2: Do photos posted by reviewers with their online reviews influence the polarity of their recommendations?*

METHOD

Sample description

We crawled all the English language reviews with at least one helpful vote (19,962) posted on TripAdvisor during 2015-2019 about the three Venetian attractions with the highest number of online reviews, St. Mark's Square, the Grand Canal and the Doge's Palace. The attractions were selected based on: (i) an overall rating of 4.5/5 and TripAdvisor certificate of excellence awards; (ii) all are cultural attractions; (iii) creating similar information overload; (iv) they are physically very close. The data were crawled during February 2020. We analysed the review texts, headings and number of pictures posted.

Deep learning

The explicit recommendation/general classification status of the texts was undertaken through a binary classification powered by a deep neural network. Deep learning is a class of ML technique applied to natural language processing (NLP) (Deng, and You, 2014; Timoshenko and Hauser, 2019). We used software specifically developed for the hospitality industry, based on free open-source tools available on OpeNER (https://www.opener-project.eu/project/), an NLP platform (García-Pablos *et al.*, 2016), and deep learning open-source tools.

The first step was to generate in-domain word embeddings (Rudkowsky *et al.*, 2018). These word embeddings are fed into a recurrent neural network, a long short-term memory (LSTM), which uses all the words in a document (i.e., online review) in the order they appear in the text to build a dense representation of the whole document. The outcome is that the document representation is converted into two values which, after passing through a softmax layer, describe a probability distribution over two possible classes (i.e., being a explicit recommendation vs. being a general comment). We used recurrent neural network architecture with LSTMs (Hochreiter and Schmidhuber, 1997) as the recurrent unit. For training purposes two researchers manually labelled a set of 600 customer comments as being either explicit recommendations or general comments. Using these manually labelled comments the algorithm automatically balanced both classes to avoid biasing the classifier towards the more frequently used class. From the resulting balanced set of labelled comments, 80% were used as training data, while the remaining 20% were retained as evaluation data to assess if the classifier keeps learning and improving its predictions on unseen data after each training epoch. In the experiments more than 72% of the test comments (not used for the training) were correctly classified as being explicit recommendations or general comments based on the gold annotations, which is reasonably high considering the subjective nature of the task. When the training was completed, the resulting model was stored and used to predict the more probable class of new unseen examples that used the outputs of the last layer to predict the likelihood of the text being a explicit recommendation or general. Eventually, 15,424 (77.3%) of the online reviews were classified as being explicit recommendations.

Sentiment analysis

The sentiment polarity analysis process involved several steps. First, the data (text) were extracted and cleaned. The languages used were automatically detected and unwanted languages were filtered out to avoid noise. The texts were then segmented into sentences and tokens which, broadly speaking, are words and punctuation marks. Following this, part-of-speech tagging (PoS tagging) and lemmatisation processes were carried out. The PoS-tagging consists of determining the corresponding morphosyntactic category for a word, given its context (e.g., in the sentence "amazing experience", "experience" is a noun, "amazing" is an adjective). Lemmatisation obtains the canonical form of a word as it would appear in a dictionary. Both PoS tagging and lemmatisation help reduce the target vocabulary and simplify later processes. Next, the polarity of each sentence was calculated using Bing Liu's (2010) well-known English polarity lexicon. As this lexicon is domain independent, some manual revision was undertaken to discard irrelevant words. In this step, negation is considered as a polarity shifter, which means that words in the scope of a negation particle represent the opposite polarity (e.g., "good" is positive but, in the scope of the negation "not", as in "not good", it becomes negative). The *overall sentiment polarity* of sentences was calculated using the ratio of positive (or negative) words detected, after taking into account negation.

A further step applied a similar dictionary-based approach to classify each piece of text into a set of predefined categories, or topics. Based on previous works (Bigne *et al.*, 2021; Guerrero and Rita, 2020; Yu and Egger, 2021) nine topics were identified that reflected the different dimensions (cognitive, sensory, social, affective and behavioural) of the customer experience with tourist attractions. Table 1 lists the topics and provides several words on each as examples. Each comment was assigned manually to up to three topics most representative of its content. We preferred manually curated resources over automatically generated (e.g., using topic-modelling techniques, such as latent Dirichlet allocation, LDA, Osmani, *et al.*, 2020), because user-generated content, being informal, is prone to generate a lot of noise and the resulting categories are difficult to control and require additional curation.

Table 1: Topics related to customer experience with tourist attractions (TA)

Dimension	Identified topic	Definition	Keywords
Cognitive	Cultural heritage	historical and cultural background of the TA	bell, painting
	Value for money	perceived value for money of the TA	day ticket, cheap
	Time to visit	advice on the best time to visit the TA	early morning
Social	Interaction with staff	social interaction with staff and residents	pushy, friendly
	Overcrowding	feelings that there are too many tourists in a TA	tourist hordes, busy
Sensory	Sense	feelings evoked through the five senses by the TA	vistas, music
Affective	Memorable	emotional value of the TA that makes the experience memorable	amazing, dreadful memorable
Behavioural	Transport	transport to arrive at/move between attractions	boats, train
	Extra services	extra services and facilities available at the TA	shop, restaurant

RESULTS

Content analysis

The sample is made up of 15,424 reviews including explicit recommendations and 4,538 reviews with general comments. The general reviews have higher overall polarity (mean= 4.127) than those reviews that include explicit recommendations (mean= 4.059), To answer RQ1, we carried out a content analysis of the online reviews with explicit recommendations, using KH coder, in three phases: parser configuration, frequency analysis and categorisation (see Figure 1). Content analysis is usually based on a word-frequency count because, despite the technique's flaws, it is assumed that the words mentioned most frequently reflect the greatest concerns (Marine-Roig and Clave, 2015).

Figure 1: Content analysis of online reviews with explicit recommendations

Figure 1 illustrates the co-occurrence of the most frequently featured words in the explicit recommendations related to the tourist experience dimensions identified in the literature review. The most important topics relate to *cultural heritage* (e.g., palace, bridge, basilica, history) and *transport* (eg., gondola, taxi, boat, bus, cruise). Additional words included relate to the behavioural interactions with the *additional services surrounding the attraction* (e.g., restaurant, shop), *social interactions with staff* (e.g., tour guide), *overcrowding* (long lines/queues), recommendations on *best time to visit* the attraction (e.g., early morning) and *value for money* (buy, ticket), emotional values of the attraction that make the experience *memorable* (highly recommended) and sentiments evoked through the *senses* (e.g., live music, pigeon).

Sentiment analysis

To test the first hypothesis about the aspects that most influence reviewers' sentiment polarity we carried out a multiple linear regression analysis (stepwise method) (Table 2). Prior to this, the normality, linearity and homogeneity of variances with Normal P-P plots and Scatterplots were checked. Tolerance close to 1 and VIFs less than 3 confirm the absence of multicollinearity (see Table 2). Missing values were replaced by the mean of each corresponding variable to include all 15,424 reviews including recommendations.

Table 2: Test of Hypothesis 1. Results of the multiple linear regression analysis

Variable	Standardised Beta coefficient	t-value	Sig.	Tolerance	VIF
Constant		-64.927	0.000		
Memorable	0.286	51.432	0.000	0.867	1.154
Cultural heritage	0.210	36.756	0.000	0.820	1.219
Transport	0.199	34.932	0.000	0.830	1.204
Value for money	0.190	33.252	0.000	0.824	1.213
Overcrowding	-0.184	32.381	0.000	0.828	1.207
Sense	0.110	19.140	0.000	0.819	1.221
Extra services	0.097	17.550	0.000	0.876	1.142
Social interaction (staff)	0.089	16.876	0.000	0.958	1.044
Best time to visit	0.063	11.203	0.000	0.857	1.166

Dependent variable: Overall polarity
R^2=0.585; Durbin-Watson=1.902; ANOVA: F= 2419.170, p=0.000

The results in table 2 show that all nine predictors were significant, supporting H1. Together they have an explanatory power (adjusted R^2) of 58.5%. Therefore, all categories explained the overall polarity of the reviews including explicit recommendations. The service aspects with higher influence on the overall polarity of explicit recommendations belong to the affective dimension, that is, those related to memorable experiences (i.e., experiences that create lasting memories) in the attraction (B=0.286). Regarding the cognitive dimension, sentiments about cultural heritage (B=0.210) had a strong effect on the overall polarity of the experience, followed by perceptions about value for money (B=0.190); the advice related to the best time to visit the attraction (B=0.063) showed the weakest effect. The sentiments elicited by customers' interactions with transport (B=0.199) and extra services surrounding the attractions (B=0.097) also had a significant influence on the overall assessment of the experience. As Venice is a mature destination, consumers may experience negative effects of overcrowding (long queues, etc.), which may affect their service experience (B=-0.184), this effect being higher than those related to interactions with staff (B=0.089). Venetian attractions provide sensorial experiences through their wonderful views, delicious drinks and food, live music, the smells of the city, etc, which also had a strong influence on the overall polarity of the overall sentiments felt towards the attractions (B=0.110).

To test H2 and H3 a further multiple linear regression analysis was carried out; this analysed the positive and negative valence of the words related to the service-based aspects (Table 3). The premises of normality, linearity and homogeneity of variances were also verified. Tolerance close to 1 and VIFs less than 3 confirm the absence of multicollinearity.

Table 3: Test of Hypothesis 2 and 3. Results of the multiple linear regression analysis

Variable	Standardised Beta coefficient	t-value	Sig.	Tolerance	VIF
Constant		161.082	0.000		
Positive words (Cultural)	0.211	31.715	0.000	0.694	1.442
Positive words (Memorable)	0.198	31.013	0.000	0.754	1.326
Negative words (Overcrowding)	-0.172	-25.694	0.000	0.686	1.457
Positive words (Value for money)	0.155	23.817	0.000	0.725	1.380
Positive words (Transport)	0.144	22.355	0.000	0.747	1.338
Negative words (Value for money)	-0.145	-20.868	0.000	0.640	1.563
Positive words (Overcrowding)	0.142	21.489	0.000	0.703	1.423

Negative words (Transport)	-0.118	-18.582	0.000	0.763	1.311
Negative words (Memorable)	-0.110	-17.666	0.000	0.795	1.258
Negative words (Social int. with staff)	-0.077	-13.024	0.000	0.889	1.125
Positive words (Sense)	0.074	11.392	0.000	0.733	1.365
Negative words (Extra services)	-0.074	-10.787	0.000	0.654	1.530
Negative words (Sense)	-0.091	-14.473	0.000	0.771	1.297
Negative words (Cultural)	-0.082	-11.847	0.000	0.645	1.550
Positive words (Extra services)	0.055	8.717	0.000	0.766	1.305
Positive words (Social int. with staff)	0.047	8.014	0.000	0.899	1.112
Negative words (Time to visit)	-0.042	-6.749	0.000	0.799	1.251
Positive words (Time to visit)	0.040	6.319	0.000	0.778	1.285

Dependent variable: Overall polarity
R^2=0.526; Durbin-Watson=1.912; ANOVA: F= 948.056, p=0.000

The results depicted in Table 3 show that both positive (H2) and negative (H3) words related to all the tourist experience dimensions are significant in explaining the overall polarity of the online reviews; therefore, H2 and H3 are supported. In the *cognitive dimension* of the tourist experience positive words about *cultural heritage* (B=0.211) had the highest influence on the overall polarity of reviews with explicit recommendations, followed by the effect of positive (B= 0.155) and negative words (B=-0.145) about *value for money*; weaker effects were shown by the negative words about cultural heritage (B=-0.082) and negative (B=-0.042) and positive (B=0.040) words about the best time to visit the attractions. Focussing on the *affective* dimension, the effect of positive words linked to *memorable* experiences (B=0.198) is stronger than the effect of negative words about this aspect (B=-0.110). Negative words about *overcrowding* (B=-0.172) had a stronger effect than positive words (B=0.142) on this aspect; when customers *interact with residents and service providers*, negative words (B=-0.077) also had a stronger effect than positive words (B=0.047). Positive words about *transport* had a stronger impact on overall polarity (B= 0.144) than negative words (-0.118); the impact of negative (-0.074) and positive (0.055) words regarding behavioural interactions with *services surrounding the attraction* was shown to be weaker. The negative words related to *sensorial* experiences (B= -0.091) had a higher impact than positive words (B=0.074).

Thus, the aspects of the tourist experience with higher impact on the consumer's overall assessment of the attractions are the positive feelings regarding their cultural backgrounds, their emotional value and their value for money, overcrowding and transport issues also being key drivers of overall sentiment. This result is in line with the content analysis, which also revealed the dominance of words about cultural heritage, positive emotions linked to memorable experiences and complaints about long queues. Many reviews recommended the water taxis and gondolas. The importance of memorable experiences on service assessments has been highlighted in previous research that found that memorable experiences play an important role in making consumers satisfied (Bigne *et al.*, 2020; Rasoolimanesh *et al.*, 2021). The stronger effect of negative words about service providers than positive words address competence. For example, if reviewers feel that the staff had a bad attitude, or they couldn´t solve problems, they usually recommend the service be avoided. These findings are aligned with recent studies (e.g., Guerrero and Rita, 2020), which found that words suggesting that a provider lacks competence (e.g., "apology", "refund") are associated with negative explicit recommendations. The weak effect of positive and negative words related to *best time to visit the attraction* can be explained in terms of source credibility dimensions as consumers are perceived as more trustworthy but less expert sources than DMOs (Ismagilova *et al.*, 2020).

Finally, to address RQ2 we analysed the impact of the photos included in the recommendation reviews on overall sentiment polarity and on the polarities of the tourist experience dimensions using a t-test. There are 12,409 recommendation reviews without photos, and 3,015 recommendation reviews with at least one photo. The results are shown in Table 4.

Table 4. Analysis of polarity of explicit recommendations (photos vs. no photos).

Variable	N	Mean	St.dev.	t-test	Sig.
Overall polarity without photos	*12,409*	*4.038*	*0.855*	*-7.779[UV]*	*0.000*
Overall polarity with photos	*3,015*	*4.166*	*0.836*		
Cognitive					
Cultural heritage (without photos)	8,225	3.828	0.703	-3.917	0.000

	N	Mean	St.dev	t-value	p
Cultural heritage (with photos)	2,163	3.895	0.712		
Time to visit (without photos)	5,367	3.612	0.715	-2.553	0.011
Time to visit (with photos)	1,386	3.667	0.730		
Value for money (without photos)	4,777	3.230	0.930	-3.068	0.002
Value for money (with photos)	1,262	3.320	0.933		
Social interaction					
Overcrowding (without photos)	5,873	3.160	0.924	-0.618[V]	0.536
Overcrowding (with photos)	1,475	3.176	0.946		
S.I. with staff (without photos)	1,841	3.594	0.783	1.996	0.046
S.I. with staff (with photos)	441	3.505	0.855		
Sensory					
Sense (without photos)	6,086	3.778	0.696	-2.233	0.026
Sense (with photos)	1,443	3.824	0.715		
Behavioural					
Extra services (without photos)	2,493	3.412	0.856	-1.308	0.191
Extra services (with photos)	750	3.458	0.858		
Transport (without photos)	6,300	3.788	0.771	-2.271	0.023
Transport (with photos)	1,541	3.838	0.789		
St.dev= Standard deviation; UV: Unequal variances assumed.					

The results depicted in Table 4 show that the explicit recommendation reviews with photos have higher means in terms of the overall polarity of the reviews, and that this difference is statistically significant (t-value=-7.779, p=0.000). This is the case for all the topics under analysis except for social interaction. In this case, recommendation reviews without photos have a slightly higher mean polarity. The differences in the means of the categories under analysis based on whether the reviews included photos were all significant, except for the overcrowding polarity category. In other words, the photos included with these 1,475 reviews with comments related to interaction with other customers did not have a significant impact on overcrowding polarity. In contrast, the photos included with other categories, such as value for money (e.g., the picture of the receipt showing the price) impacted on assessments of the experience. Similarly, photos related to cultural heritage aspects illustrate the content of the review and increase its polarity. This result is in line with Pan *et al.*'s study (2014), which found a relationship between photos of culture, history and art and positive sentiments. In conclusion, explicit recommendations including photos have higher overall polarity than those including only text, this being the case also for all the tourist experience dimensions under study, except overcrowding. Therefore, user-provided photos complement or reinforce the effects of review texts (Ma *et al.*, 2018).This result is consistent with the affection-then-action argument (Watson and Spence, 2007). Visitors embed photos in online reviews to share their affective feelings stimulated by attractions. Therefore, links can be established between pictorial content and service-based aspect sentiments.

CONCLUSIONS

Theoretical contributions

Tourist experiences arise in a variety of settings when consumers search for, visit and interact with tourism attractions. Accordingly, we conceptualised tourism attraction experiences as subjective consumer responses evoked by specific attraction-related experiential attributes. We demonstrated that the tourist experience can be broken down into five dimensions (sensory, affective, cognitive, social and behavioural), differentially evoked by various attractions. Building upon the accessibility-diagnosticity model, we argue that consumers' recommendations of tourism attractions is a collective expression of the sentiments felt about distinct service aspects, emphasising particularly those aspects perceived as salient during the service experience. Based on this rationale we conducted explanatory and predictive analyses to identify the drivers of the overall sentiment of explicit recommendations. The results showed that this is a valid approach to capturing the cognitive, affective, social, sensorial and behavioural dimensions of the consumer's experience of tourism services. Through this study we contribute to the body of knowledge in several ways. First, we contribute to the literature by disentangling the recommendations of tourism attractions: we show that the valence of the different service-aspects offered by the tourism attraction is evaluated in the service review, and that the overall sentiment of online reviews is driven by these aspects. We also contribute by analysing the impact of photos on the polarity of recommendations expressed in online reviews.

Managerial implications

DMOs need to be able to identify and measure the importance of tourist experience dimensions, and their synergies, in order to allocate their time and resources appropriately. Analysing a visitor's sentiment expressed about specific service aspects may give DMOs an informed understanding and detailed insights that cannot be gained by examining only overall experience ratings. As shown by the explanatory analysis, DMOs promoting mature destinations should pay special attention to positive sentiments related to cultural heritage, memorable experiences, value for money and transport. Negative recommendations about overcrowding (i.e., long wait times), poor value for money and transport (lack of access to attractions) highlight service failure situations that DMOs should correct in order to improve customer service quality and, hence, the overall customer experience. We recommend that DMOs emphasise the cultural value of attractions, sharing on their websites and during attraction tours interesting stories about people's lifestyles and the way they did things in the past, and provide information about the artistic style of the buildings to engage their visitors through surprise, intrigue and provocation. They should focus also on the aspects that make an experience memorable. Virtual reality that offers historical reconstructions and pictorial and textual information about the attractions may enhance the cognitive and affective dimensions of the tourist experience, making it memorable and attracting new customers in the post-COVID era. We suggest that for paid-for tourism attractions, DMOs should focus on price (sales promotions) as both positive and negative words about value for money are drivers of overall sentiment. We also recommend that DMOs provide precise details about transport options (itineraries, schedules). They can address overcrowding problems by giving detailed information about the best times to visit an attraction. Sensory experiences in the attraction setting can be created through aesthetic strategies such as landscaping, architectural design, live music, interactive touchpoints and augmented reality. Finally, DMOs should encourage people to post pictures to specify aspects that they found particularly positive.

Limitations and future research lines

Despite the importance of the contributions of our study and its large sample size, we were limited by our use of a single information source (TripAdvisor), and a single type of tourism service (attractions). Future research might confirm our results using other information sources and other services. The results of this study can be generalised only to well-known cultural attractions in mature destinations. An interesting research line could be to study attractions in emerging destinations and compare the results. Artificial neural networks have the ability to deal with non-linear relationships, missing data and outliers, and offer great predictive accuracy. Other approaches based on artificial intelligence might be explored.

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THE SOCIAL DIMENSION OF CUSTOMER EXPERIENCE

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ABSTRACT

The research distinguishes between individual and shared experiences and advances the understanding of the social dimension of customer experience in the context of the arts. Building on the extant C2C literature, but also the experience literature within the cultural research and social sciences, this research integrates experience perspectives of marketing and cultural studies. The paper contributes to the customer experience research by highlighting the social mechanisms of customer experience and provides a foundation for developing the conceptual and empirical understanding of shared C2C experiences. The paper shifts the focus of customer experience as an existential-phenomenological phenomenon to a social phenomenon.

INTRODUCTION

The multi-faceted and complex essence of customer experiences has received intensified interest among marketing scholars, as research focus has shifted from goods to service(s) and from service(s) to providers and customers (Baron *et al.*, 2014), and the idea of customer experience as a journey with multiple touchpoints has emerged (Lemon and Verhoef, 2016). While research in customer experience has much been focusing on firm-originated touchpoints (e.g. Bolton *et al.*, 2014), service experiences (Voorhes *et al.*, 2017) and actor constellations (Vargo and Lusch, 2015), the social dimension of the customer experience has not received the equal interest. In recent years, the interest towards broader understanding of customer-initiated social and external touchpoints has increased (Becker and Jaakkola, 2020; Lemon and Verhoef, 2016) and the focus has shifted into the C2C domain and interactions in the customer world that are largely invisible to the provider (Heinonen *et al.*, 2018; Nicholls, 2010).

Since the dominant interpretivist research tradition in marketing sees experiences based on each individuals' subjective perceptions (Becker and Jaakkola, 2020), the extant marketing literature provides such a narrow basis for understanding the customer experience construct and its social dimension as a whole. The marketing research often sees the economic exchange as a result of individual needs (Bagozzi, 2009) and the customer experience as an individual phenomenon where the social reality is seen through semantic representation as "an additive total of individual realities" (Abbott, 2004, p. 4). In this sense, collective experiences appear as a result of joint actions bearing the assumption of collective goals, collective commitment and/or collective intentions (Bagozzi, 2006; 2009).

On the contrary, many sociologists have found a societal denominator in the idea of reciprocity where various obligations–be they non-contractual exchange (e.g. Mauss, 1954) or symbolic acts (e.g. Bourdieu, 1984)–bind people together and make all interaction social, although not always conscious or contractual. Cultural research, in turn, has drawn in great extent from the sociological literature and experience philosophy. Especially, the participatory culture in the arts has much to owe to the pragmatist thoughts on art experience as a human perception and cultural formation (Dewey, 1934).

The extant service and marketing literature provides a standpoint for understanding the customer experience and its different dimensions. However, marketing scholars have often looked at customers and customer experiences from different and partly contradictory perspectives (Becker and Jaakkola, 2020). Despite the increase in customer-centric research (e.g. Heinonen *et al.*, 2010; Heinonen and Strandvik, 2015), several studies still set their focus on the provider context and firm-originated processes and put an emphasis on the provider-customer interaction and on customer needs defined by the service provider. In this view, customers are often seen as passive recipients of marketing stimuli and customer experiences as responses to provider-customer interaction (Hoffman and Novak, 2018).

To further develop the understanding of customer experience, this research takes a closer look at the customer domain and C2C touchpoints. In doing so, the research responds to the many calls in the customer experience literature to further research the role of social and external touchpoints (e.g., Lemon and Verhoef, 2016; Becker and Jaakkola, 2020) that are often out of the firm's control and thus invisible to the service provider (Heinonen and Strandvik, 2015). The research distinguishes between individual and shared experiences and thus advances the conceptual understanding of the social dimension of customer experience. The paper shifts the focus of customer experience as an existential-phenomenological (Thompson *et al.*, 1989) to a social phenomenon (Askegaard and Linnet, 2011; Moisander *et al.*, 2016) where experiences emerge as a result of others both in customer and interactive contexts.

CUSTOMER EXPERIENCE: FROM INDIVIDUAL TO SOCIAL

Over the past decade, there has been a growing tendency towards customer-centricity in customer experience studies as research approach has gradually shifted the focus to the customer domain (Heinonen and Strandvik, 2015) and customer-initiated touchpoints outside the firm control (Lemon and Verhoef, 2016). A growing emphasis on customer-originated factors (e.g. Becker *et al.*, 2020; Heinonen *et al.*, 2010; Lemon and Verhoef, 2016) and increasing C2C research have brought customers to the core of marketing research and revealed how customer domain and C2C interactions are largely invisible to the service provider and thus outside of the firm control (Heinonen *et al.*, 2018). A new tendency has been to see customer experiences as contextual and continuous processes that are part of the customer's ongoing life (Becker *et al.*, 2020; Heinonen *et al.*, 2010).

Although researchers within marketing have addressed the factors behind the dynamics of customer experience, a few more questions remain, as there is still a need to deepen the understanding of social dimensions of customer experiences and especially the way experiences evolve in interactive C2C customer domains. These views form the basis of this research. To further develop the understanding of this area, this paper builds on Lemon and Verhoef's (2016) research on the two types of customer-initiated touchpoints: (1) customer owned and (2) social and external touchpoints. The research also builds on Heinonen and Strandvik's (2015) findings on the three overlapping domains (1) provider's domain, (2) interactive domain and (3) customer's domain, and customer interactions that take place within the customer's world and thus are largely invisible to the provider. Drawing from these studies, this paper illustrates how an interactive domain is not limited to the firm-customer touchpoints, but there are several external C2C interactive domains along the journey (Figure 1). The paper also reveals that further theoretical development is needed to better understand C2C interactive domains and the influence of others in the experience formation.

Figure 1: Interactive domains
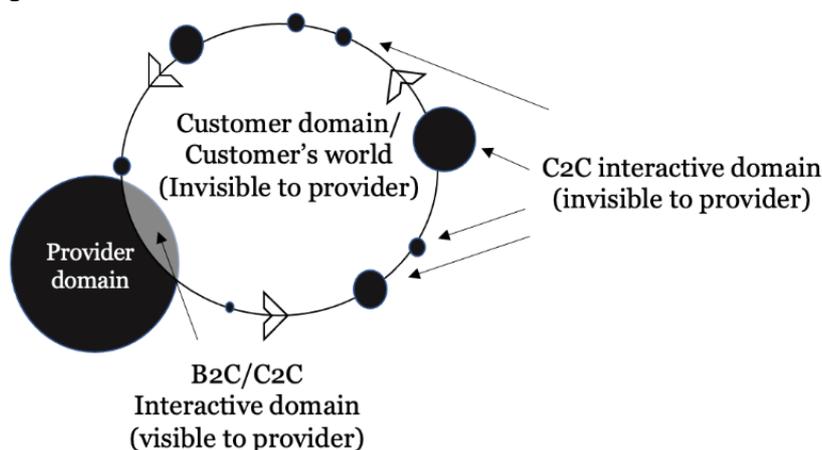
CUSTOMER EXPERIENCE AS A PHENOMENOLOGICAL JOURNEY

In line with the interpretivist research tradition, this paper sees individual experiences as accumulating and evolving over time. In this sense, the customer experience can be seen as a journey consisting of touchpoints in various interactive domains and, up to a certain point, can be analyzed through a phenomenological lens,

where experiences are always based on individually accumulated meanings and interpretative understanding. At the same time, it is needed to state that phenomenological research tradition offers a thoroughly subjective and individualized perspective for the complex phenomenon (cf. Becker and Jaakkola, 2020; Hietanen *et al.*, 2018), and thus customer experience and its social dimensions cannot be fully understood through existential-phenomenological approach (Moisander *et al.*, 2016).

While customer-focused marketing literature is largely following the interpretivist and phenomenological research tradition, the focus has been set on the individual's internal, conscious experiences and how the individual understands and gives meanings to himself and lived experiences (cf. Toikkanen and Virtanen, 2018). This has led to the research focus, where rationality and 'rules of the game' (cf. Vargo and Lusch, 2015), and thus, individual needs (cf. Bagozzi, 2009), goals (e.g. Becker and Jaakkola, 2020; Epp and Price, 2011; Hamilton and Price, 2019; Voorhees *et al.*, 2017) and experiences are at the core. Similarly, collective experiences have been interpreted as a result of joint actions bearing the assumption of collective goals, collective commitment and/or collective intentions (Bagozzi, 2006; 2009). Moreover, while marketing research has seen the economic exchange as a result of individual needs, various collectives have also been examined as groups of actors committed to exchange relationships (Bagozzi, 2009). Thus, the very same idea of customers/consumers as conscious actors seems to be dominant whether the analysis is on individuals or collectives, and the influence of others appears to be linked on social touchpoints with participants sharing joint goals or joint intentions.

TOWARDS SOCIAL DIMENSIONS: A SOCIOLOGICAL EXTENSION OF CUSTOMER EXPERIENCE

Sociologists, in many respects, have seen perceptible humans and systemic structures–the way humans are known to organize themselves–as societal and dualistic constructions. Many of these sociologists have followed Marcel Mauss' (1954) celebrated study of gift exchange circulation and its double obligation of giving and returning as a non-contractual act that binds human beings and societies together and makes human life socially constructed. In line with the Maussian thoughts, this research focuses on shared experiences and their relationship between internal and external–agency and structure, conscious and unconscious–realities and thus the interest is primarily placed on social rather than individuals.

If semantic theoreticians tend to translate a phenomenon from one context/sphere to another–into more recognizable form–when analyzing the social through individuals (Abbott 2004), pragmatic scholars emphasize individuals as culturally bounded (e.g. Dewey, 1934) and human society as a result of subjective and social dimensions (Mead, 1934). The semantic view can be criticized for missing something essential when analyzing the reality from one's own context. As much we can say that since pragmatic view combines internal and external, the understanding of external sphere is always blurred with one's own internal sphere. Moreover, for Davis (1971), the interesting lies between the subject of phenomenology (seeming) and the subject of ontology (being). Similarly, being between 'seeming' and 'being' is at the heart of this research, as the aim is to understand the customer experience and its relation to subjective and shared and observable and symbolic/imaginary dimensions. In this sense, the paper assumes both semantic and pragmatic views as valuable and shares the desire to recognize the uniqueness of a human being as well as the essence of each individual sensory experiences (cf. Merleau-Ponty, 1962). However, this paper takes the sociological and pragmatist stance in a sense that scholars within these fields are often emphasizing the cultural over individuals (e.g. Bourdieu, 1984; Mauss, 1954), and maintains that all experiences, in the end, are tied to social and/or cultural (Dewey, 1934).

RESEARCH QUESTION

In response to the institution- and performance-centric approach of classic service and cultural research, this research uses customer-centricity as a theoretical foundation and emphasizes customer-originated factors and the research adaptation into the customer's world. In doing so, the research answers the question of how social touchpoints and influence of others affect and shape the focal customer experience.

METHODOLOGY

This conceptual paper approaches customer experiences from the customer context. Building on the extant C2C literature within marketing, but also the salient experience literature within the cultural research and

social sciences, the paper integrates experience perspectives of marketing and cultural studies. The research distinguishes between individual and shared experiences and thus promotes the conceptual understanding of the social dimension of customer experience.

FINDINGS

The research contributes to the customer experience research by highlighting the social mechanisms of customer experience. Managerially the research emphasizes the need to expand the scope of services to the C2C context and customers' lifeworld. It provides managerial implications for understanding the customer domain and the overall customer experience. The research also highlights the importance of understanding the art experiences for both the arts and culture context as well as the service sector more generally.

The research argues that there are shortcomings in both mainstream service and cultural research, as they emphasize the individuals and individual experiences based on the service encounter and a provider-centric perspective. In response, this research emphasizes customer experience as a social phenomenon and conceptualizes shared C2C experiences that have received considerably less attention in earlier customer experience research, in terms of two dimension: social and collective experience.

CONCLUSION

Customer experiences have traditionally been seen as customer responses to B2C interactions within the service context. Since marketing scholars have encouraged researchers to further examine the customer context (Becker *et al.*, 2020; Heinonen and Strandvik, 2015; Lemon and Verhoef, 2016) and C2C touchpoints within the customer domain (Heinonen *et al.*, 2018), this paper provides a more nuanced view of C2C experiences and social touchpoints. In doing so, the research provides a foundation for developing the conceptual and empirical understanding of shared C2C experiences.

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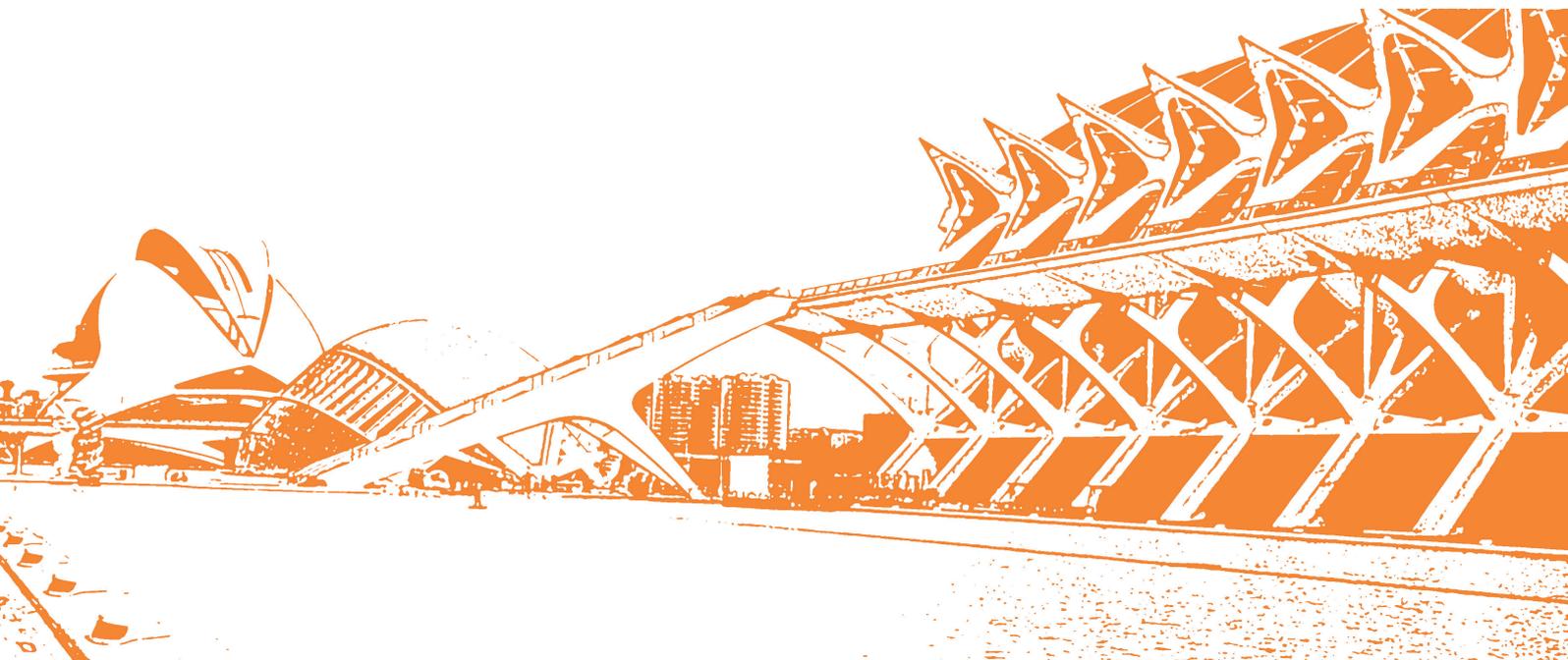
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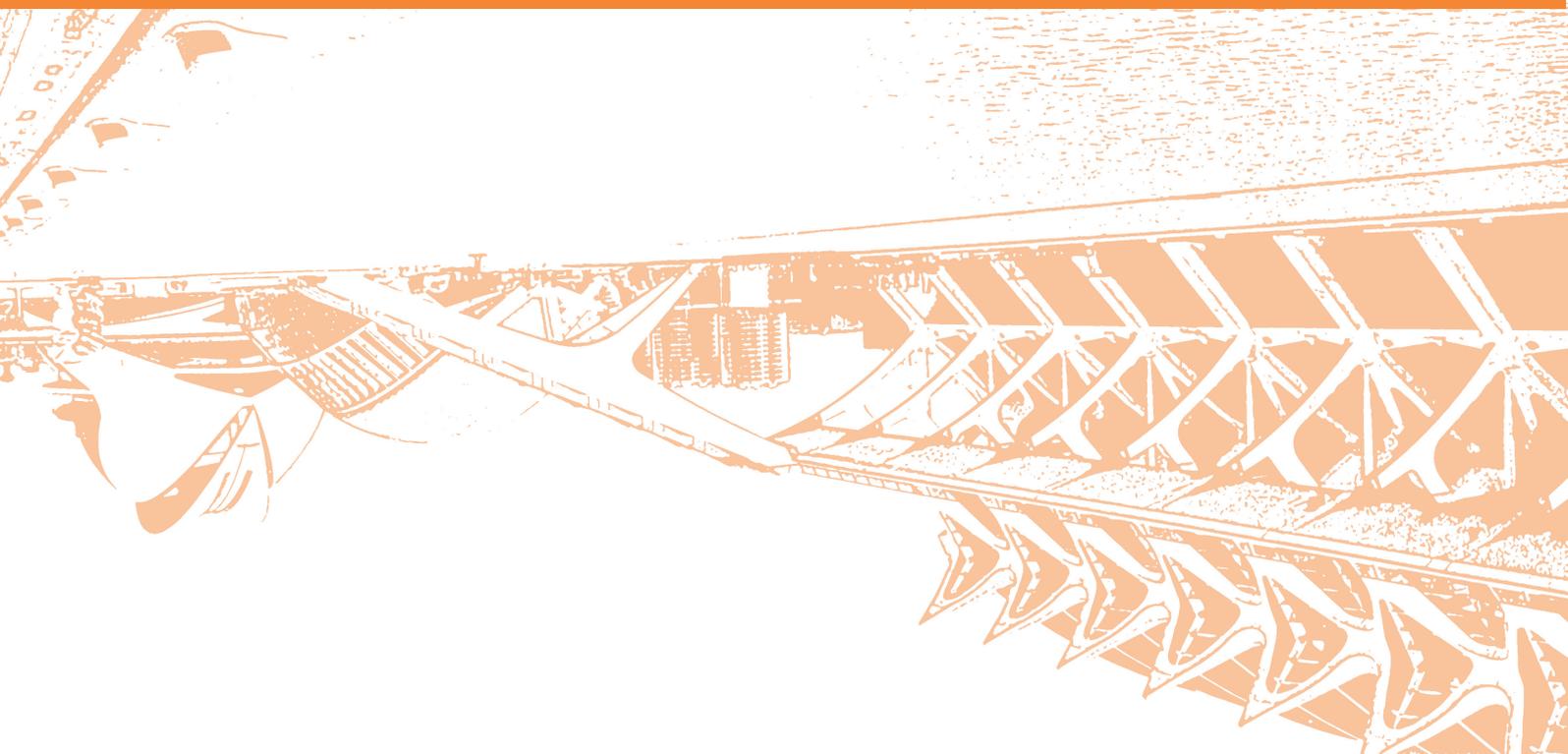
JUSTIFICATIONS OF TOURISTS' TRAVEL BEHAVIOR DURING THE COVID19-PANDEMIC – A FRENCH PRAGMATIST SOCIOLOGY APPROACH

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ABSTRACT

Since early 2020, the Covid19-pandemic spreads rapidly all over the world and rules tourist behavior. This study examines how individuals justify their behavior to stay at home or to travel during the pandemic. It contributes to literature on tourists' behavior during the Covid19-pandemic and extends the "Orders of Worth" framework by Boltanski and Thévenot to tourists' behavior. Due to the exploratory nature of the research question, four focus groups are conducted. Results suggest that people utilize justifications from different "Orders of Worth", depending on their type of travel behavior and on how much they adjusted it compared to before the pandemic.

INTRODUCTION

During 2020, the Covid19-pandemic ruled tourists' behavior (Gössling, Scott and Hall, 2020). Although governments issued travel warnings, many people still chose to travel for leisure, while others chose to stay at home. During the pandemic, a change in tourists' behavior can be identified (Mirzaei, Sadin and Pedram, 2021). Even though research on tourism and the Covid19-pandemic is evolving dynamically, our understanding of tourists' behavior in this crisis remains limited (Zopiatis, Pericleous and Theofanous, 2021). The purpose of this study is to explore why consumers travel for leisure despite an ongoing pandemic, and how they justify their behavior. Justifications offer valuable insights into the underlying reasons of controversial behavior. Justifications of individuals are usually discussed in a psychological context (McDonald *et al.*, 2015). In a pandemic, however, individual behavior has widespread social consequences (Hall *et al.*, 2020). In order to capture the interplay of individual behavior and social context, this study draws on French Pragmatist Sociology and the "Orders of Worth" framework (Boltanski and Thévenot, 2006). The six "Orders of Worth", also referred to as "worlds", are applied as an interpretative framework, to gain an in-depth understanding of the underlying, often sub-conscious justification mechanisms used by the respondents. This study adds to the literature on tourists' behavior during the Covid19-pandemic, enhancing our understanding of why some people choose to travel during the pandemic while others stay at home. It has a sound theoretical foundation, applying the "Orders of Worth" framework, which is well suited but rarely used for exploring the justification mechanisms of controversial travel behavior. Contrary to psychological approaches, it considers the social embeddedness of respondents and provides specific insight into the content of arguments used by tourists to justify different behaviors.

The paper is structured as follows: first, we review the current literature on tourists' behavior during the Covid19-pandemic and introduce the "Orders of Worth" framework. After describing the applied methodology, the justifications used by respondents who stayed at home, travelled by car or travelled by plane are presented. The results are compared and discussed. The paper concludes with implications for practitioners and further research.

LITERATURE REVIEW

Since early 2020, the Covid19-pandemic spreads rapidly all over the world. To slow down the pandemic development, governments imposed travel bans, closed borders or introduced measures of quarantine, which in fact had an impact on worldwide tourism (Gössling, Scott and Hall, 2020). Early research shows a positive correlation between international tourism flows and the cumulated level of Covid-19 confirmed cases (Farzanegan *et al.*, 2020). Consequently, research focuses on tourism against the background of Covid19. Literature on Covid-19 and tourism mostly focuses on general impacts, e.g. socio-economic aspects (Nicola

et al., 2020; Sigala, 2020), the need of shifting tourism to a more sustainable way in a post-pandemic time (Higgins-Desbiolles, 2020a, 2020b; Ioannides and Gyimóthy, 2020) and on consumer behavior during the pandemic. Concerning consumer behavior, changes in tourists' behavior during the pandemic are identified. People are found to take shorter trips or to travel domestically (Donaire, Galí and Camprubi, 2021; Mirzaei, Sadin and Pedram, 2021), which is mostly explained by travel restrictions (Borges-Tiago *et al.*, 2021; Bratic *et al.*, 2021). Individuals' risk perception also plays a role in explaining changes in travel behavior (Bratic *et al.*, 2021; Li *et al.*, 2020). In that regard, the proximity of the destination to home is a relevant factor (Donaire, Galí and Camprubi, 2021). Others identified the subjective norm in form of prohibition, enforced by family and friends or as the government's sanctions, as an external factor impacting the individual's decision to travel in a collective society (Rahmafitria *et al.*, 2021).

Because of these norms, travelling during the pandemic is controversial. When examining controversial behavior, justification mechanisms can offer valuable insights into the underlying reasons for that behavior (Thorslund and Lassen, 2017). Often, psychological approaches are used to research individuals' justifications (McDonald *et al.*, 2015). However, individuals' behaviors are embedded in a social context, which is not sufficiently considered in these approaches. Since in the context of the ongoing Covid19-pandemic, individual behaviors have widespread social consequences, this study adopts a sociological approach to justification. Specifically, we draw on the "Orders of Worth" concept by Boltanski and Thévenot (2006). "Orders of Worth" are usually applied in an organizational context (e.g. Patriotta, Gond and Schultz, 2011; Finch, Geiger and Harkness, 2017; Demers and Gond, 2020). While some studies also focus on consumer behavior (e.g. Thorslund and Lassen, 2017; Pecoraro and Uusitalo, 2014; Evans, 2011), applications of "Orders of Worth" in tourism are rare (e.g. Kietäväinen and Tuulentie, 2013; Lindberg, Fitchett and Martin, 2019; Lindberg and Mossberg, 2019).

The "Orders of Worth" framework (Boltanski and Thévenot, 2006) originated in the 1980s French Convention Theory Movement, where an economic-sociological perspective on economic actions is taken (Jagd, 2011). Boltanski and Thévenot (2006) describe how disputes in society or discrepant situations with a different degree of legitimacy can be solved. When dealing with controversies, actors (institutions, organizations or individuals) can rely on six central higher principals, the "Orders of Worth", also referred to as "worlds". These six worlds have each a higher common principle, which cannot be described in one expression, but they are related to different states of worthiness, subjects, objects, and natural relations within one world. Boltanski and Thévenot (2006) identify (1) the inspired world, (2) the domestic world, (3) the world of fame, (4) the civic world, (5) the market world, and (6) the industrial world.

In (1) the *inspired world*, the inspiration is the higher common principle. Following that, the state of worthiness conducts the inexpressible and ethereal. It is spontaneous and emotional, unmeasurable aspects as passion are relevant. Subjects can be the spirit or shade, objects are not detached from persons (Boltanski and Thévenot, 2006). (2) The *domestic world* follows a higher common principle concerning hierarchies, generations and traditions. State of worthiness is hierarchical superiority in relation to the hierarchy's or generation's rank. So more worthy beings can be kings, parents, the family, leaders or bosses. Less worthy beings can be persons from a third party. Objects support the hierarchical relations, for example small gifts (Boltanski and Thévenot, 2006). (3) The reality of public opinion is the higher common principle of the *world of fame.* The test of worthiness is fame. Relevant aspects are reputation, recognition and visibility. Persons have the desire to be recognized. Subjects are stars or opinion leaders, objects can be names in the media (Boltanski and Thévenot, 2006). (4) In the *civic world*, the higher common principle is the preeminence of collectives. The masses and collectives are seen as worthy beings. State of worthiness are governmental rules and representatives. That correlates with the subjects as collective persons and their representatives. The objects are legal forms like rights. (Boltanski and Thévenot, 2006). Because economic actions can be analyzed in two forms, Boltanski and Thévenot differentiate between the market world and the industrial world. In (5) the *market world,* competition is the higher common principle. The market world's state of worthiness is the value of things. Worthy objects or persons are for example salable goods or millionaires. In this world, failure is unworthy. Subjects can be competitors. Finally, the higher common principle of (6) the *industrial world* is efficiency. The state of worthiness is efficient or functional. Unproductivity or unreliability is unworthy. Subjects are professionals or experts, objects can be methods or tools. (Boltanski and Thévenot, 2006).

The states of worthiness are defined in relation to their characterization in different ways, for example, they can be more or less direct, but worthy beings guarantee the higher common principle by their presence. Concerning the subjects for each world a list can be made. To objectify a person's worth it can be helpful to array the objects and subjects within a world. In a justification's process, the higher common principle is the last phase on which actors can relate. Usually people only have to relate to the states of worth, subjects or objects. Within one world or principle, a situational test shows the worthiness. This is only possible if all actors draw on one world. When drawing on different worlds, a test of worthiness is not possible and there is a need to solve the dispute by compromising. (Boltanski and Thévenot, 2006).

METHODOLOGY

Following prior research on justification, four virtual focus groups with four to seven participants each were conducted in December 2020 and January 2021. When focusing on justification, focus groups are useful because in discussions people try to convince each other about the legitimacy of their arguments (Thorslund and Lassen, 2017). The sample includes 21 participants in total, nine female and twelve male. The majority are German Business and Economics students. The focus groups were organized with the video conference tool Adobe Connect because of contact restrictions and for practical reasons. To structure the focus groups a semi-structured interview guide was used. The focus groups were recorded and transcribed afterwards. For reasons of anonymity, each participant got an abbreviation. The letter (A to D) relates to the focus group, the following number (1 to 7) relates to the participant's number within one focus group.

To identify tourists' justifications, qualitative content analysis in MAXQDA is used. Following prior research in a consumption context, the "Orders of Worth" are used as an interpretative framework (Thorslund and Lassen, 2017). When identifying the categories, the overall "Orders of Worth"-vocabulary and the world's general descriptions were followed, extending them to the context of travel behavior. Each common world has its own vocabulary referring to the state of worthiness, subjects, objects, and natural relations. Some authors have extended that vocabulary (e.g. Patriotta, Gond and Schultz, 2011). A group of experts discussed the coding scheme, resolving discrepancies where necessary.

FINDINGS

Findings show that respondents draw on different "Orders of Worth" when justifying their travel behavior during the pandemic. We identified three different types of behavior in reaction to the pandemic: staying at home, travelling by car in Germany or European Union countries near Germany, and travelling by plane. In the following, we describe the justifications for these different types of behavior.

Staying at home

People who stayed at home mostly used arguments from the *civic world*. People trust the government and its measures against the pandemic. They wanted to follow the rules by reducing social contacts and not travelling around. They often referred to the lockdown-measure and explained that it was not possible to travel. "I took vacation and stayed at home because nothing else was possible in November [2020]" (respondent D3). Moreover, there was uncertainty regarding measures and rules in other countries. "I wanted to fly to the United Arab Emirates in March, […] but I was not sure which measures against the pandemic might be enforced and if I suddenly have to go into quarantine after entering the country" (respondent A3). Some arguments also emphasized social responsibility. First, respondents wanted to avoid an overload of the healthcare system. Second, they argued that other aspects in society are more relevant than going on vacation, e.g. keeping the schools open, and third, they wanted to protect others from an infection. "There was the danger to infect others" (respondent D1).

Some respondents also drew on the *market world*, using arguments concerning market mechanisms. Specifically, they argued that there were no good deals and that they made a cost-benefit assessment. Financial aspects also played a relevant role. There was uncertainty about receiving refunds or losing deposits in case of the need to cancel journeys, as well as regarding salary payments in case of a mandatory quarantine. Finally, rewarding oneself with consumption is also an argument belonging to the market world. In that regard, respondent C1 explained that she wants to reward herself for not travelling during the pandemic with a much more beautiful and longer journey after the pandemic.

Less often, respondents drew on the *inspired world* by arguing that staying home helps them avoid stress and take care of their own health. Others relied on the *domestic world* by emphasizing their responsibility not only for their own health, but also for the safety of their partners, parents or children. By focusing on incidence rates or explaining their risk assessments, some respondents also relied on the *industrial world* to justify staying at home.

Travelling by car

Several of the respondents chose to travel by car to a location in Germany or to one of Germany's neighboring countries like France, the Netherlands, or Denmark. To justify this behavior, respondents drew mostly on the *civic world* and partly on the *industrial* and *the market world*.

Regarding the *civic world*, the respondents who travelled by car in Germany referred to the law and the current measures against the pandemic. On the one hand, they said that there were measures and restrictions when travelling abroad, so they chose to travel domestically in Germany. Moreover, there was uncertainty of possible measures or restrictions when travelling to farther destinations. "It did play a role that it should be close by or at least within the country, so that you can travel back home quickly if necessary and can travel back home relatively unproblematically, if there are short-term restrictions or perhaps even a lockdown", respondent A3 explained. Others argued by focusing on protecting the public. "We also thought to ourselves, that even if we can travel, farther or even abroad, we don't want to transfer the risk across any borders" (respondent D5). On the other hand, respondents justify their travel behavior with adhering to the rules for reducing social contacts by avoiding crowds when using a car, as opposed to travelling by plane or train. Respondent C1 explained: "But we also thought: Okay, we are not going anywhere by plane or train or anything else, simply to avoid crowds in that sense." Moreover, respondents pointed out that there is no need to wear a mask in your own car. Overall, respondents relied heavily on following the general rules as reducing contacts, keeping distance or wearing masks. "I would justify all this by saying that we have kept to the measures that the government has pronounced" (respondent A5). Another point is made by focusing on the restrictions – or lack thereof – at the time the trip took place: "At the time I actually made the trip, the restrictions were not that high," (respondent A3). Regarding the chosen destination, respondents who travelled to neighboring countries relate to the measures in two ways: first, some said that there were strict measures in place at their chosen destination: "But in France it is also like that anyway, I had already informed myself a bit beforehand, that they are very strict with the mask requirement, for example." (respondent A4). Second, some argued that, even if there were no strict measures in the travelled country, they followed the stricter rules they knew from Germany, like wearing masks. Finally, respondent C2 drew on the civic world by mentioning their fundamental rights. "To put it bluntly, I would relate it to my fundamental rights, that I can do whatever I want".

Drawing on the *industrial world*, respondents who travelled in Germany often used risk assessments as justification. Some argued with planning uncertainty, which is greater when travelling abroad, wherefore travelling in Germany is perceived as less risky. They also argued that they needed recreation in order to maintain their productivity. When it comes to justifying the car as the mean of transportation for their trip, productivity, flexibility, efficiency and comfort are in the foreground. Respondent B2 explained: "I went there by car, simply for reasons of practicality." The chosen destination is sometimes justified by referring to key performance indices like the incidence rates, comparing them in different countries and choosing the one with the lowest infection rates and therefore lowest perceived risk. Respondents who travelled by car in the countries adjacent to Germany also focused on risk assessments, as participant C3 said: "When I go by car to the mountains for hiking, I am much safer than walking around in my hometown." Additionally, they drew on efficiency or flexibility, too: "We decided to travel mainly to the Netherlands because it is very close from here. I also live near the border. We could simply drive over by car and, above all, it is also important in corona times that we have the possibility to drive back again at any time in order to be flexible" as respondent B1 explained. Others relied on long-term planning, pointing out that the holidays were planned months ago and so they did not want do cancel them.

Respondents who travelled domestically by car also used justifications from the *market world*, referring to financial aspects of their decision. "But the trip had already been paid for. We would not have gotten the money back if we had cancelled it now at short notice" (participant A3). Participant A4 argued for travelling

by car rather than by plane: "It does not work to go with the plane, because then you would have to rent a car on site, which of course is also a question of cost". Trade-offs, comparisons with other peoples' behaviors and the notion of deserving a vacation to reward oneself are further arguments belonging to the market world. E.g., participant A2 justified their behavior with comparing it to others: "Because that was at a time when relatively many travelled around", while participant A3 compared their usual behavior with the behavior during the pandemic, to justify taking a holiday: "That was also my only real holiday. One week. I usually travel regularly". Others argued that they wanted to reward themselves, e.g. for hard working or for an exam phase. Those who travelled by car to neighboring countries also focused on self-reward and comparisons. Since the vacation they took was less and closer to home than usual, they feel that it was justified. "I have to say that the vacation I took, it was clearly significantly less than usual." (participant B1). Others relied on financial aspects, mentioning getting a good deal for trips abroad: "And there were just vacation cabins, still halfway cheap that you could pay. And that is why we decided to go to Denmark." (participant C4). Some also justified their travel behavior by mentioning that their consumption contributes to keeping the economy "alive", while others explain their choice of a closer destination by the limited offers for flying abroad.

Less often, people who travelled by car in Germany drew on the *domestic world* by arguing with traditions, like always going on vacation by car to one specific destination or by focusing on isolating themselves with their own family. Others added that they wanted to spend time on vacation with family or friends. People who travelled by car to the adjacent EU countries also justified their behavior with family reasons. Participant B1 explained regarding that point, that she wanted to reduce contacts outside the own family: "This year I had two vacations, both in the Netherlands, and both with the family, so that we really only went away with my friend's parents or my parents. […] And did not add any new contacts."

In the *inspired world*, respondents who travelled by car in Germany referred to independence and self-care. Spontaneity is one of the values of the *inspired world*, some respondents justified their travel behavior by arguing that it was a spontaneous, on a whim decision. "We actually wanted to stay at home, but then we had some interest to get out of the house again. And that is why we actually went to Denmark, which was more or less a spontaneous decision." (participant C4). Finally, some respondents also argue based on the *world of fame* by focusing on the public opinion or on debates with colleagues.

Travelling by plane

Some of the respondents chose to spend their vacation in other EU countries, such as Greece or Spain, and travelled there by plane. They justified their decision mostly with arguments stemming from the market world, the industrial world and the civic world. In the *market world* they focused on financial aspects, e.g. the trip was already paid for: participant A7 explained concerning his flight: "It was a superficial, financial, decision. The flight was paid for with a flight voucher, which I still had from March or April, when a flight was canceled. The voucher was valid for one year and could not be cashed out. And so [taking that trip] was the only realistic chance for me to redeem it." However, also the risk of not receiving refunds in case of a cancellation played a role, which is why participant B4 opted for an insurance. Finally, the desire to reward themselves, e.g. for working overtime, by taking a holiday abroad was mentioned.

Regarding the *industrial world*, participants argued by referring to risk assessments. Participant B4 explained: "We thought about a trip within Germany, but it was clear to us that the flight route was supposedly safer than public transportation, which we use every day, and probably also supposedly safer than a train trip across Germany or at least just as safe, so we flew." He added: "We thought that the aircraft itself counts as a relatively safe mean of transport. Because the air exchange is done completely within one minute." Therefore, he relied on safety through technology. Moreover, some emphasized the flexibility that comes with travelling by plane. Others relied on recreation to maintain their productivity: "As a justification perhaps, it is not called a recreational vacation for nothing. I do not relax when I stay in my apartment for a week and wait for time to pass. I recover when I somehow get out, get away, see something else, do something else" (participant B4). Finally, many arguments relied on the incidence numbers.

Regarding the *civic world*, respondents relied on following the overall governmental measures and rules on the plane. Respondent B4 explained: "Everyone on the plane was required to wear a mask. This was also controlled by the cabin crew." Moreover, they argue with trust in the government: "[...] if the German government says I can do this and that, then they have thought it through. So that gave me a bit more

security" (respondent C5). Additionally, they referred to following the rules, like keeping 1,5 m distance. Others justified their travel behavior by the lack of travelling restrictions at the time: "I flew to Greece with a buddy in October for a week or eight days. That was exactly the time when there were no restrictions on entering or leaving Greece or Germany, so we were able to get in and out without any problems" (participant B4). Less often, they argued based on the *domestic world*, emphasizing traditions, family, and friends, or on the *inspired world*, emphasizing the importance of travelling for their own well-being and self-actualization.

DISCUSSION

Results show that people draw on different worlds when justifying their travel behavior. People who stayed at home mostly draw on arguments regarding the civic world. People who travelled by car mostly refer to the civic world as well, and partly to the industrial and the market world. People who travelled by plane rely mostly on the market world, followed by the industrial world and the civic world. Interestingly, even though respondents mostly argue by referring to similar worlds, their focus differs depending on the behavior they are justifying. The fact that people with different behavior refer to similar worlds but draw on different kinds of arguments fits with the theory. Possibly, they try to test the arguments regarding the state of worthiness when debating.

Regarding the *civic world*, respondents who stayed at home mostly argue by following the rules and by considering society and the collective "greater good". In contrast, those who travelled also refer to following the rules, but rather in terms of reducing contacts outside their own group or wearing a mask, to increase the perceived safety of the trip. The justification that travelling was allowed by the German government at the time of their vacation was also used often.

Regarding the *market world*, those who did not travel argue by a cost-benefit ratio, uncertainty about getting the money back in case of cancelling the journey and rewarding themselves for their behavior with a long journey after the pandemic. In contrast, respondents who did travel also refer to self-rewarding, but rather in terms that they deserve a vacation for working hard. They weaken the point of the uncertainty of getting back the money in case of cancelling the journey by making an insurance.

Respondents who did not travel rarely rely on the *industrial world*, but they do highlight the incidence rates as an argument for staying home. In contrast, people who did travel, often use justifications stemming from the industrial world. They argue that, in order to maintain their productivity in the workplace, they need a vacation. They emphasize making rational risk assessments, often based on incidence rates, and argue that the infection rates were low at the time of their travel. This finding is in line with prior research on travel behavior during the pandemic (Bratic *et al.*, 2021; Li *et al.*, 2020). When it comes to travelling by car, they emphasize flexibility and the option to return home quickly if the pandemic situation changes.

We found that the justification patterns differ, depending on the degree to which participants changed their behavior in response to the pandemic. Some people did not change their behavior significantly due to the pandemic and continued either flying away or driving with their car on vacation. This behavior is often justified by relying on the domestic world and specifically on traditions and habits. They argue that they always take a flight in their summer holidays, or that they always go to one specific destination, and therefore feel safe there, almost like at home. The usual travel habits of respondents also played a role in how they interpreted government warnings against travelling abroad. Respondents who usually fly to different continents consider a trip by car to Italy or the Netherlands as comparatively near and safe. In line with research on proximity (Donaire, Galí and Camprubi, 2021), we also found that the actual distance of the travel plays a role. If someone lives near the border to another country, then a trip to that country is perceived as a near trip as well, and the justifications for taking that trip do not differ significantly from those for travelling domestically.

Finally, the same individual draws on several different worlds when justifying the behavior. One example is respondent C5, who travelled by plane to Mallorca. When justifying this choice, he draws on the industrial world by referring to the flexibility of travelling by plane, by focusing on the incidence rates at home and at the destination, by making a risk assessment by checking the destination's safety and by arguing that he needs recreation to regain productivity for his job. He draws on the civic world by highlighting that there were measures in the travelled country and that he followed the rules, like keeping distance or wearing a mask in the plane. He emphasizes that, at that time, it was allowed by the government to travel by plane and he

argues that he trusts the government and its measures. Following that he refers to the domestic world, mentioning that it was a holiday with friends, and to the market world by arguing that he deserved the vacation as a reward for the stressful exams period. Finally, he refers to the inspired world by highlighting that the journey contributes to his well-being and self-actualization. Prior research that applies the "Orders of Worth" framework in an organizational context found that different stakeholders developed arguments out of a plurality of logics to influence the outcome of the debate (Patriotta, Gond and Schultz, 2011). The present study identifies such a behavior in a consumer context as well. The plurality of arguments from different worlds by respondent C5 can be explained by a higher perceived pressure to justify his choice in front of the group, as he was the only one who travelled to a farther destination by plane. Therefore, he draws on different worlds to test the different world's arguments concerning the worthiness.

CONCLUSION AND IMPLICATIONS

By drawing on French Pragmatist Sociology and the "Orders of Worth" we gained valuable insights on how individuals justify their travel behavior during a worldwide pandemic. First, results showed that people base their arguments on different worlds when justifying their behavior. While people who stayed at home mostly draw on the civic world, people who travelled by car or plane refer to the civic, market and industrial world. Second, we found that even though respondents refer to similar worlds, the way they utilize these worlds to form their arguments and justifications differs depending on the travel behavior they are called to justify. Specifically, the arguments differ depending on the extent of changes in behavior compared to times before the pandemic. Third, we found that the same individual might utilize different worlds to build their justifications, particularly if they perceive a high pressure to justify potentially controversial travel behavior.

The theoretical contribution of this study is twofold. First, it adds to the literature on tourists' behavior during the Covid19-pandemic by identifying justifications why people travelled during the pandemic while others stayed at home. Second, it extends the application of the "Orders of Worth" to the context of tourism, demonstrating the suitability of this framework for analyzing and explaining controversial travel behavior. This contributes to the dissemination of sociological approaches and French Pragmatist Sociology in particular, which, contrary to the more widespread psychological approaches, consider the social embeddedness of respondents and provide specific insight into the content of arguments used by tourists to justify different behaviors.

This ultimately aids practitioners like tour operators, airlines or destinations, in formulating targeted communication content, to encourage responsible travelling when possible. Following the results, practitioners could differentiate between persons who want to travel by car or by plane. For example, airlines can address consumers drawing on the industrial world, by highlighting implemented hygiene measures and the used air conditioning technology to increase the perception of safety. For people drawing on the civic world, tour operators could highlight the current restrictions and how the measures are implemented concerning the travelling.

This study is limited by its sampling, sample size and time. The sampling includes in the majority German Business and Economics students. Therefore, the results' generalizability is limited. The focus groups were conducted in winter 2020-2021 when the Covid-19 infection rates were higher than in summer, so the statements could be biased. Furthermore, the groups of people who travelled and did not travel, were not equal in size. In a following study the composition of the sample could be adjusted accordingly. Finally, the findings could be culturally biased. Future research could take different cultural contexts into account.

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TENSIONS IN THE eHEALTH SERVICE ECOSYSTEM IN COVID-19 ERA. EVIDENCE FROM ITALY

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ABSTRACT

COVID-19 pandemic has raised significant challenges for health services targeted at patients with chronic diseases: hospitals and medical clinics had to find new and practical solutions to address the impacts on individual and collective well-being.

The paper aims to investigate the evolution of the Italian eHealth service ecosystem during and after the pandemic for chronic patients and to recognize tensions arising in the service ecosystem when actors with different worldviews interact and to understand how actors resolve the different tensions through the development of new institutional arrangements.

INTRODUCTION

During COVID-19 pandemic, hospitals and clinics had to find new and practical solutions to address the impacts on individual and collective well-being due also to the increased diffusion of chronic diseases (Sebastiani and Anzivino, 2021). Technological devices might be increasingly leveraged to coordinate the process of integrating resources and co-creating transformative value (Anderson *et al.*, 2013; Danaher and Gallan, 2016; Anderson *et al.*, 2018).

The use of telehealth has been growing in the past few years, though more slowly than expected. One major reason has been the lack of a reimbursement model for telemedicine that puts it on par with in-person visits. Digital health proposes new ways to produce and provide services that differ from models based on the hospital structure. These are considered limiting since the COVID-19 pandemic has highlighted the need for better and more efficient use of healthcare resources. Increasing the quality of digital health means also having a huge amount of detailed data of all kinds of patients, pathologies, and lifestyles, thus being able to support medical figures in the delivery of personalized therapies without wasting resources and without incurring unnecessary expenses. Anyone could be a potential user of digital health devices, and this challenging context requires the development of people-centered services, which consider one's subjectivity, living environment, culture, values, constraints, and preferences.

In such emerging healthcare ecosystems, smart devices effectively connect the different needs - emotional, social, physical - of the different actors (patients and their families, physicians, other service providers, etc.) to transform the patient into an active actor who integrates resources and co-creates value (Danaher and Gallan, 2016; Anderson *et al.*, 2018).

The revolutionary switch to telemedicine and video consultation to prevent the spread of COVID-19 is not as straightforward as installing a new service; rather, it involves introducing and sustaining major changes to a complex system. It must be considered as integration and not a simple substitution of traditional healthcare systems, and nowadays is a valid support tool on the path of treatment of heart disease. It must be adapted flexibly, with personalized logic, to the needs of the individual patient.

During COVID-19 pandemic in Italy, virtual experiences have multiplied, including the use of chatbots to detect COVID-19 from the first symptoms and free specialized nursing tele-assistance services that provide support to patients, caregivers, and families and that create a new virtual digitalized platform between partners.

Given these premises, it is evident that digital health results in a complex and multi-actor system constituted by different elements, behaviors and interactions that could be considered, according to Service Dominant

Logic, a service ecosystem created by interconnected and different actors who interact directly and indirectly at micro, meso and macro level.

Service ecosystem provides the unit of analysis for activities of value co-creation between different actors that integrates resources in dynamic networks and are enabled by institutional activities (Vargo and Lusch, 2017); it is self-adjusting and defines and redefines actors' roles based on resource integration and the common purpose of value co-creation (Trischler *et al.*, 2020; Vargo and Lusch, 2016). Service ecosystem perspective provides a structural analysis that considers actors' activities at micro-level embedded and influenced by what happens at meso and macro-level (Trischler *et al.*, 2020; Trischler and Charles, 2019) where value co-creation is always a collaborative process that occurs in the context of a single set of different relations among heterogeneous actors (Vargo and Lusch, 2016. This multi-level approach is useful to represent the actors, the interdependence, and the resource integration eHealth and also to study tensions arising between actors.

Service ecosystems represent spatial and temporal structures of loosely coupled, value-proposing social and economic actors engaging in mutual service provision and value co-creation (Vargo *et al.*, 2015). Service provision and value creation through resource integration impact the nature of the system. These dynamics, in turn, determine a change in the context for future value creation processes (Chandler and Vargo, 2011). Resource integration, service provision, and value creation change the system's nature to some degree and, thus, the context for the next interaction and determination of value creation. Value co-creation in service ecosystems is thus a complex process involving the integration of resources from numerous sources in unique ways, which in turn provide the possibility of new types of service provision, and thus require coordination. Individual, as well as collective well-being, represent the forms of transformative value that encompass the "social dimension of value creation which illuminates uplifting changes among individuals and collectives" (Blocker and Barrios, 2015, p. 2) within service ecosystems.

In this new normal era, a digitally mediated healthcare service ecosystem has emerged as a disruptive reality useful to provide new solutions and manage new links and actors' and resources' integration to co-create transformative value.

Resource integration, service provision and value creation change the system's nature to some degree and, thus, the context for future interactions and determination of value creation.

In this continuous adaptive process of eHealth service ecosystem, there is not always alignment in the practices, worldviews, and desired outcomes of the different actors in the service ecosystems (Mc-Coll Kennedy *et al.*, 2020; Gallan *et al.*, 2019). Tensions between the different actors in the eHealth service ecosystem arise and need to be managed when there is no congruence between heterogeneous actors (Banoun *et al.*, 2016; Lusch and Nambisan, 2015; Vargo and Lusch, 2011). Tensions are embedded and unavoidable in actors' interactions in service ecosystem and sometimes could slow down institutionalization processes.

The aim of the paper is twofold: to investigate the evolution of the Italian eHealth service ecosystem during the pandemic and in the "new normal era" for chronic patients and to recognize tensions arising between different actors with different worldviews, and to understand how actors try to resolve the different tensions through institutional arrangements.

DESIGN, METHODOLOGY, APPROACH

To achieve these aims and coherently with the complexity of the issue, the study adopts a qualitative methodology: the study has been conducted in real context through face-to-face interviews with multi-level actors through 27 semi-structured interviews with key informants at different levels of the Italian eHealth service ecosystem.

The collected data were triangulated with those derived from participatory observations and the analysis of secondary data. Data were carried out between October 2020 and September 2021.

Semi-structured interviews were taped by the researcher who conducted the interview transcribed, and analyzed through a coding process and through content analysis (Neuman, 1997).

The interviews have been continuously compared with the others and with the other data to develop consistent findings and themes and to consider different and new perspective (Spiggle, 2003).

Differences between the researchers' interpretations of data have been discussed (Beeler *et al.*, 2017). Triangulation between the multiple data sources strongly support the research findings' validity (Eisenhardt, 1989; Yin, 2018)

PRELIMINARY FINDINGS

The evolution of the Italian eHealth service ecosystem has been enhanced by the Covid-19 pandemic: preliminary findings highlight that in this ecosystem resource integration and interactions are strictly connected to the context in which the ecosystem develops.

The integration of digital health and health services opened the door to new, important, and complex issues: the creation of a large amount of data, generated by users, is indeed useful for the health system but at the same time generates questions and tensions for what concern privacy, highlighting the need to establish new coherent policies.

Today, even if there are limited high-quality and randomized data supporting telehealth, there is evidence suggesting the benefit to patients given by health systems during pandemic and in this so-called "new normal" era.

The adoption of remote patient monitoring exploded during the COVID-19 pandemic and is moving on: these digital systems help care teams monitor, manage, and engage patients at homes. These new practices contribute to reducing costs and mitigating risks while improving outcomes.

Thanks to different tools, patients affected by chronic diseases have the possibility to easily come in contact with their doctors, constantly monitor vital parameters using wearable devices, and manage their emotional and psychological status through online support communities, volunteer programs, and so on.

In this digital service ecosystem, the engagement, and the contributions of all actors, at micro, meso and macro level, are important. They contribute in different but fundamental ways to value co-creation to give the right assistance to patients with chronic heart disease.

Integration of different resources creates new resources in which the different actors act on different levels of engagement and co-create value to ensure the well-being of patients, caregivers, and society.

From the preliminary findings the role of institutional actors', such as the Ministry for Technological Innovation, the Ministry of Health and so on, is fundamental and their coordination at macro level and with the actors of the other levels of the service ecosystem is necessary also considering the National Recovery and Resilience Plan.

In the eHealth service ecosystem, start-ups and private companies have provided advanced telemedicine software and tools to monitor the parameters necessary to assess chronic patients' health at home. Non-profit associations have expanded and sometimes modified their mission to continue their core activities and take care of chronic patients remotely.

In the eHealth service ecosystem, at micro level the correct management of digital devices by patients with different chronic disease and their caregivers from home helps the care teams to analyse data transmitted to computer platforms in a better way and to develop personalized care treatment. The role of the patient in this new healthcare ecosystem is transformed into a co-creator of value more than ever before.

These preliminary findings show also that the different actors that interact at intra and inter-levels are very sensitive to the continuity of care at home through telemedicine during COVID-19 pandemic and also during the "new normal" era.

Even if some Italian hospitals are investing in digital health, many others, lack the necessary and technical resources; moreover, the use of digital health requires appropriate software and platforms aligned with clinical workflows.

For remote assistance, it is necessary to have safe technological tools that preserve the confidentiality of health data, but it is not enough for them to simply function and be used. It is essential to be able to co-construct diversified and customizable organizational and relational settings.

The new path defined by the evolution of the service ecosystem in a transformative direction is not without obstacles and brings out tensions between the different actors of the service ecosystem at micro, meso and macro level.

Evolution due to different worldviews between actors, at the same level or at different levels, tensions arise, and service ecosystem needs sometimes to manage these tensions and potential conflicts to survive (McColl Kennedy *et al.*, 2020).

Tensions arise because there are some normative, political, and technological barriers; on the other side, there are tensions and resistance between the different actors in the process of resource integration.

A critical point is the lack of clinical and non-clinical staff able to adequately train to manage remote patients and interactions between chronic patients and digital technologies.

Misalignments in worldviews of the heterogeneous actors involved in the evolutionary process could result in significant tensions. In these multi-actor and multi-level relationships, the efforts of the different actors of the eHealth service ecosystem in managing these tensions could result in the development of new institutions and institutional arrangements.

According to extant literature, the preliminary findings show that actors' engagement, resource integration, and reconfiguration are coordinated by institutions and institutional arrangements (Sebastiani and Anzivino, 2021; Edvardsson *et al.*, 2014) and the platformization role of the meso level as an integrator.

Meso level appears as a virtual platform in which interactions between different actors take place and in which also tensions arise and are overcome (Sebastiani and Anzivino, 2021; Jaakkola *et al.*, 2019).

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INTENTIONS TO COVID-19 VACCINATION: ANTECEDENTS AND MODERATORS FOR A LOYALTY FRAMEWORK

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ABSTRACT

This study analyses vaccination hesitancy by applying a consumer loyalty framework where a combination of cognitive and affective antecedents results on positive word-of-mouth and advocacy toward vaccination. After a literature review on health behaviour and consumer loyalty, a mixed qualitative-quantitative approach is adopted with three stakeholders' profiles: two in-depth interviews with healthcare managers, nine open-ended questionnaires with healthcare workers, and a cross-cultural survey with a sample of 197 non-vaccinated people from Spain, Germany and Russia. The conceptual model is tested with PLS. Furthermore, we applied ANOVA to identify significant differences by country of origin.

INTRODUCTION

Health services are rich and complex both for (public) healthcare providers and health service researchers (Vergara *et al.* 2021). Indeed, a good example is COVID-19 vaccination hesitancy, which has turned to be a great challenge in a macro and micro levels (Brodie *et al.* 2021; Dror *et al.*, 2020), and where little academic research has been carried out so far.

The purpose of this study is to analyze COVID-19 vaccination hesitancy through consumers' attitude and to identify key dimensions/variables, which influence a person decision to the COVID-19 vaccination. After a literature review on health services ecosystems and vaccination hesitancy, this study develops a conceptual model by applying loyalty frameworks (Dick and Basu, 1994) where a combination of cognitive (trust to healthcare system, risk assessment, trust in official and unofficial sources of information) and affective antecedents (emotional attitude) results on loyalty as positive word-of-mouth and advocacy toward vaccination.

Vaccination hesitancy is studied here in three different approaches: descriptively, confirmatory (through a causal model) and exploratively (with t-test). A mixed qualitative-quantitative approach was adopted with three stakeholders' profiles: two in-depth interviews with healthcare managers, nine open-ended questionnaires with healthcare workers, and a cross-cultural survey with a sample of 197 non-vaccinated people from Spain, Germany and Russia.

LITERATURE REVIEW

Vaccination and the healthcare ecosystem

Vaccination against the COVID-19 is the only opportunity for the world to overcome the pandemic. The importance of the vaccination is clearly described in the WHO's "Statement for healthcare professionals: How COVID-19 vaccines are regulated for safety and effectiveness" (WHO, 2021). Vaccination has been shown to contribute to reducing deaths and severe illness from COVID-19, and to reduce the transmission of COVID-19. Vaccinating as many people as possible and reducing the spread of disease is important. Failure to vaccinate widely is a macro-level service failure, as it enables continued circulation of the virus and the generation of variants, including the very recent Omicron. The COVID-19 vaccination is now seen as the only tool to quickly create herd immunity, safe lives and stop the pandemic (WHO, 2021). However, the vaccination hesitancy phenomenon stays among the top 10 threats to global health (WHO, 2019). The distrust to vaccination and unacceptably high level of vaccination hesitancy could create a serious hindrance

for global vaccination campaign (Lazarus *et al.*, 2021). The cost of mistakes in this process is very high for all society.

Brodie *et al.* (2021) describe three levels of the healthcare service ecosystem for the coronavirus crisis: (i) micro-level: individual actors (physicians and patients working together with nurses and allied health professionals), (ii) meso-level: intraorganization actors (hospitals, clinics, and local healthcare support agencies), and (iii) macro-level: government actors (government agencies, including healthcare authorities). Understanding of these levels is important to gather all the richness and complexity of the vaccination hesitancy. Existing studies on Covid-19 vaccination behaviour are mainly descriptive (e.g. Bechard *et al.*, 2021; Raamkumar *et al.*, 2020). To the best of the authors' knowledge, no scholar studies have approached COVID-19 vaccination hesitancy through a consumer behaviour approach so far. The paper contributes to health services literature, as it approaches COVID-19 vaccination through a multidimensional consumer behaviour approach with a comprehensive model with affective, cognitive and conative dimensions.

Loyalty toward COVID-19 vaccination framework: a conceptual model

In accordance with literature on heath behaviour (Cao *et al.* 2017; Palumbo, 2017; Weinstein *et al.*, 2007) our study suggest a causal model with five antecedents of the attitudinal loyalty to vaccination: emotional attitude to the COVID-19 vaccination, risk assessment if no COVID-19 vaccination, trust to healthcare system, and trust to both official and unofficial sources of information.

First, emotional attitude is included as the personal perception of COVID-19 vaccination regarding confidence and assertiveness. Attitude can influence on the level of perceived susceptibility to the virus and severity for oneself health (Graffigna *et al.*, 2020). H1 suggests that emotional attitude influences positively on loyalty toward vaccination.

Second, risk assessment if no COVID-19 vaccination corresponds to a negative feeling arising in a pandemic situation. Some people believe that a COVID-19 vaccine could be more harmful for their health than COVID-19 infection (Puri *et al.*, 2020). All this scope of believes and attitude widely presented in the society and poses new managerial challenges in healthcare management. Therefore, H2 considers that consumers' risk assessment if no COVID-19 vaccination influences positively on loyalty toward vaccination.

Third, trust to healthcare system seems an important driver to avoid vaccination hesitancy and therefore influence loyalty. Indeed, trust formation in healthcare is a topic under permanent elaboration. Ozawa and Sripad (2013) identified key dimensions of trust in healthcare: honesty, communication, confidence and competence. In this review, authors identified objects or elements (such as doctors, insurers, pharmacists, etc.), and trust to the healthcare system, which is especially relevant for a pandemic. Consequently, H3 suggests that trust on health care system influences positively on loyalty toward vaccination.

Fourth, an important exogenous variable correspond to the level of trust to the information about the COVID-19 vaccination issued by the healthcare authorities (i.e., official information). Literature offers scales related to trust not directly to physicians, but to the healthcare institutions such as patients' trust and adherence to antiretroviral therapy (e.g. Altice *et al.*, 2001) or mistrust of healthcare organizations measured by Medical Mistrust Index associated with underutilization of health services (e.g. LaVeist *et al.*, 2009) or breast cancer screening (e.g. Katapodi *et al.*, 2010). In the context of COVID-19, H4 suggests that trust in official sources influences positively on loyalty toward vaccination.

Fifth, one of the important issues in pro-vaccination communication campaign is increased volume of the fake information without scientific background. Vergara *et al.* (2021) emphasized: "WHO has in fact warned the public that the world is in battle over another kind of epidemic called 'infodemics' that progressively spreads fake news, wrong information and false scientific claims." (p.1). Ball (2020) insists: "Groups in social networks opposing vaccines are small, but their online-communications strategy is worryingly effective and far-reaching". Accordingly, H5 considers that trust in unofficial information influences positively on loyalty toward vaccination.

Finally, the conceptual model suggest that advocacy becomes an attractive tool to identify personal advocative behaviours toward the COVID-19 vaccination, which could help to persuade hesitant people

(Chevallier *et al.*, 2021). Within a health service framework, loyalty is positive attitude, which corresponds to recommendation, and encouragement of the vaccination. H6 suggests that loyalty influences advocacy.

Moderator for a loyalty framework: The effect of culture in vaccination acceptance

Schwarzinger and Luchini (2021) underline the difference between the countries with rapid and slow vaccination progress. In the first (Israel, the United Kingdom), COVID-19 vaccination has become a social norm, which helps to convince the part of hesitant holdouts. However, other countries with reluctance about COVID-19 vaccination (i.e., Russia), distrust in information from official sources, and slow growth of vaccination coverage. Consequently, in this study we have formulated the following research question (RQ1): To what extent culture moderates vaccination acceptance?

METHOD

A mixed qualitative-quantitative approach is adopted with three stakeholders' profiles: Physicians and managers for the qualitative approach (2 in-depth interviews with healthcare managers, 9 open-ended questionnaires with healthcare workers), and citizens as consumers in a cross-cultural survey (a purposive sample of 197 non-vaccinated people from Spain, Germany and Russia). The conceptual model was tested with PLS, regressions and Anova to conclude on both relationships and differences by demographics, country of origin and situational factors.

Qualitative stage

In the qualitative stage, participants were selected through non-probabilistic purposive (stratified) sampling, among health workers of different levels, different ages and genders, to provide heterogeneity of experiences (Palinkas *et al.*, 2015). A combined approach of Personal in-depth interviews (PIs) and Open-ended questionnaire (OEQ) was used to support and enrich existing variables and scales (Jackson and Trochim, 2002; Yakow and Schwartz-Shea, 2014). PIs were conducted in May 2021 with Head of Radiology in hospital (Valencia) and Medical Director and Health Researcher in Spain (Valencia). Both experts have medical background and long-time profound managerial experience in healthcare industry; they both underlined the importance of trust to medical experts regarding the vaccine's efficacy and safety: "My colleagues trust my professional opinion on X-ray results report. I trust their knowledge and expertise about the COVID-19 vaccination." OEQ was the second part of the qualitative research phase. From 9 OEQs respondents there were 3 non-vaccinated persons (either because "infected by COVID-19 and got an immunity (antibody in blood)" or because they "believe that vaccine could be harmful for my health in long term".

Quantitative stage

The five antecedents in the causal model were measured with scales from health literature. To measure emotional attitude to the COVID-19 vaccination, we adapted Graffigna *et al.* (2020)'s scale on patient engagement, after a qualitative phase with two experts in health services. This is the only affective antecedent in the model (all four others being cognitive antecedents). Risk assessment of the COVID-19 vaccination measures the severity and susceptibility perception (Weinstein *et al.*, 2007). The level of trust in healthcare system reflects the relative attitude to the quality of the managerial decisions from healthcare authorities (Shea *et al.*, 2008). For addressing trust on both official and unofficial information we followed Cao *et al.* (2017).

For COVID-19 vaccination loyalty, described by positive attitude, recommendation, and encouragement of the vaccination, we chose three items from Zeithaml *et al.* (1996) well-known behavioural outcome scale. Advocacy is a measure of behavioural outcome that goes beyond loyalty. Cross and Smith (1996) state that "advocacy involves promoting a service to others and even defending it against detractors." Other researchers (e.g. Bettencourt, 1997; Fullerton, 2005; Bhati and Verma, 2017) consider advocacy as a certain form of word of mouth (WOM). Comparing to loyalty, advocacy describes proactive behaviour of the person aimed to promote the COVID-19 vaccination (Sweeney *et al.*, 2020). The scale from Sweeney *et al.*, (2020) was used in this study (3 items).

A convenience sample of non-vaccinated adults was collected in March 2021 through social media in different countries. The moment of this data gathering is important: vaccination was just starting in European countries, and just for senior citizens. The main characteristics of the final sample are presented in table 1.

Table 1: Characteristics of the sample

Characteristic		Spain	Germany	Russia	Others	Total freq. (Valid %)
Gender	Male	22	5	30	17	75 (37.9%)
	Female	38	23	45	15	122 (62.1%)
	Not answered	1		1		
	Total	61	28	76	32	197 (100%)
Education						
	Less than Bachelor	2	15	7	4	28 (14.2%)
	Bachelor degree	11	9	6	17	43 (21.8%)
	Master degree or higher	48	4	63	11	126 (64.0%
Occupation	Employee	16	8	31	16	71 (41.3%)
	Executive/manager	3	0	15	4	22 (11.5%)
	Self-employed	9	0	7	3	19 (9.9%)
	Retired	2	0	1	1	4 (2.1%)
	Unemployed	8	0	0	0	8 (4.2%)
	Student	13	20	19	5	57 (29.8%)
	Other	10	0	0	0	10 (5.2%)
Household income per year						
	less than 20000 euros	25	18	7	17	67 (34.0%)
	between 20000-59999 euros	27	9	49	10	95 (48.2%)
	60000 euros or higher	9	1	20	5	35 (17.8%)
Would you accept a COVID-19 vaccine for yourself?	Yes	57	16	35	18	126 (64.0%)
	No	4	12	41	14	71 (36.0%)
Total	N					197 (100%

The sample comprises 61 inhabitants of Spain, 28 inhabitants of Germany, 76 inhabitants of Russia and 32 from other countries. The sample is made up of 197 individuals, 37.9% of men and 62.1% of women. None of them have received a COVID-19 vaccine at the moment of the survey. The average age of respondents is 33.17 years old (the standard deviation is 10.73). Regarding socio economic features, Russians declare to have higher income than Spaniards and Germans. In the overall sample, 34% of individuals declare an income of less than 20000 euros per year, 48.2% declare an income between 20000 and 59999 while 17.8% declare an income higher than 60000 euros per year. Russians hold the highest number of surveyed people with a master degree or higher. In the overall sample, 14.2% of subjects admit having less than a Bachelor degree, 21.8% hold a Bachelor degree and 64% hold a master degree o higher. In the sample, 34% are employees, 28.9% are students, 11.2% are executives and managers, and 9.6% are self-employed.

RESULTS

Qualitative research findings

In the OEQ have been identified the following reasons, which influence the decision to refuse or postpone the COVID-19 vaccination: "fear of the unknown", questionable safety due to "the speed with which the vaccine has been made", "the bad press and social network's information about some vaccines", information about that "the side effects that have occurred in some people" after the vaccination, "lack of accurate and reliable information" from the official sources, "the influence of certain opinion groups against vaccination" among medical experts. Overall, results support the choice of the five antecedents in the conceptual model. Consequently, these perceptions are reflected in the risk assessment of the COVID-19 vaccination. Respondent who stated that the vaccines are too quickly brought to the market has doubts about its long-term safety: "Ineffective I doubt, but it will harm my health. I don't know what will happen in a few years after

getting a Messenger RNA vaccine." This opinion is also interrelated with the PIs' findings about attitude to the certain vaccine brand/producer. The negative perception increase level of vaccination related stress: "I feel stress against the case of a coming mandatory vaccination and the associated consequences." The emotional reactions of respondents who accepted the vaccination vary from "joy and hope have been my feelings" to mixed feelings and uncertainty.

Descriptive analysis: analysis per country

According to table 2, the respondents hold a positive emotional attitude toward COVID-19 vaccine, positive trust on official sources of information and positive loyalty toward COVID-19 vaccine (with means of 3.375, 3.243 and 3.160, respectively in the overall sample). The respondents do not trust heavily on unofficial sources of information (mean=2.260), they perceive low risk in case of no COVID-19 vaccination (mean=2.780) and show relatively low advocacy toward the COVID-19 vaccine (mean=2.3503).

Table 2: Descriptive statistics of the variables under analysis per country.

Variables	Spain: Mean (st.dev.)	Germany: Mean (st.dev.)	Russia: Mean (st.dev.)	All sample: Mean (st.dev.)
Emotional attitude	3.926 (0.912)	3.571 (1.252)	2.914 (1.017)	3.375 (1.079)
Risk if no COVID-19 vaccine	3.158 (0.806)	2.500 (0.953)	2.728 (0.905)	2.780 (0.954)
Trust on Healthcare System	3.950 (0.804)	3.053 (1.181)	2.861 (0.862)	3.243 (1.069)
Trust on official s. of info.	3.644 (0.811)	3.511 (1.274)	2.631 (0.821)	3.160 (0.997)
Trust on unofficial s. of info.	1.740 (0.751)	1.860 (1.079)	2.660 (0.932)	2.260 (1.001)
Loyalty	4.060 (0.859)	3.083 (1.365)	2.412 (1.028)	3.123 (1.269)
Advocacy	2.885 (0.908)	1.988 (0.843)	2.004 (0.883)	2.350 (1.006)

In order to analyse if the different means in table 2 are statistically significant, that is, if country of origin impacts on perceptions about COVID-19 vaccination, One-way ANOVA is carried out. A non-significant Levene test indicates homogeneity of variances, which is a basic premise of this technique. In case Levene was significant we observed the Welch statistic due to heterogeneity of variances. Post hoc analysis of Tukey is considered in case of homogeneity of variances and Games-Howell if heterogeneity of variances. The results are shown in table 3.

Results in table 3 highlight significant differences between the nationalities of the sub-samples, especially between Spain and Russia. Spanish citizens have a significant higher emotional attitude than Russia (Spanish mean=3.926 versus Russian mean=2.914), Germany citizens also have a significant higher emotional attitude than Russia (German mean=3.571). Spanish citizens have a higher perception of risk regarding COVID-19 with no vaccination (Spanish mean=3.158 versus German mean=2.500 and Russian mean=2.728). Similarly, Spanish citizens hold higher trust on the Healthcare System than Germans and Russians (Spanish mean=3.950 versus German mean=3.053 and Russian mean=2.861), higher loyalty (Spanish mean=4.060 versus German mean=3.083 and Russian mean=2.412), and higher advocacy toward the COVID-19 vaccine (Spanish mean=2.885 versus German mean=1.988 and Russian mean=2.004). The low trust on official sources of information of Russians is significantly different to Spanish and German trust (Russian mean=2.631 versus Spanish mean=3.644 and German mean=3.511). The lowest means correspond to trust on unofficial sources of information. Spain holds the lowest mean (Spanish mean=1.740) which is significantly different to the mean of Germany (German mean=1.860) and of Russia (mean=2.660).

Table 3: One-way ANOVA

Variables	Post hoc test Country	Country	Mean differences	Sig.
Emotional attitude	Games-H			
Levene= 3.925, p=0.009	Spain	Russia	1.011	0.000
Welch= 12.828, p=0.000		Others	0.676	0.012
	Germany	Russia	0.656	0.017
Risk if no COVID-19 vaccine	Games-H			
Levene= 3.465, p=0.017	Spain	Germany	0.658	0.014
Welch= 6.099, p=0.001		Russia	0.430	0.020
		Others	0.731	0.010
Trust on Healthcare System	Games-H			
Levene= 6.034, p=0.001	Spain	Germany	0.897	0.004
Welch= 20.611, p=0.000		Russia	1.088	0.000
		Others	0.982	0.001
Trust on official s. of info.	Games-H			
Levene= 4.196, p=0.007	Russia	Spain	-1.013	0.000
Welch= 18.080, p=0.000		Germany	-0.880	0.009
		Others	-0.555	0.013
Trust on unofficial s. of info.	HSD Tukey			
Levene= 2.530, p=0.059	Spain	Russia	-0.920	0.000
F=15.985, p=0.000		Others	-0.950	0.000
Loyalty	Games-H			
Levene= 5.922, p=0.001	Spain	Germany	0.976	0.007
Welch= 34.620, p=0.000		Russia	1.647	0.000
		Others	0.997	0.001
Advocacy	HSD Tukey			
Levene= 2.410, p=0.068	Spain	Germany	0.897	0.000
F=11.766, p=0.000		Russia	0.880	0.000

Hypotheses testing

Finally, to analyse the data and to test the hypotheses, this study applied Partial Least Squares – Structural Equation Modelling (PLS-SEM). In order to assess the model using PLS-SEM, we need to check the measurement model including reliability and validity. The Composite Reliability (CR), rho_A, and Average Variance Extracted (AVE), should be greater than 0.7, 0.7, and 0.5 respectively to establish reliability and convergent validity of reflective constructs involved in the framework of this study (Hair *et al.*, 2019). Table 4 shows the favourable results of the assessment of the current measurement model. Regarding collinearity statistics, all VIF values are below 10 except for item 24, so it is not a relevant concern.

Moreover, using two approaches called the Fornell-Larcker criterion and the heterotrait-monotrait (HTMT) ratio, the discriminant validity was assessed (Henseler *et al.*, 2015). Results of discriminant validity assessment by HTMT method found all values were lower than 0.9 and, therefore, discriminant validity for this study.

Table 4: Reliability of the measurement instrument.

Variable	Indicator	Loading (t-value bootstrap)	Cronbach's alpha	CR	AVE
Attitude toward COVID-19 vaccination	A1 Thinking about COVID-19 vaccination, I feel confident	0.925*** (79.230)	0.792	0.905	0.827
	A2 Thinking about COVID-19 vaccination, I feel peaceful	0.894*** (42.913)			

Risk perception if no COVID-19 vaccination	R1 With no COVID-19 vaccination, I think it is likely to get the COVID-19 infection during the next half a year *Reverse	0.837*** (29.240)	0.842	0.905	0.760
	R2 With no COVID-19 vaccination, I would expect to get the COVID-19 infection during the next half a year	0.903*** (38.135)			
	R3 With no COVID-19 vaccination, I would be very vulnerable to the COVID-19 infection.	0.873*** (32.950)			
Trust to healthcare system	TH1 The Health Care system does its best to protect people with the COVID-19 vaccination	0.912*** (53.372)	0.838	0.920	0.852
	TH2 People receive high quality COVID-19 vaccination from the Health Care System	0.934*** (100.440)			
Trust to official sources of information	TO1 I get comprehensive information about the COVID-19 vaccination from the official sources of information	0.820*** (21.895)	0.836	0.894	0.737
	TO2 I trust the official sources of information about the COVID-19 vaccination	0.918*** (77.121)			
	TO3 I trust the experts in medical science about the COVID-19 vaccine	0.835*** (30.489)			
Trust to unofficial sources of information	TU1 I trust the unofficial sources of information about the COVD19 vaccination (social networks, blogs, etc)	1.000 (0.000)ns	1.000	1.000	1.000
Loyalty toward COVID-19 vaccination	L1 I say positive things about the COVID-19 vaccination to other people	0.938*** (81.490)	0.960	0.974	0.926
	L2 I recommend the COVID-19 vaccination to someone who seeks my advice	0.977*** (240.359)			
	L3 I encourage friends and relatives to make the COVID-19 vaccination	0.971*** (244.793)			
Advocacy toward COVID-19 vaccination	A1 I take the initiative to actively promote the COVID-19 vaccination	0.913*** (106.410)	0.839	0.901	0.753
	A2 Even when there is no conversation, but if I think there are people who have an interest in the COVID-19 vaccination, I strongly recommend to be vaccinated.	0.892*** (44.248)			
	A3 When practical, I provide positive written feedback about the COVID-19 vaccination (e.g. recommendation blogs, comments on websites, etc)	0.792*** (17.513)			

CR= Composite reliability; AVE= Average Variance Extracted
***:p =0.000; ns= non significant

Once the properties of the measurement instrument are checked, the hypotheses are tested by estimating the structural model proposed using SmartPLS 3.0 (Ringle *et al.*, 2015) using bootstrapping of 1000 samples. The results are shown in table 5.

Table 5: Test of hypotheses

Relationship	St. Beta	T statistic	Sig.	Hypothesis
H1: Emotional attitude-> Loyalty	0.211	4.477	0.000	Accepted
H2: Risk if no v-> Loyalty	0.167	3.552	0.000	Accepted
H3: Trust HS -> Loyalty	0.201	3.160	0.002	Accepted

H4: Trust off.info-> Loyalty	0.461	7.741	0.000	Accepted
H5: Trust unoff.info -> Loyalty	0.005	0.115	0.909	Not accepted
H6: Loyalty -> Advocacy	0.795	40.145	0.000	Accepted
R Square Adjusted (Advocacy)= 0.630; R Square Adjusted (Loyalty)= 0.671				

According to results in table 6, all the hypotheses are accepted except one. Therefore, four out of five antecedents of loyalty toward COVD-19 vaccination are significant: Emotional attitude (H1 is accepted), risk if no COVID-19 vaccination (H2 is accepted), trust on Healthcare System (H3 is accepted) and trust on official sources of information about the COVID-19 (H4 is accepted). The relationship between trust on unofficial sources of information about the COVID-19 and loyalty about COVD-19 vaccination is not significant (H5 is not accepted). The link between loyalty and advocacy is clear according to the high significant standardized Beta coefficient of 0.795 (p=0.000) between both variables (H6 is accepted). The link between trust on official sources of information about the COVID-19 and loyalty about COVD-19 vaccination is also quite strong according to its significant standardized Beta coefficient of 0.461 (p=0.000). In contrast, the link between risk if no COVID-19 vaccination and loyalty toward COVID-19 vaccination is the lowest with a significant standardized Beta coefficient of 0.167 (p=0.000).

DISCUSSION

Our results are in line with the World Health Organization recommendations (WHO, 2017) regarding the prominent role of trust in health services provision. The theoretical framework reviewed and the results obtained in our study provide information on the levels of healthcare system on which key stakeholders could operate in order to increase COVID-19 vaccination rate (Brodie *et al.*, 2021), and recommendations how to do it (Chevallier *et al.*, 2021).

Official sources of information play an important role on the citizens behaviour about loyalty toward the COVID-19 vaccination. Thus, policy makers should be aware of this influence in order to diffuse positive information about the benefits of COVID-19 vaccination and persuade reluctant citizens about COVID-19 vaccination. It is also important to build trust over the Healthcare System in order to increase loyalty toward COVID-19 vaccination. Once citizens are loyal to COVID-19 vaccination, they will become advocates as indicated by the strong link found between loyalty and advocacy.

CONCLUSIONS

Key antecedents with positive effects on both Loyalty and Advocacy are Trust to Healthcare System, Official Sources of Information, Risks related to the non COVID-19 Vaccination, COVID-19 Vaccination Perception (all cognitive) and Emotional Attitude toward COVID-19 Vaccination (affective). Cross-cultural differences were identified: Spain appears as the country most favourable toward COVID-19 vaccination (higher attitude, loyalty and advocacy) while Russia is the country more reluctant. Spain is the country whose citizens trust more on the Healthcare System and on official sources of information about the COVID-19 (just the opposite corresponds to Russia). Finally, Spanish citizens have the lowest trust on unofficial sources of information about the COVID-19 than other countries while Russian citizens are the ones with the highest trust on unofficial sources of information.

CONTRIBUTION, LIMITATIONS AND FUTURE RESEARCH

Few or no scholar studies have approach Covid-19 vaccination through a consumer behavior approach so far. Moreover, the use of Advocacy as an uppermost level of loyalty (Sweeney *et al.*, 2020) is rather new and health services seem to be a good fieldwork to explore it.

Limitations of this work are both conceptual (the boundaries between variables defining health behaviour are controversial, as cognition and affection overlap for a high involvement service such as vaccination) and methodological (sampling process is non-probabilistic, results are therefore not generalizable, although they correspond to reluctancy official rates from the some countries).

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DIGITAL PUBLIC ADMINISTRATION AND THE EFFECT OF THE COVID CRISIS. THE CASE OF SPAIN

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ABSTRACT

The aim of this research is to analyze the digitalization stage of Spanish public administration, and particularly the current level of implementation of the e-Government. The data for this study includes two different periods, pre-COVID-19 crisis and post covid-19 crisis. Researchers have observed the e-Government practices of both the central, regional and local Spanish Government. The evolution of all the different applications developed in the context of e-Government in Spain has been analyzed although there is a wide dispersion in the results. Failures found in implementing e-government suggest the lack of an integrated approach.

INTRODUCTION

In the current era of a digital revolution, national and regional governments are increasingly defining digitalization as a strategic priority and are setting up large-scale initiatives to foster the digital transformation of science, industry and society (Legner *et al.*, 2017). The proliferation of digital infrastructure (mobile devices, wireless networks, personal computers, among others) facilitates their integration into economic, social, and political life and into the system of providing administrative services, which translates public administration into a completely different structure of relationships with citizens and organizational models (Suray *et al.*, 2020).

Along this research, we will refer to e-Government as the use of information and communication technology (ICT) applications to deliver various government services (Malodia *et al.*, 2021) based on the exchange of information.

This reality has moved Electronic Government (e-government) from a desirable stage to achieve to a demanded reality from the user's side. On the other hand, it has been strongly promoted from European regulations transposed into national laws. However, reality shows that not all the users are prone to integrate this relevant innovation into their routines with Public Administration processes, and on the other hand, not all the applications developed to this end are user-friendly or indeed a way to simplify and facilitate processes.

Within this context, several studies have been developed in the context of e-Government to date (Ahn and Bretschneider, 2011; Carter and Bélanger, 2005; Dada, 2006; Ebrahim and Irani, 2005; Ingrams *et al.*, 2020; Jho and Song, 2015; Kim and Lee, 2012; Malodia *et al.*, 2021; Nam, 2014). Most of the authors agreed on the fact that e-Government is a global trend with far-reaching benefits if implemented in the optimal way. It increases the convenience and accessibility of government services and information to citizens (Carter and Bélanger, 2005). However, despite the numerous benefits of e-Government identified so far, there are still a high number of drawbacks in the process. Some of the drawbacks come from the technological side (the need for better developments, technologies, or sometimes devices), and some others from the side of the user (barriers in the adoption process of this innovation) (Alawadhi and Morris, 2009; Irani *et al.*, 2012; Zheng and Schachter, 2017).

While e-government has attracted extensive interest for over a decade (Pérez-Morote *et al.*, 2020; Silcock, 2001), with a vast and extensive literature in this regard, there is still a need for integrating the two knowledge areas: information systems and public administration since both are essential for an effective implementation of e-Government (Malodia *et al.*, 2021).

Spanish Administration is in an ongoing modernization to be aligned, from an ICT point of view, with the "Digital Agenda for Europe", which is one of the main objectives of the 2020 European Strategy (Spanish Government, 2020). In particular, one out of the 4 areas included in the "Digital Compass" strategy of the European Commission (European Commission, 2021a) comprises the digitalisation of public services. The EU pursues the aim to have, by 2030, all key public services available online; that is, all citizens should have access to their e-medical records; and 80% of citizens should use an e-ID.

The process of digitalization Spanish public administration aims at, not only achieving public services close to the citizens, but also meeting the objectives of efficiency, democracy and transparency (Pérez-Morote *et al.*, 2020).

In most of the developed countries, digital transformation of public administration is rather slow; and the development is far behind of the officially defined and announced schedules (Sidorenko *et al.*, 2019). However, in 2020, Spain has been shown as a strong performer in Digital public services, among the 27 EU Members States in the European Commission, thanks to the digital-by-default strategy throughout its central public administration (European Commission, 2021). Particularly, Spain performs very well in e-government and continues to make progress with new developments, such as defining a reference framework to manage of Decentralized Identities on Blockchain and other Distributed Registration Technologies (UNE 71307-1:2020); or cooperating with Germany on building an ecosystem of digital identities, including a cross-border pilot and an information exchange in the area of self-sovereign identity (Mineco, 2021). In 2020, Spain adopted a specific plan for the digitalisation of its public administration (Spanish Government, 2020) and a law on electronic trust services, and created the Data Office Division. In 2021, it also approved the Regulation of action and operation of the public sector by online communication.

On the other hand, we consider the impact of COVID-19 within this study. In fact, the unexpected situation that the whole world faced in 2019, forced a much faster implementation of most of the e-processes (Agostino *et al.*, 2020; Bamufleh *et al.*, 2021; Mat Dawi *et al.*, 2021). The pandemic has affected almost every area of life and activities. This led to noticeable changes in technologies and their diffusion, as well as in economy, politics and the life of society (Abi Younes *et al.*, 2021; Brem *et al.*, 2021; Grinin *et al.*, 2021).

The aim of this research is to analyse the digitalization stage of Spanish public administration, and particularly the current level of implementation of the e-Government, considering both the information systems perspective and public administration. We pay special attention to the effect of the COVID-19 pandemic in the implementation process since, during this period, it has become evident that not every public administration services were ready for a complete implementation of the e-government.

METHOD

We adopt online content review based on researchers' observation of the e-Government practices of both the central, regional and local Spanish Government. The data for this study includes two different periods, pre-COVID-19 crisis, and post covid-19 crisis. For the first period, we have considered data form 2018 and, for the second period, data from 2020 since 2021 was not available at the time of this study.

Throughout this paper, we compare the situation in 2018 to the one in 2020, after the COVID-19 crisis, so that the influence of the crisis accelerating or not the process is underlined. To this end, the most relevant data from the OBSAE database have been studied. This database explains, monitors and periodically analyses the use of E-government and ICT in Spanish public administrations.

This database contains many indicators and they are grouped into different areas systems, sorted by the source of information or perspective. Each indicator is described briefly. In the various tabs we can discuss for each indicator: its annual or monthly developments, the breakdown of overall figures for other variables, additional reports and maps that present information territorialized. The indicators are updated monthly or yearly by their nature.

- Area Citizen Attention and Business. This area presents information on electronic services provided to citizens, companies, and authorities from the Direction of Information and Communication Technologies.

- Area Solutions for the Public Administrations. Responsible for the development of infrastructure and common services for the introduction of electronic administration.
- ICT infrastructure, broken down according to the three levels of Spanish public administration: General state administration, Autonomous (regional) communities and Local Entities.

FINDINGS

Among all the possible indicators, the most relevant have been selected due to their interest in the study.

Citizen Folder:

The Citizen Folder simplifies the relationship of citizens with public administrations online, by facilitating access to their information held by the administration, submitting a request and / or writing without having to know the competent public administration, or accessing the different electronic offices where you can process without having to know their email addresses. As we can observe (Figure 1), its use started to increase just before the COVID crisis.

Figure 1: No. of Hits on Citizen Folder
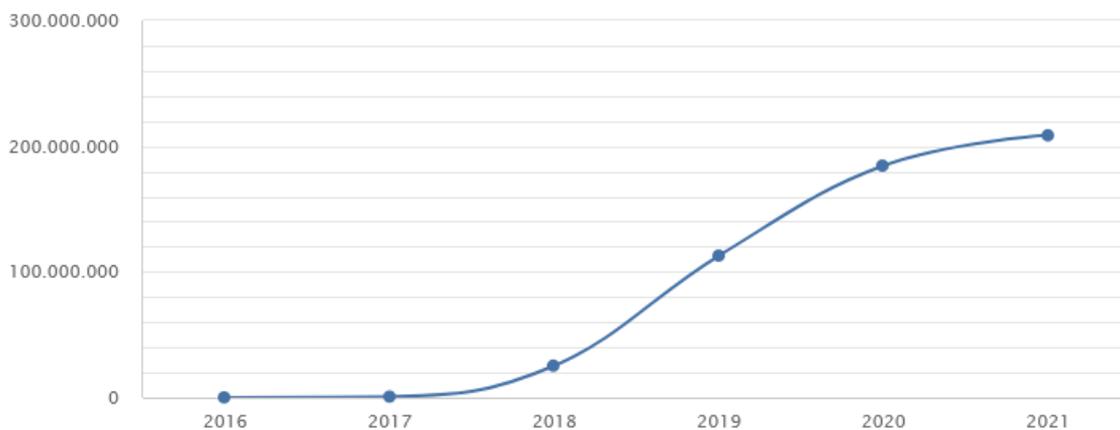
CL@ve:

Cl@ve is the common platform of the National Administrative Public Sector for identification, authentication, and electronic signature by using shared keys, open for use by all levels of government. It is a system aimed to unify and simplify electronic access by citizens to public services, whose main goal is to allow a citizen to identify and authenticate in front of a public body using shared keys, without remembering different keys for accessing different services. As we can observe (Figure 2), its use has been increasing exponentially in the last seven years, with a steeper slope from 2019, since the outbreak of the COVID-19 pandemic .

Figure 2: Accumulated registered users Cl@ve.
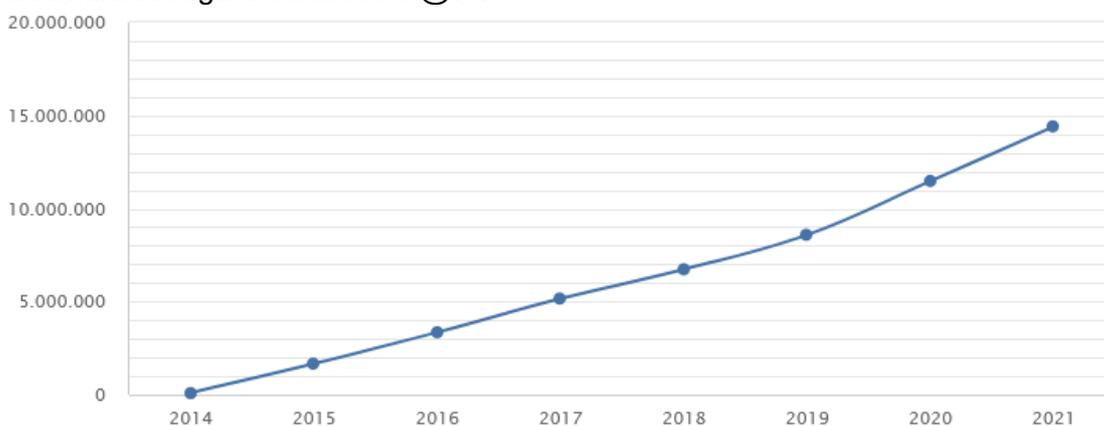
E-Invoicing:

The General Entry Point for E-Invoices makes it possible to get all the e-invoices of the General State Administration at a single point, to send them to the invoicing platforms or process them for those Processing Units which do not have invoicing platforms and keep the suppliers of the State informed of their invoicing status. As we can observe (Figure 3), its use started to increase in 2015, it was stablished from 2019 and 2020, and from 2020 the tendency comes upwards again.

Figure 3: Nº of invoices processed with e-Invoicing.
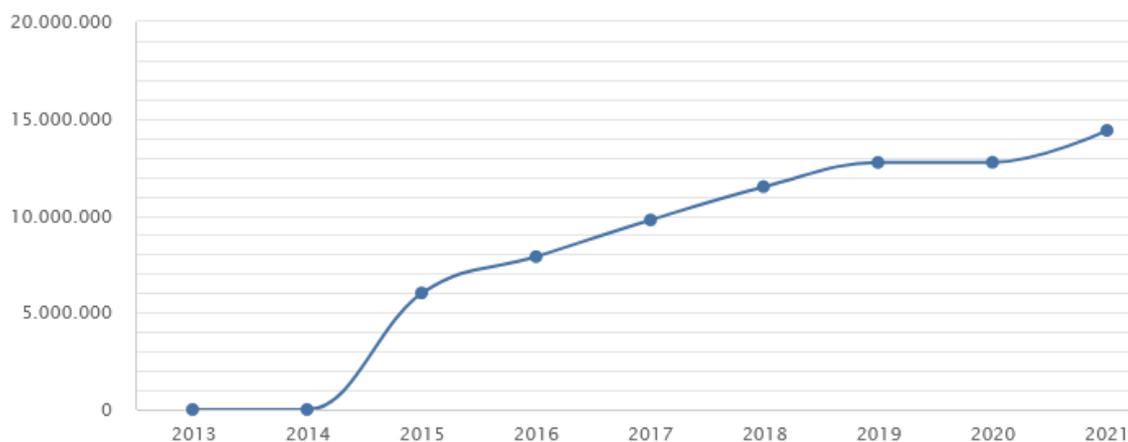
IPS:

IPS is a service to register online for the selection processes called by the Spanish Government in its Job Opportunities in the Public Sector. The full registration process can be done online (application form, online payment, and online registration). As we can observe (Figure 4), IPS use increased drammatically in 2019 but it dropped in 2020 due to the COVID crisis. Last year it has recovered its upward trend.

Figure 4: Nº of online registrations with IPS
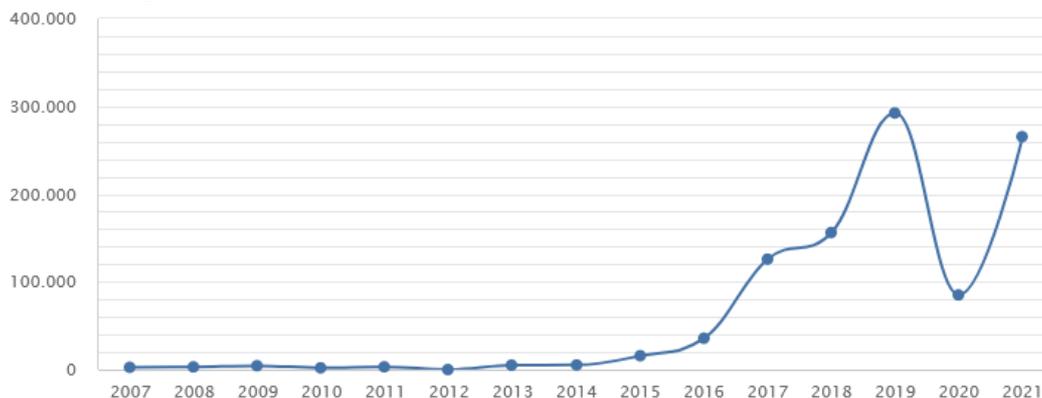
GENERAL ELECTRONIC REGISTER (REC):

The General Electronic Register is the general point for the submission of applications, writings and communications addressed to the Public Administrations, which do not conform to administrative procedures already contemplated in the Electronic Headquarters of the different Administrations. Here we can see (Figure 5) its large growth due to COVID crisis.

Figure 5: Nº of records sent through the electronic registry REC
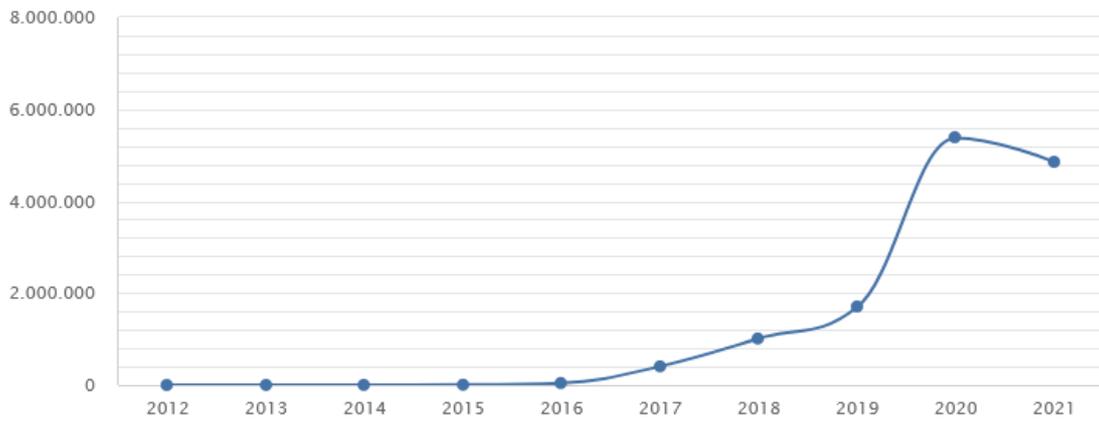
SIA:

SIA is a repository of procedures concerning the relationship between administration and citizens. In this case (Figure 6), its use started to increase before the COVID crisis. However there is a steeper slope just since the start of the COVID-19 pandemic..

Figure 6: Nº of procedures published in SIA (accumulated)
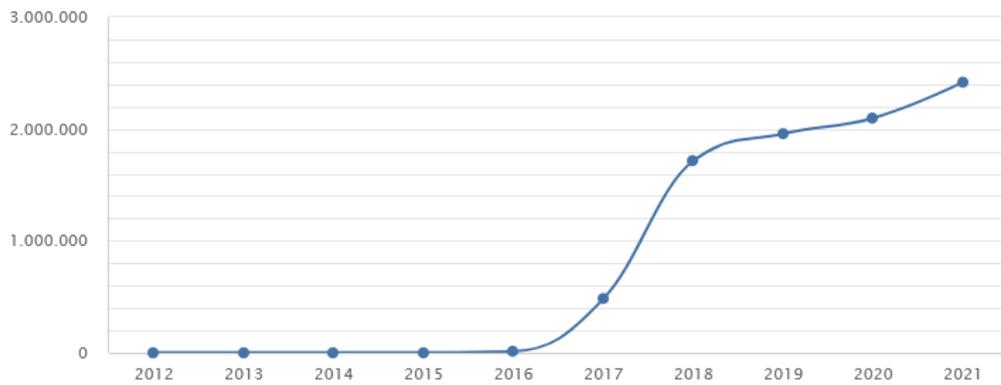
@FIRMA E-signature :

The electronic signature is a set of electronic data that accompanies or is associated with an electronic document and whose basic functions are:
- Identify the signer unequivocally.
- Ensure the integrity of the signed document.
- Ensures that the signed document is exactly the same as the original and that it has not undergone alteration or manipulation.

Here we can see (Figure 7) its large growth due to COVID crisis.

Figure7: Nº of visits to Firmaelectronica.gob.es portal.
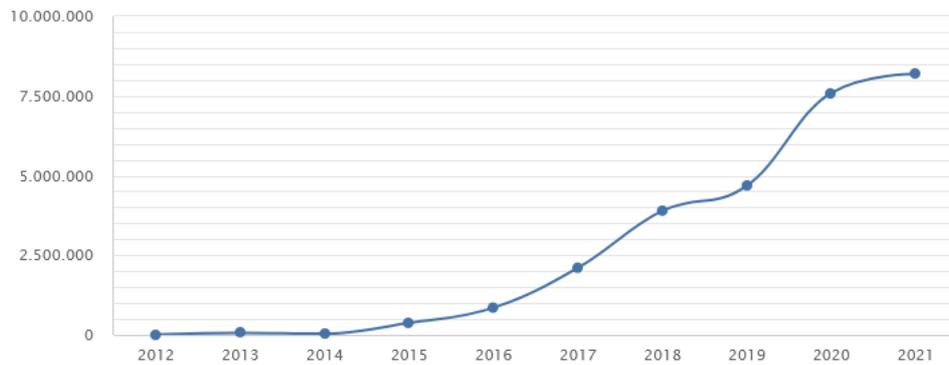
As we have seen, there is a wide dispersion in the results. While Cl@ve or SIA continue with an exponential trend, several others show signs of a slowdown in growth, such as Citizen Folder and e-Invoicing. This could be due to the fact that they started to growth before the COVID crisis, while others that had not been so used, such as @Firma, were compulsory promoted with the COVID crisis. However, others have showed a decrease in their use such as REC or IPS, although IPS has recovered its trend.

CONCLUSIONS

This research offers a clear picture of how things have evolved and which tools are more extended among users. There is still a long way to go up to the fully implemented e-Government because Spain is a leader in digital infrastructures but there is a lack of digital competences (REF). Therefore, it is necessary to analyze in-depth each of the factors, especially those that show a slower behavior, to see which factors hinder their development.

Although Spain was placed on the list of top performers according to the United Nations e-Government survey 2020, there is still a long way to go up to the fully implemented e-Government. Failures in implementing e-government interventions suggest the lack of an integrated approach in understanding e-government as a discipline and the lack of systematization in the entire process.

This piece of research addresses the e-Government issue from the perspective of multiple e-government stakeholders, such as citizens, policymakers and various implementation partners. And offers a clear picture of how things have evolved and which tools are more extended among users, notwithstanding the fact that they are the most needed or useful to guaranty a successful fully implemented e-Government. In fact, a wider analysis of the different applications is needed in order to identify how to improve effectiveness and usefulness of every tool.

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THE IMPACT OF TEMPORAL STRUCTURES ON THE TEMPORAL SCHEMATA OF STUDENTS DURING COVID-19

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ABSTRACT

This study uses a mixed method approach to explore the impact of imposed Covid-19 measures on the temporal schemata of students. Surveys and interviews were conducted during the first and second Covid-19 wave in Belgium to explore how behavioral responses change over time. The study is based on the Temporal Cognitive-Affective Processing System developed by Shipp and Richardson (2021). The results indicate that restrictions on social contact have high impact on the daily lives of students and are not sustainable over time.

INTRODUCTION

The Covid-19-outbreak has been taken control of our lives for almost two years now. On March 10th 2020, Belgium was confronted with its first death due to Covid-19. Only two days later, the Belgian government was forced to take extreme measures to restrict social interactions and this way control the spread of the virus. These measures implied a closure of schools, bars, restaurants and non-essential shops. Working from home became mandatory if possible and universities switched to complete remote learning. Non-essential displacements were prohibited, as well as outside gatherings with more than two people. Visiting friends and family was also not allowed. Originally these measures were enforced until April 2020. However, it soon became clear that we would not return to a normal situation any time soon. By the end of March 2020, The Flemish universities decided to suspend the on-campus teaching activities until the end of the term. Drastic adjustments to the exams in June 2020 were also necessary. At the peak of this first Covid-19 wave, 1285 Belgian patients were admitted in an intensive care unit and over 400 people died per day (Sciensano, 2020b). The first relaxations could be taken during May 2020, and by the end of June 2020 we had returned to a more or less normal situation.

However, this was short-lived. By the end of July 2020, the number of infections had increased again and some small restrictions were reinforced. Ghent University decided to start the new academic year in a hybrid setting, meaning that small groups of students were welcome on-campus while the remainder followed lectures online. In October 2020, lock-down measures were taken again due to an extreme increase in occupancy rate of intensive care. Again bars, restaurants and sport-clubs were closed. A complete ban on non-essential displacements was not introduced again, but instead a curfew from midnight until five a.m. was installed. Ghent University also completely switched back to remote learning at least until the end of March 2021. Social contact was also greatly reduced. The majority of these measures lasted until May 2021. After all, by then vulnerable people and health care workers were vaccinated. At the peak of this second Covid-19 wave, 1464 patients were admitted in an intensive care unit and around 180 people died per day (Sciensano, 2020a).

These regulations and prohibitions have huge social, emotional and economic implications. Some of the measures change our relationship with time. An example is the curfew. This measure implied that nobody was allowed to leave their house from midnight until five a.m. But also other measures that do not directly include a dimension of time, like working from home or remote learning, drastically change our daily routines and therefor have an impact on our individual temporal schemata. Temporal schemata are generalized cognitive frameworks that give meaning to experiences related to time. They contain an individual's knowledge about clock time. Examples are being a morning person, always arriving late or preferring to work on a tight deadline (Labianca, Moon and Watt, 2005). The temporal schemata of each individual are formed

by and confronted with a process of temporal structuring. Temporal structures are imposed by organizations and create a rhythm of organizational activity. They are shared between people. Examples of temporal structures are the concept of weekends, office schedules and deadlines (Orlikowski and Yates, 2002). There are continuous interactions between the individual temporal schemata and temporal structures of organizations. These interactions lead to behavioral responses.

Shipp and Richardson (2021) introduce the Temporal Cognitive-Affective Processing System (T-CAPS) in which they propose that in the context of time, temporal schemata and temporal structures operate within a person-situation interaction. This assumption is based on the Cognitive-Affective Processing System (CAPS) that states that a behavioral response is the result of the interaction between features of the situation and the cognitive-affective units of an individual. These cognitive-affective units include: encodings; expectancies and beliefs; affects; goals and values; competencies and self-regulatory plans. The Cognitive-Affective Processing System explains the variability in behavior between different individuals, and between different situations within the same individual. Figure 1 demonstrates the mechanism captured in the Cognitive-Affective Processing System. An individual will analyze the features of a certain situation in the encoding process. Subsequently the cognitive-affective units will start to operate and will generate a behavioral response (Mischel and Shoda, 1995).

Figure 1: The Cognitive-Affective Processing System (CAPS) (Mischel and Shoda, 1995)
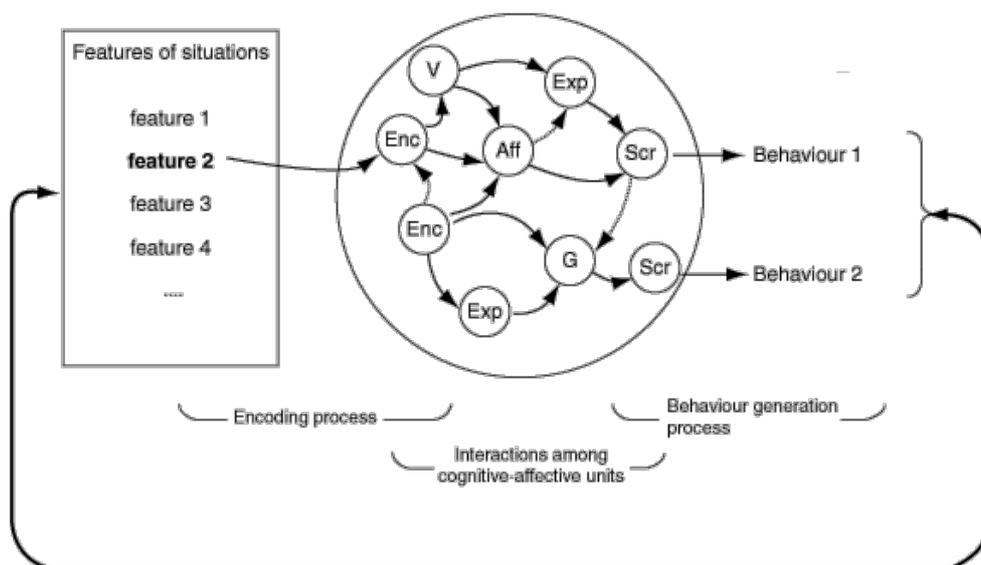
The Temporal Cognitive-Affective Processing System is an extension of the Cognitive-Affective Processing System. The Temporal Cognitive-Affective Processing System (see Figure 2) suggests that when individual temporal schemata are confronted with organizational temporal structures a consistency evaluation follows. When there is consistency, the individual will comply to the imposed temporal structure without much thought. This is called *automatic entrainment*. For individuals always going to bed at or before midnight, the imposed curfew between midnight and five a.m. is consistent within their temporal schemata and will lead to automatic entrainment (Shipp and Richardson, 2021).

However, when there is inconsistency, the temporal cognitive-affective units will interpret the characteristics of the temporal structure and will generate one of four possible behavioral responses. The first one is *deliberate entrainment*. This implies that the individual will completely comply with the temporal structure, based on a deliberate choice since the individual understands it is important for themselves (*self-interest*) or for society (*social interest*). In the example of the curfew, individuals will not leave their home at night because they understand it is a necessary measure to combat the virus. The next possible behavioral response is *passive resistance*. Passive resistance is shown when an individual entrains partially, but not completely. They resist in a limited way. This could mean that an individual usually follows the curfew, but not on New Year's Eve because on this night it is too inconsistent with his/her individual temporal schemata and this person is therefore willing to take a risk. *Active resistance* is another possible behavioral response. In active resistance, the individual does not comply with the temporal structure at all and does it with explicit verbal or

physical actions. This can occur in a constructive way (e.g., voicing suggestions about other options) or a destructive way (e.g., protest and violence). The last possible behavioral response is *creation of substructure*. This usually comes from high information uncertainty about the temporal structure. Individuals need to fill in the gaps themselves and this leads to the creation of temporal substructures. An example of this is leaving your friends' house at six a.m. instead of one a.m. The individual is technically obeying the rules, since they are not on the street during the night, but the purpose of the curfew is defeated (Shipp and Richardson, 2021).

Figure 2: The Temporal Cognitive-Affective Processing System (T-CAPS) (Shipp and Richardson, 2021)
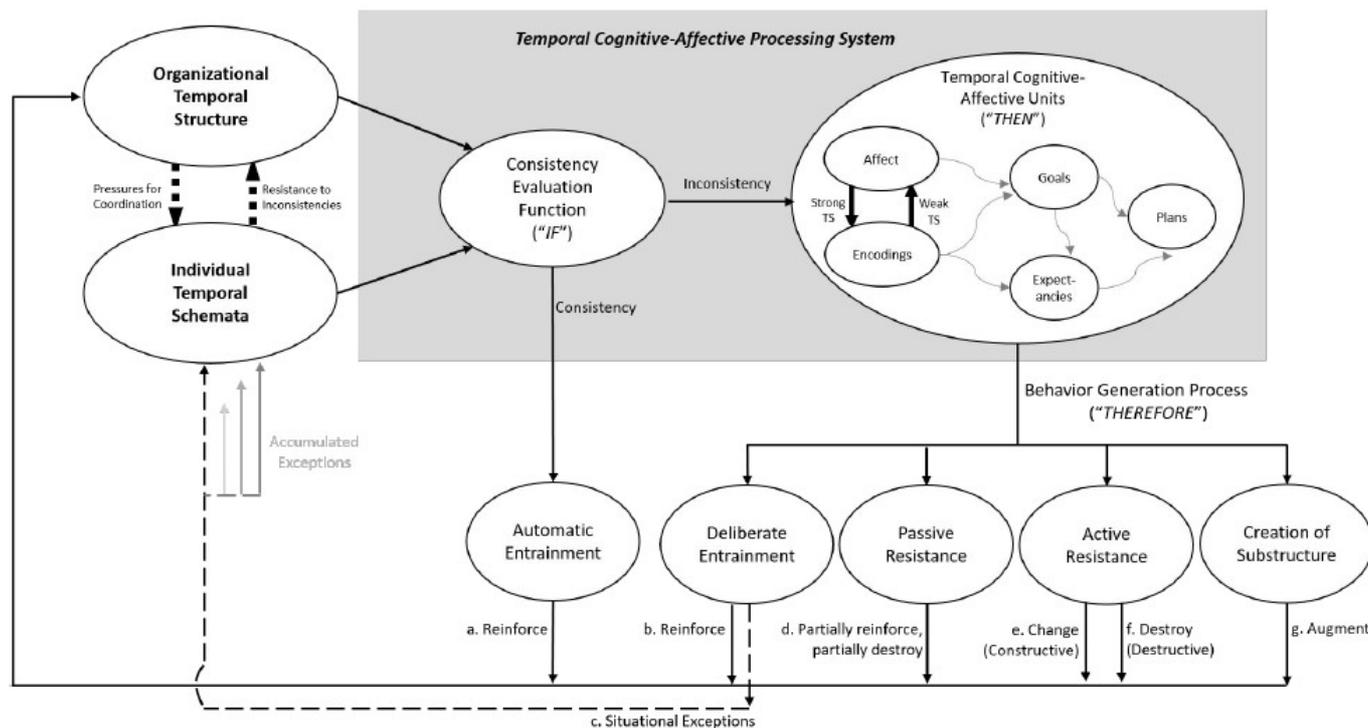
Shipp and Richardson (2021) use the characteristics of interpersonal situations (Reis, 2008) to explain how behavioral responses are generated. They include outcome interdependence (the degree to which the two parties have influence on each other's outcome), mutuality of power (the degree to which the power of the two parties is balanced), anticipation of future interaction (the expectation of interaction over the long term) and information uncertainty (the availability of the needed information). Lastly, the T-CAPS also suggests that behavioral responses, apart from automatic entrainment, may change over time (Shipp and Richardson, 2021).

In this study the Covid-19 measures are taken as temporal structures that impact the temporal schemata of students. Students were faced by both governmental measures and measures taken by the university. This resulted in specific challenges and make them an interesting scope for the study. *We aim to explore how students respond to imposed covid-19 measures, how these responses change in the different Covid-19 waves and by which context characteristics the behavioral responses are influenced.*

METHOD

This study uses a mixed method approach. Web based surveys were distributed among students of Ghent University during the two largest Covid-19 waves in Belgium up to now, respectively in April - May 2020 and December 2020 - February 2021. In the survey, students were confronted with descriptions about current Covid-19 measures and were asked to indicate the type of behavioral response that best matched their response to the measure in real life. The response options were: automatic entrainment, deliberate entrainment – self-interest, deliberate entrainment – social interest, passive resistance, active resistance and creation of substructure. The surveys also included socio-demographic questions, like gender, faculty and year of study and work regime.

The first survey included three measures taken by the university: the rescheduling of on-campus exams, the replacement of some 'on-campus' exams to online exams and the switch from on-campus lectures to online lectures. It also included two measures taken by the government: the ban on non-essential displacements and the ban on gatherings and visitations. The second survey included one measure taken by the university, namely the switch from on-campus lectures to online lectures. Three measures taken by the government were also included: the curfew, the closure of bars and restaurants and the restriction on gatherings and visitations. Appendix 1 gives detailed descriptions of the measures as they were included in the surveys.

In addition to the two surveys, interviews were also conducted during the two largest Covid-19 waves. In the first set of interviews, ten students of Ghent University were interviewed before the development of the survey. The interviews focused on exploring which type of measures had the most impact on the daily lives of students and why. The interviews helped with the development of the survey. In the second set of interviews, twenty students of Ghent University were interviewed. This time, interviewees filled in the renewed survey before the interview took place. These interviews focused on exploring the internal process that generated the behavioral responses indicated in the survey.

Convenience sampling was used to recruit the participants of the surveys and the interviews. However, we tried to achieve a good mix of students with different socio-demographic by contacting working students and different years of study.

FINDINGS

The socio-demographics

The first survey was filled in by 442 students. 76 per cent of them were female and 22 per cent lived together with at least one risk patient for Covid-19. A risk patient is defined as a person over 65 years of age, a person with diabetes, heart, lung or kidney disease or a person whose immune system is weakened. Most students were in their linking course (48 per cent) or master year(s) (35 per cent). The most frequent faculties of study were Medicine and Health Sciences (66 per cent) and Economics and Business Administration (26 per cent). 85 respondents were working students, working full- or part-time.

Six of the ten interviewees were female. Most of them (seven) studied at the faculty of Economics and Business Administration. The remainder were students from the faculties of Psychology and Educational Sciences, Political and Social Sciences and Arts and Philosophy. Five interviewees were in their master year(s), four in their second or third bachelor year and for one interviewee it was their first year studying at the university. Information about working regime or whether the interviewees lived together with a risk patient, is not available.

The second survey was filled in by 454 students. 81 per cent of them were female. 23 per cent of the respondents lived together with at least one risk patient for Covid-19 and five per cent were at risk themselves. Most students were in their master year(s) (35 per cent) or linking course (33 per cent). The most frequent faculties of study were Medicine and Health Sciences (55 per cent) and Economics and Business Administration (17 per cent). 84 respondents were working students, working full- or part-time.

Twelve of the twenty interviewees were female. Thirteen of the interviewees studied at the faculty of Medicine and Health Sciences. The remainder were students from the faculties of Economics and Business Administration, Law and Criminology and Psychology and Educational Sciences. Half of the interviewees were in their master year(s), six in their linking courses and the remainder in their second or third bachelor year. Seven interviewees worked full- or part-time and five lived with a risk patient or were risk patients themselves.

A large part of our sample in both surveys and both set of interviews consisted of students from the faculty of Medicine and Health Sciences and the faculty of Economics and Business Administration. This is due to the connections the researchers have to those faculties.

The behavioral responses to the Covid-19 measures

The distribution of the behavioral reactions on measures concerning the exam period of the students in June 2020 are presented in figure 3. A similar pattern in behavioral responses is visible between the rescheduling of exams and the replacement of some on-campus exams with online exams. Automatic entrainment and deliberate entrainment out of social interest are most present, followed by deliberate entrainment out of self-interest and creation of substructure. Only eight per cent of the respondents show passive or active resistance. Seven interviewees experienced feelings of anxiety due to the uncertainties regarding the exams.

Figure 3: The behavioral responses to the rescheduling of exams and the replacement of some on-campus exams to online exams, in per cent (survey 1, n=442)
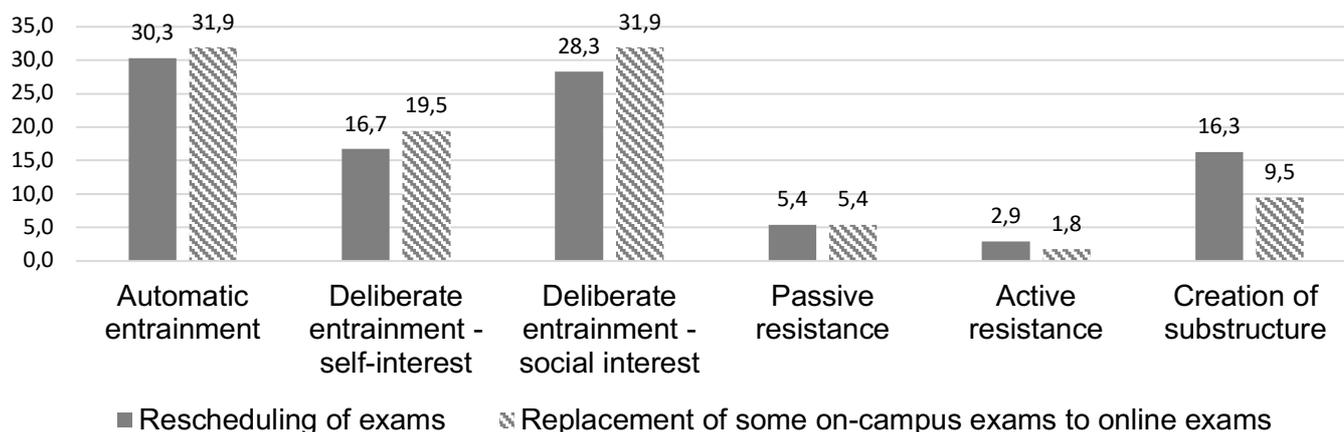
Both surveys included a measure about the switch from on-campus lectures to online lectures. There is a similar pattern between the results in the first and second survey (i.e. first and second Covid-19 wave) (see figure 4). Most students show automatic and deliberate entrainment. However, there is a small shift visible from deliberate entrainment out of self-interest and resistance in the first survey to automatic entrainment and deliberate entrainment out of social interest in the second survey. According to the interviewees, automatic entrainment is shown because they see little room for resistance, remote learning fits better within their schedule or they do not usually physically attend lectures anyway. In the first set of interviews, an interviewee complained about a lack of uniformity between online courses, while in the second set of interviews it was mentioned that it was clear that professors had gained experience in remote learning.

Figure 4: Comparison between the first and second survey of the behavioral responses to the switch from on-campus lectures to online lectures, in per cent
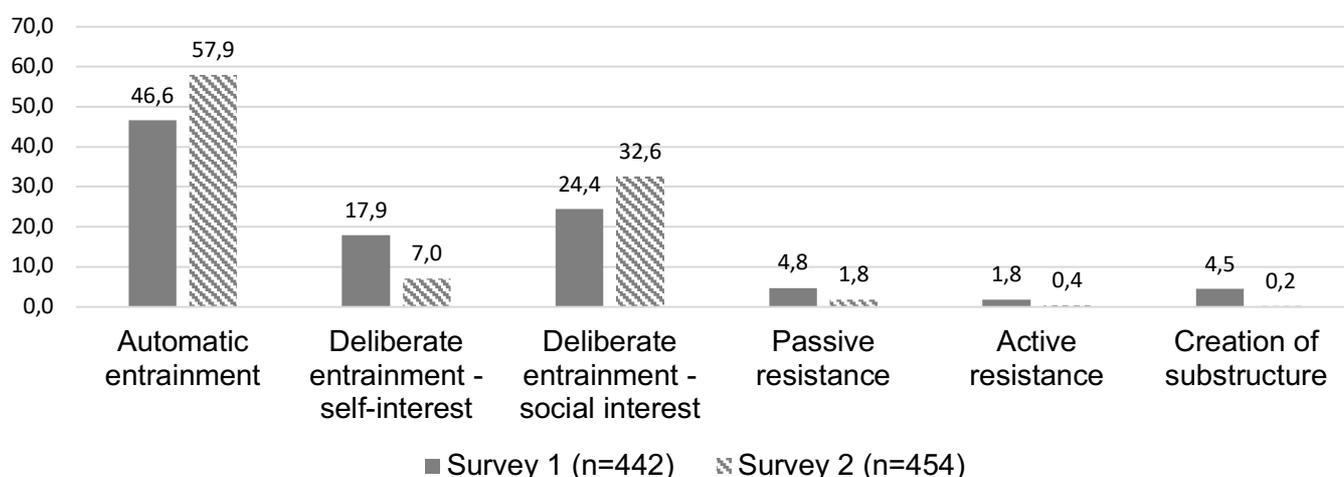
The governmental measure of the ban on non-essential displacements from the first survey, is similar to the measure of the curfew in the second survey. After all, they both entail a restriction in mobility. The former

was however way more extreme than the latter. Figure 5 represents the behavioral responses to the ban on non-essential displacements and the curfew. The pattern of behavioral responses is fairly different between the two measurements. The complete ban of non-essential displacements is mostly followed out of deliberate entrainment, while there is more automatic entrainment visible in the measure of the curfew. Even though students understand that the ban on non-essential displacements is a necessary measure, the results show that the measure is not consistent within their temporal schemata. In the second set of interviews, six interviewees mention that the measure of the curfew was not hard to follow because they usually do not go out at night anyway, especially not when bars and restaurants are closed. In both time periods, deliberate entrainment out of self-interest is shown because of the fear to get fined.

Figure 5: Comparison between the behavioral responses to the ban on non-essential displacements in the first survey and the curfew in the second survey, in per cent
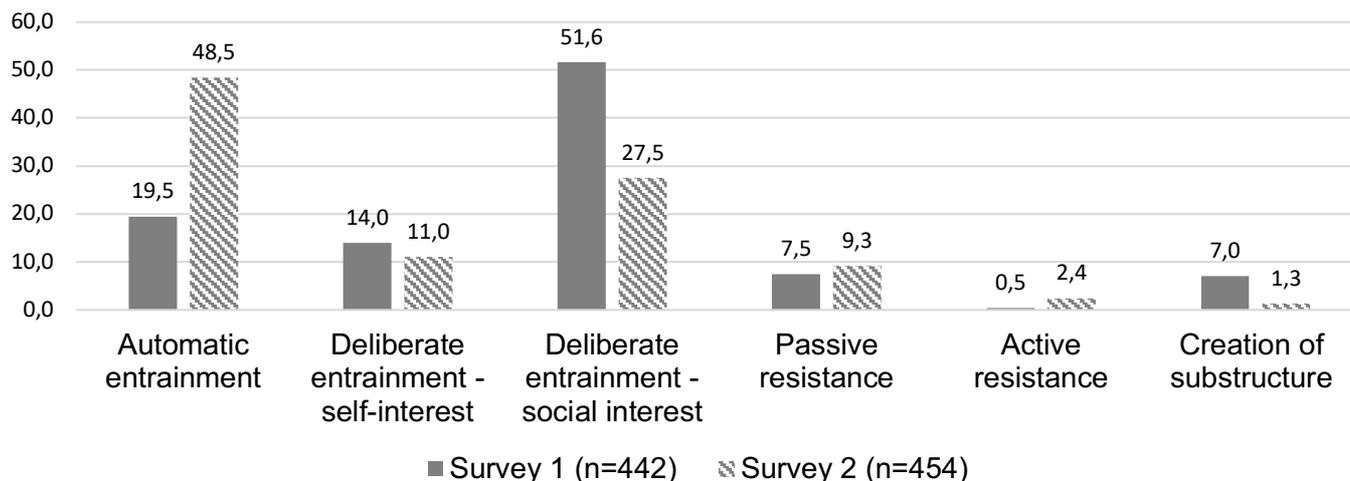

During the second Covid-19 wave in Belgium, bars and restaurants were closed again. This measure was included in the second survey. The distribution of the behavioral responses on this measure is represented in figure 6. Students mostly show deliberate entrainment out of social interest. Ten interviewees state that the reintroduction to this measure was hard. They, however, understand that it was a necessary measure to take.

Figure 6: The behavioral responses to the closure of bars and restaurants, in per cent (survey 2, n=454)
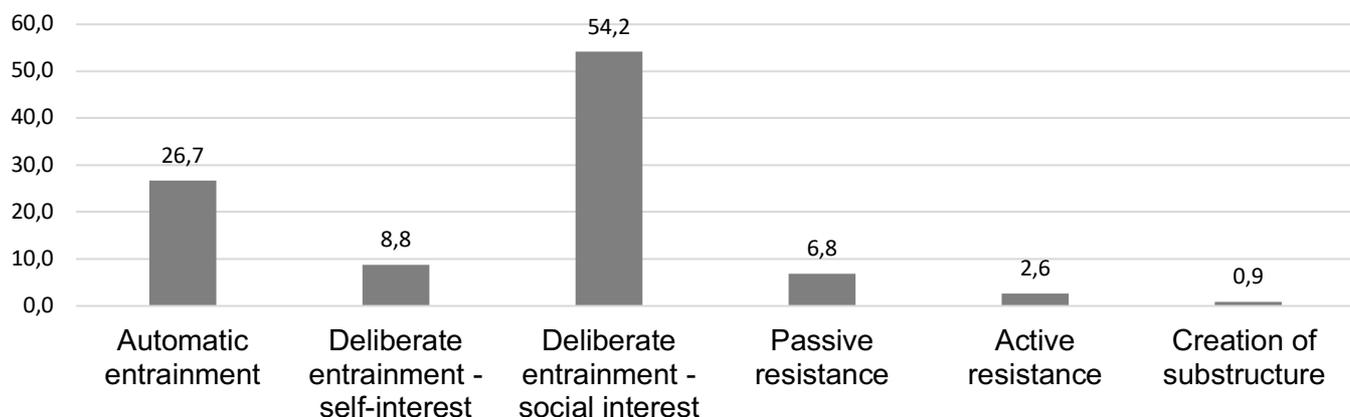
Lastly, both surveys included a measure regarding the restriction of social contact. In the first Covid-19 wave this restriction was more extreme than in the second Covid-19 wave. The results (see figure 7) however show a clear increase in passive and active resistance in the second survey compared to the first. After all, the interviews indicate that these measures started to weigh on the mental health of students. Some interviewees also mention that the regulations are unclear. Deliberate entrainment out of social interest remains the most

shown response in both questionnaires. This demonstrates that most students understand the severity of the situation. Especially students who lived together with a risk patient or who worked in health care, were motivated to follow the restrictions.

Figure 7: Comparison between the first and second survey of the behavioral responses to the restriction in social contact, in per cent
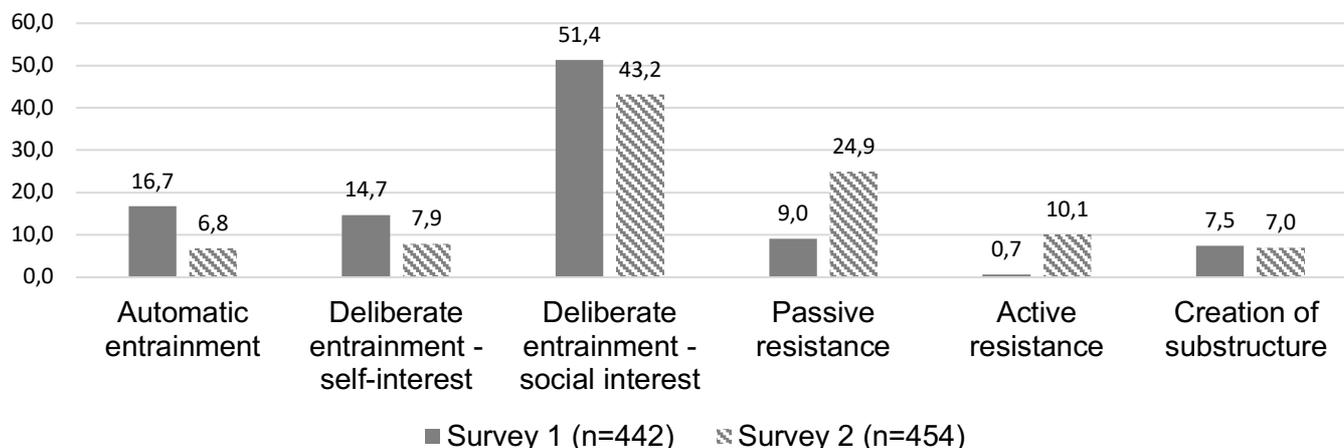
DISCUSSION

This study aimed to explore how students respond to imposed Covid-19 measures and how these responses change over time by using a mixed-method approach including surveys and interviews. The descriptive analysis of the survey show that most students entrain towards the measures taken by the university in both covid-19 waves. The interviews indicate that the students mostly follow the university measures because there is little room for resistance. This can be explained in terms of an asymmetric power dynamic (Reis, 2008) between the student and the university and a lack of the students' competency to show resistance (Mischel and Shoda, 1995). A slight increase of automatic entrainment is visible with respect to the measure of remote learning in the first Covid-19 wave compared to the second. This could mean that students are getting used to this form of education. It is also possible that the experience of the universities and professors with online teaching has increased.

In the measures taken by the government there is more difference visible between the two measurements. The resistance to the measures grows over time, especially when they interfere with students' social contact. The results show that the complete ban of non-essential displacements from the first Covid-19 wave is less consistent with the temporal schemata of students than the curfew from the second Covid-19 wave. Even though they both entail a restriction in mobility, the impact of them is fairly different. Most students show deliberate entrainment towards the closure of bars and restaurants. They understand that this is a necessary measure, but it is a hard pill to swallow. It is not consistent with their individual temporal schemata.

Deliberate entrainment is also the most shown response in the two measures restricting social contact. The students that show entrainment behave this way because they understand it is vital to combat the pandemic. The high outcome interdependence (Reis, 2008) in this situation makes the students act more cooperative to obtain the desirable outcome. When comparing the two measurements, the active and passive resistance towards this measure increases over time. Students that show resistance, do so because the rules are either too unclear or too hard to comply with. The ambiguity in the measures points to a high information uncertainty (Reis, 2008). Students who show resistance because the measure is too hard to follow, may have a lower level of competence in dealing with less social contact (Mischel and Shoda, 1995).

A general finding is that students who combine their studies with work in healthcare or students who have a family member that is a risk patient for Covid-19, find it easier to follow the regulations. Their encodings, affects and values are different (Mischel and Shoda, 1995).

In a next study we want to obtain more insight into why the behavioral responses change over time. We hypothesize that the duration of the measures plays an important role.

VALUE

This is the first study to apply the T-CAPS in the context of customers. It will contribute to the understanding of the behavior of customers when confronted with temporal phenomena in service research. By using data collected during two different time periods, the study also provides insight into how these behavioral responses change over time. Comparing temporal structures imposed by different institutions adds value as well. It demonstrates that amongst others power balance is an important factor in generating behavioral responses. Lastly, by including students with diverse socio-demographics, the impact of living environment is also studied.

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APPENDIX

Table 1: The description of the measures included in the surveys

Imposer	Measure	Description
Survey 1 (April – May 2020)		
University	Rescheduling of on-campus exams	On March 26th 2020 Ghent University decided to reschedule the on-campus exams in June in order to comply to the guidelines regarding social distancing. The exam period will start a week later than initially planned. By consequence, your initial exam schedule may have been adapted. If the 1st of June is unachievable, the exams will start somewhere between the 1st and the 15th of June. If the 15th of June is still unachievable, the start will be postponed to the 10th of August.
	Replacement of some on-campus exams to online exams	On March 26th 2020 Ghent University decided that the evaluation for some courses will be changed to online evaluation, instead of written, on-campus exams.
	Switch from on-campus lectures to online lectures	On March 13th 2020 Ghent University decided to switch to remote learning. On March 20th it was communicated that all on-campus teaching

Government	Ban on non-essential displacements	activities will be suspended until the end of the term. On March 18th a ban on non-essential displacements was installed. This entails that you are only allowed to leave the house for the following actions: work, grocery shopping, going to the doctor or a pharmacy, offering assistance to an acquaintance that is less self-reliant and outdoor physical activity.
	Ban on gatherings and visitations	As of March 18th gatherings with more than two people are prohibited. Only people that live under the same roof are allowed to go outside with more. Visits to friends and family that do not live under the same roof are forbidden, unless the visit is aimed at offering help to someone who is less self-reliant.

Survey 2 (December 2020 – February 2021)

University	Switch from on-campus lectures to online lectures	On the 26th of October 2020 Ghent University decided to switch all on-campus lectures to only online lectures again. Before that, small groups of students were allowed on campus.
Government	Curfew	Since October 19th 2020 a curfew is set in Flanders. Specifically this means that you cannot go outside between midnight and five a.m. without a valid reason. A valid reason means an 'essential, non-delayable displacement'. This is for example a displacement for work or urgent medical reasons.
	Closure of bars and restaurants	Since October 19th 2020 bars and restaurants are closed again. However, they can offer take-out until ten p.m. The sale of alcohol is forbidden after eight p.m.
	Restriction on gatherings and visitations	Since October 19th the number of visitors in a house is scaled down to one at a time. Outside gatherings are limited to four people. A physical distance of 1,5 meter is required.

APPROACHES TO RECOVERY TOURISM MANAGEMENT AFTER NATURAL DISASTERS

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ABSTRACT

The aim of this study is to analyse how recovery management could be applied to re-positioning a tourist attraction affected by a natural disaster. We apply a content analysis to study whether a relationship between natural disaster and recovery tourism management exists to allow local communities to take a resilient approach to their tourism industry. The resilience of a disaster repositioning strategy will depend on removing morbid approaches in favour of educational perspectives that could serve as a way to create a strong connexion between local residents and visitors.

INTRODUCTION

Some tourist attractions affected by natural disasters have become sustainable showing the necessity of resilience in this tourism industry. In some instances, more than a necessity of hard resilience, for example in infrastructures, what is crucial is soft resilience, that is, the ability of systems to absorb and recover from the impact of disturbing events without fundamental changes. For Rosselló *et al.* (2020), in general the impacts of natural disasters are negative, resulting in reduced tourist arrivals following an event. In addition, these tourist attractions struggle with the challenge of attracting visitors over time, and avoiding losing the support of residents. Beyond that, this issue is linked to the concept of dark tourism, which is mainly focused on catastrophic events like wars, natural disasters or accidents (De Miguel, 2020).

The most relevant natural disasters for the tourism industry are: earthquakes, tsunamis, volcanoes, tornados and icebergs. According to De Miguel *et al.* (2022), having up to date information about the effects of a natural disaster is considered fundamental in order to mitigate the immediate hazards of the event. Hence, in the case of natural disasters, a comprehensive set of risk management indicators is of the greatest relevance in order to deal with the result of a disaster and to differentiate the effects of natural hazards from other by-products that could rise. Disasters need to be analysed in the context of vulnerabilities patterns which amplify or attenuate the impact of hazards (Schweizer and Renn, 2019; Yonson *et al.*, 2018). That is, robustness and resilience depend on the capacity of the social system to plan for and respond to disturbances over (Faber *et al.*, 2017; Filimonau and De Coteau, 2020), and especially to deal with less predictable shocks (Torres and Alsharif, 2016).

It is important to differentiate disasters from crisis. Faulkner (2001) distinguishes between crisis and disasters because, even in the case of natural catastrophes, the damage inflicted is often partially attributable to human action. For him, the root cause of a crisis is not the event itself but the incompetence of companies or public authorities on dealing with the aftermath of the disaster (nuclear incidents, for example). In other words, disasters refer to situations where, for example, tourism enterprises are confronted with sudden unpredictable catastrophic changes over which they have little or no control (earthquakes, volcanos). Conversely, carelessness, negligence and unskillfulness on managing disasters are, most of the time, the root causes behind a crisis.

However, some tourism niches could arise from a natural disaster. For example, Erfurt-Cooper (2016) defines volcano tourism as "the exploration and study of active volcanic and geothermal landforms. It includes visits to dormant and extinct volcanic regions where remnants of activity attract tourists with an interest in geological heritage". Its history dates back to the seventeenth and eighteenth centuries, when members of the European

"upper classes" travelled to Vesuvius and Etna for their unique scenery and to broaden their education. But at present, we can also find a volcano tourism around active volcanos.

Therefore, in this paper we explore the different approaches that have let some locations to re-positioning after a natural disaster in an educational and resilient way.

METHODOLOGY

In order to explore the literature around this topic, we apply content analysis (Elo and Kyngäs, 2008), based on the literature collected from 41 papers that follow this search in Scopus database: (TITLE-ABS-KEY (recovery AND management AND natural AND disaster AND resilience)) AND (tourism). We use VOSviewer software (Van Eck and Waltman, 2020) to show and observe the co-occurrences among the terms in order to establish if there is a relationship among the concepts of natural disasters and tourism management (Figure 1) where the colour of an item is determined by the cluster to which the item belongs (Van Eck and Waltman, 2020). We focus mainly on disasters that can lead on crisis in tourism sector from different case studies that the collected literature provides in relation to natural disasters such as earthquakes, tsunamis or volcanos.

FINDINGS

As far as we can observe from the literature review (Figure 1), in the last years the link between natural disasters and tourism management has moved from absorptive and adaptive capacities (coping with disaster and vulnerability) to a restorative capacity approach, taking into account other concepts such as resilience, recovery, sustainable development and transformation, also with the residents' participation using participatory research methods like community-based tourism.

Figure 1: Co-occurrences in recovery, resilience, tourism and natural disaster literature. Source: own elaboration from Van Eck and Waltman (2020).
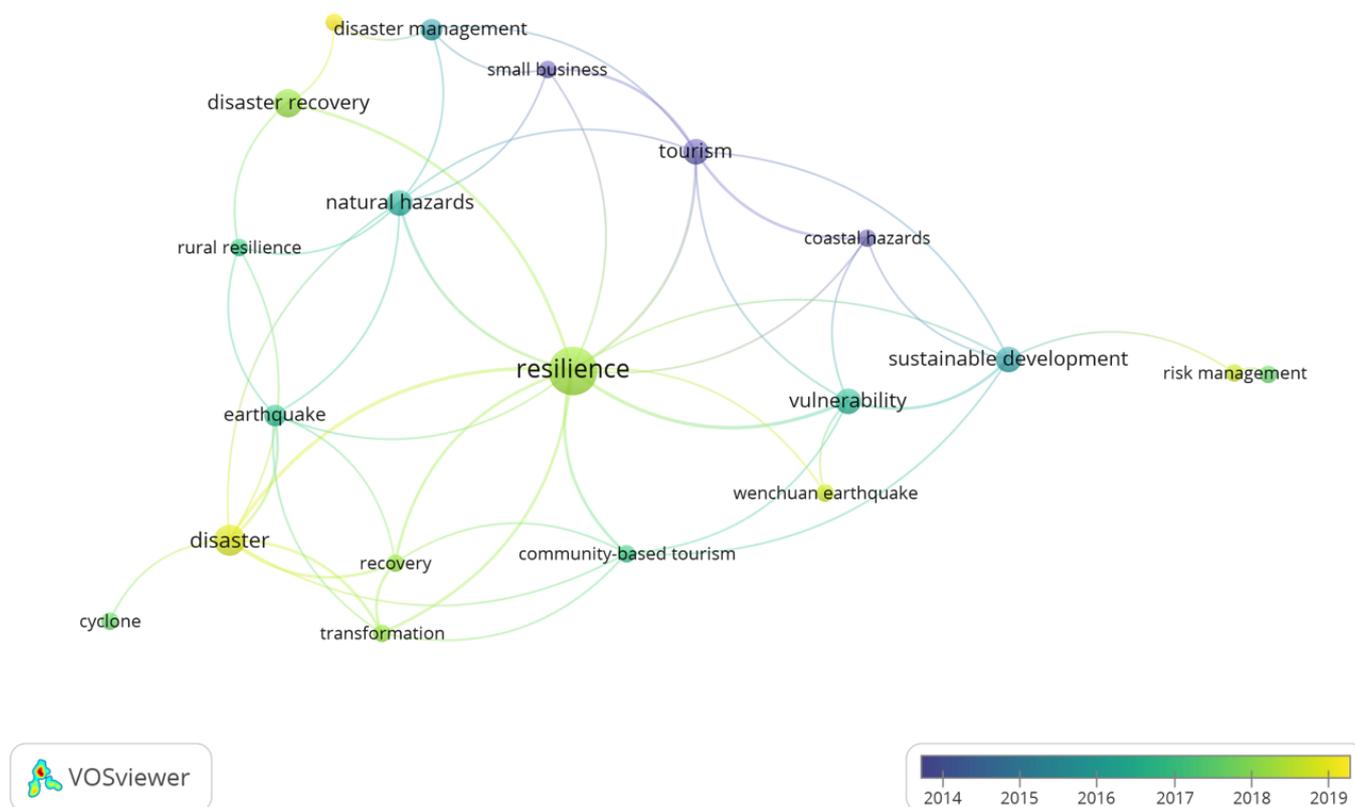
As we can observe in the figure, resilience emerges around 2018 and onwards, and also, it is worth noticing the importance of disaster management in the last years (green and yellow). The links detected suggest that,

resilience, risk management, disaster and recovery management can be explored a whole. For some natural hazards, such as tropical cyclone, flood, landslide, storm surge, sand-dust storm, drought, heat wave, cold wave and wildfire, the relevance of reducing vulnerability has been related to improving the governance (Shi *et al.*, 2016). According to Tompkins *et al.* (2008), the adoption of good governance mechanisms (such as stakeholder participation, access to knowledge, accountability and transparency) in disaster risk mitigation policies, may help to enact the structural reforms needed to build long-term adaptive capacity, instead of an expensive and often ineffective palliative treatment of changing risks.

For Partelow (2021), analysing a social capital framework includes: bonding (within group), bridging (between group) and linking (across power and institutional) ties. Therefore, understanding the cultural context of a location is critical for understanding if and to what degree these relationships exist.

Although crisis management tends to focus on the negative economic impact on tourism of such disasters, it is crucial to explore recovery management and new ways of reshaping tourism around the new paradigm that the disaster itself has created (Min *et al.*, 2020). Case studies on disaster (dark) tourism are usually aimed at understanding visitor behaviour, in terms of the motivations that are present behind such an apparent anti-social behavioural pattern. However, it can be said that, in certain cases, the disaster becomes an asset for the reconstruction process and, moreover, local culture plays a key role in the capacity of resilience. Residents could also play an important role in recovery management, being the principal stakeholders disturbed by the natural disaster and willing to rescue their local situation. Therefore, an agreement with local residents is crucial to success.

Mugnano and Carnelli (2016) present the cases of the town of Longarone (1963 Vajont disaster) and the town of Comeglians (1976 Friuli earthquake) which became tourist destinations partly because the effects of the disaster. In Spain, the Timanfaya National Park (Lanzarote, 2020) is an excellent example of the latter, since it is the result of the volcanic eruptions that took place in the area during the 18th and 19th Centuries, and the only one in Spain that is of an eminently geological nature. Other examples can be taken from the literature:

- 1976 Tangshan Earthquake in China (Chen and Xu, 2018).
- 1995 Plymouth Volcano in Montserrat island (Skinner, 2018).
- 2008 Sichuan Earthquake in China (Qian *et al.*, 2017).
- 2010-2011 Christchurch Earthquakes in New Zealand (Tucker *et al.*, 2017).
- 2011 Earthquake and Tsunami in Japan (Martini and Minca, 2021).

All of them provide best practices lessons to remember and take an educational point of view. For example, Montserrat island (https://www.visitmontserrat.com) has in the south an Exclusion Zone where access must be with a certified tour guide and visits are strictly monitored by a police escort with constant radio contact with the Montserrat Volcano Observatory (https://www.facebook.com/mvoms) which also organizes different learning activities.

CONCLUSIONS

The literature is mainly composed of case studies; therefore, their results cannot always be replicated in other cases. But this study links different concepts such as disaster management, recovery, tourism and resilience in order to find lessons to learn within the case studies provided by the literature. Also, it may become a valuable source of inspiration for those policymakers and tourism organizations considering recovery tourism management as a tool to reconstruct an area in the aftermath of a natural disaster.

However, it can be said that not all places are well prepared to cope with natural risk. Safety concerns have emerged in recent times, especially now that this activity has been extended to a broader sector of the population. For example, the catastrophic eruption of New Zealand's Whakaari questioned volcano tourism (Usborne, 2020). In that case, though the volcano activity had had been constantly increasing, it still was attracting visitors, ranging from licensed tour groups to those from cruise ships. The eruption of the Whakaari started when almost 50 people were visiting the privately-owned island, 19 of them died and a further 25 were seriously injured in the aftermath. Though certain places could be considered safer, like the case of Stromboli, in Italy, or Monserrat island, where visitors are obliged to hire the services of an expert guide, it

is true to say that volcano protection plans are not a common practice across the sector and, in certain cases, visiting these sites can present a real danger for visitors.

For this reason, sustainability through re-positioning these places in a safe way will be increased only if a community-visitors approach is considered, connecting both beneficiaries in order to find synergies (Campos and Sequeira, 2020; Light, 2017) and taking into account that victims' vision could differ (Chen *et al.*, 2017; Wang, 2019). Lessons learnt from other places can help locations that are facing a natural disaster to recover in a better way in the near future. For example, La Palma island in Spain is, at this moment, collapsed by the volcano activity and many people are losing their houses and businesses. How they could recover in the future would depend on the effort of all the stakeholders involved in order to be able to find a common point of view that could re-position the island as a place where educate people on the effects of volcanos and how to forecast their activity, following security measures to visit the place. By now, some tourism initiatives are emerging while local people show ethical concerns around them (García, 2021), therefore looking at how recovery management has been developed in other locations is essential to link the different needs of the island residents to visitors demands.

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WINE TOURISM IN SPAIN: THE ECONOMIC IMPACT DERIVED FROM VISITS TO WINERIES AND MUSEUMS ON WINE ROUTES

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ABSTRACT

In Spain, wine tourism is an incipient field of study, with several studies on the role of wine routes in boosting the competitiveness of a territory, increasing wine production, improving the quality of life of citizens and respecting the environment. However, to our knowledge, the economic impact generated by these routes in the Iberian country has not been addressed in the academic literature. To overcome this research gap, this paper aims to analyze the supply and demand of tourism activities by analyzing the evolution of the institutions involved in the Spanish wine routes and the economic impact of these routes.

INTRODUCTION

Currently, tourism activity is showing clear signs of evolving towards shorter and more frequent trips, which means that travelers, in addition to demanding the classic sun and beach destinations, are choosing to learn about and enjoy new experiences (Lai, 2019). As a result of these changes in the consumption patterns of tourists, the tourism offer, driven by public and private agents, is adapting to the new demands of travelers through the creation of thematic tourism products, including those related to the recovery of the cultural, social, and gastronomic heritage of geographical areas (Sánchez-Cañizares and López-Guzmán, 2012). In particular, tourists are very interested in learning about the gastronomic offer of the places they visit and, within this, in everything related to the world of wine.

Wine and tourism, therefore, represent a perfect symbiosis, offering a different experience to tourists, as well as promoting the economic, social, and environmental development of wine-producing regions (López-Guzmán *et al.*, 2011). On the one hand, wine tourism offers a complete sensory experience to the tourist, since the visitor can experience and taste wine through sight, smell, touch, taste and sound. Any tourist, regardless of his or her knowledge of oenology, is able to appreciate the smell and taste of the different wines, learn about the winery facilities or the sound of opening a bottle of wine and toasting with the right glasses. For this reason, wine has become, on many occasions, the main reason for visiting a given geographical area and not a complementary activity to travel (Stewart *et al.*, 2008). On the other hand, wine tourism can promote the economic development of rural and urban areas under the premises of sustainable development. This type of tourism is part of the social, cultural, environmental, and economic history of the municipalities and their inhabitants and has even been defined as the "wine landscape" (Bruno and Rossi, 2001).

Wine tourism is an incipient activity in Spain, with a great tradition in the so-called New World countries, such as the United States, Australia, Chile, and South Africa. The agents included in wine tourism activities are structured as a cluster structured through wine routes in which cooperation and the relationship between the different companies is stimulated. Therefore, the creation of wine routes represents a key element for the proper functioning of wine tourism activities. In fact, for the Spanish case, several researchers have studied the role of wine routes to boost the competitiveness of a territory, increase wine production, improve the quality of life of citizens and respect the environment (Guerrero and Albert, 2012; Romero, 2017; Portela and Domínguez, 2020). However, to our knowledge, the economic impact generated by such routes in the Iberian country has not been addressed in the academic literature. To overcome this research gap, the paper aims to analyze the supply and demand of tourism activities by, on the one hand, analyzing the evolution of the institutions adhered to the Spanish wine routes and, on the other hand, studying the economic impact of

these routes. Therefore, the study aims to answer the following two research questions: How has the number of institutions adhered to the Spanish wine routes evolved? and What is the economic impact of each of these routes?

The research is structured as follows. Section 2, after this brief introduction, analyzes the relationship between wine and tourism. Section 3 discusses the methodology followed in this research. Section 4 presents the results and, finally, Section 5 presents the conclusions, limitations, and future lines of research.

WINE AND WINE TOURISM: A PERFECT SYMBIOSIS

The first research in the field of wine tourism dates back to the nineties of the last century, focusing on the influence of wine tourism activity on rural areas and on the behavior of wine tourists (Hall, 1996). Thus, among the pioneering works on wine tourism, the books *Wine Tourism Around the World* (Hall *et al.*, 2000) and *Explore Wine Tourism* (Getz, 2000) stand out for their relevance and disruptive character in the field, as well as the research carried out by Charters and Ali-Knigh (2002), Carlsen (2004), Getz and Brown (2006) and Mitchell and Hall (2006).

The definition of the term wine tourism is not homogeneous, as it has been analyzed from different perspectives. Thus, Hall *et al.* (2000) consider wine tourism as the experience associated with visiting vineyards, wineries and wine demonstrations in which wine tasting is the main element. Getz and Brown (2006), for their part, conceive of wine tourism as a strategy for developing a given geographical area and an opportunity for wineries to promote and sell their products directly to consumers. Therefore, wine tourism is not simply wine tasting, but a set of sociocultural and environmental factors that make it possible to respond to the tourist's search for a differentiating experience. Given the proliferation of definitions, Clemente-Ricolfe *et al.* (2012) conducted an extensive literature review of the different definitions and conceptualizations of the term.

In recent years, wine tourism has emerged as a complementary way to generate employment and wealth in the economy. As a consequence, its study has acquired a high level of development and maturity in the academic literature, with research in several countries, such as: Australia (Sigala, 2019), Canada (Hashimoto and Telfer, 2003; Getz and Brown, 2006), Chile (Torres *et al.*, 2021), Hungary (Medina, 2015), Italy (Colombini, 2015), New Zealand (Baird *et al.*, 2018), Portugal (Lavandoski *et al.*, 2018), South Africa (Ferreira and Hunter, 2017) and Spain (Gómez *et al.*, 2015). For the case of Spain, the first investigations conducted were approached by foreign researchers, focusing mainly on La Rioja (Gilbert, 1992) and the Marco de Jerez (Hall and Mitchell, 2000). However, these early studies were later complemented by Spanish researchers. The interest shown in this type of tourism is mainly due to three factors: (1) it increases tourist flows in a given geographical area, (2) it generates an image of a quality tourist destination, and (3) it serves as a mechanism for territorial development.

Currently, there are numerous lines of research in this field. In this regard, Gómez *et al.* (2019) identify seven fronts of research on wine tourism:

a) Territorial development. This line of research analyzes the link between wine tourism and economic and regional development. In particular, studies examine issues related to the remains and potential of wine tourism for regional development and sustainability (Contò *et al.*, 2014), the comparison of wine tourism destinations (Getz and Brown, 2006), as well as the importance of wine tourism to enhance regional and national branding (Gómez and Molina, 2012).

b) Wine routes. The second block of research focuses on the creation and proliferation of wine routes in different countries, among which we can highlight: Chile (Sharples, 2002), Italy (Brunori and Rossi, 2001), Portugal (Correia *et al.*, 2004); South Africa Africa (Bruwer, 2003) and Spain (López-Guzmán and Sánchez-Cañizares, 2008). In fact, this line of research has now been extended to the study of sophisticated and innovative networks, clusters and alliances within wine-growing regions (Rebelo and Caldas, 2013).

c) Behavior of wine tourists. The studies included in this block seek to understand the profile of this type of tourist through segmentation. These studies include the profile of demographic characteristics or the combination of demographic characteristics with psychographic characteristics (Nella and

Christou, 2014). In addition, this typology of studies also focuses its interest on post-visit/purchase behavior in order to build brand loyalty (Kolyesnikova and Dodd, 2008).

d) Tasting and winery experience. The fourth block includes research on the winery experience and tastings. The experience and well-being of the wine tourist is key, since the sales that can be made after a visit to the winery represent an important distribution channel for the winery (Charters and O'Neill, 2001). Research includes the needs and expectations of wine tourists at the winery (Alonso *et al.*, 2008), as well as the quality of the service provided.

e) Theoretical models. The research included in this line of investigation develops conceptual models of wine tourism, tending to study the cause-effect relationships between constructs related to wine tourism behavior, such as: involvement and territorial rootedness, destination image and self-image or tourist experience and emotional attachment (Orth *et al.*, 2012). These theoretical models highlight, as Carlsen and Boksberger (2013) point out, the complex interactions caused by the union of wine and tourism.

f) Wine events and festivals. This line of research focuses on the study of wine events and festivals. In particular, they evaluate the impact of such events in wine regions, the motivations of visitors to attend events and the analysis of festival routes (Mason and Paggiaro, 2012).

g) Wine marketing and promotion. Research on marketing and promotion in the field of wine tourism includes studies of regional positioning in the consumer's mind, analysis of information provided on wineries' websites and research on winery sales (Olsen and Thach, 2008).

Within these lines of research defined by Gómez *et al.* (2019), in the following research we focus on tourism routes, specifically on the analysis of supply, through the evolution of the institutions adhering to wine routes in Spain, and demand, through the analysis of the economic impact of this tourism product over time in the Iberian country. Wine routes are based on the definition of one or more itineraries in a given geographical area, indicating both the wineries to be visited and the historical sites and other places of interest (Hall *et al.*, 2000), serving as a strong tool for the economic and social development of the area in which the activity takes place.

METHODOLOGY

In order to respond to the research questions posed, the study is conducted under a quantitative approach with an exploratory scope, since the work addresses a current topic on which there is no previous academic literature. Likewise, a non-experimental design is adopted, which implies that no modifications have been made to the independent variables and the conditions observed are those present in the natural context (García-Fernández and Cordero-Borjas, 2010).

In terms of information sources, secondary information was used to carry out the research, given that in an era in which large amounts of data are collected and archived, the ability to use and interpret data is increasingly important (Andrews *et al.*, 2012). As Hakim (1982) points out, the analysis of a topic through the review of secondary sources generates additional and different co-knowledge. In order to study the evolution of the different members of the routes (supply), the number of tourists on each route (demand) and the average expenditure on each route, the Spanish Wine Tourism Observatory (OTVE) was used. The data provided in the reports of this organization have allowed us to calculate the economic impact generated in each of the routes between the period 2017-2020, because although the reports have been published since 2008, the information necessary to make the calculations has been supplied since 2017. Thus, although the first reports were initial and did not offer disaggregated information, since 2017 the documents provided offer a vast amount of information to be able to carry out research such as that presented in these sheets. The formulas used to calculate the economic impact of the wine routes are as follows:

- Economic Impact of Winery Visits (EIWV) = Number of visitors to wineries on the route*average price per visit + Number of visitors to wineries on the route*average retail expenditure per visitor at the winery
- Economic Impact of Museum Visits (EIMV) = Number of visitors to the wine museums on the route*average price of the visit + Number of visitors to the wine museums on the route*average retail expenditure per visitor at the museum
- Total Economic Impact = EIWV + EIMV

It is important to note that, for the calculation of the economic impact, this work has focused on the partners of the route. Specifically, among the route's partners, the wineries and wine museums have been analyzed since they are the two agents on which the OTVE provides information. Thus, while in the section on supply (see Table 1) the research aims to analyze the evolution of all the institutions making up the wine routes, in the section on demand (see Table 2) the aim is to calculate the economic impact generated by the wineries and wine museums.

RESULTS

The following section presents the main results of the research, divided into two parts: (1) analysis of supply, through the evolution of the institutions adhering to the Spanish wine routes, and (2) analysis of demand, through the study of the economic impact generated by these routes.

The companies associated with the Wine Routes of Spain have increased since 2017, from 1871 in 2017 to 2295 in 2020, a variation of 22.66 per cent during the period studied (see Table 1). The data offered show that the main driver of wine tourism activity is the wineries, with more than 600 adhering in the four years analyzed. This is followed by the accommodation and restaurant sectors, with 476 and 357 in 2020. Thus, while the number of accommodations has been increasing since 2018, restaurants have experienced a slight decline 2020, with a year-on-year variation rate of -1.38 per cent. Both accommodations and restaurants represent the basic offer of any tourist destination. However, in the case of the Wine Routes of Spain they take on special importance since their offer is themed and specialized around the world of wine. Themed leisure activities, on the other hand, include all kinds of experiences related to wine culture and follow an irregular evolution during the period, proof of them are the variation rates: -7.55 per cent in 2018-2017, 13.27 per cent in 2019-2018 and -8.11 per cent in 2020-2019. In contrast, the number of museums and interpretation centers have experienced an increase from 2018 to 2020.

Regarding the entities that make up the wine route, we can highlight the preponderant role played by the town councils, since their integration reinforces the role of the wine routes as a regional economic engine. The number of adhering town councils increased from 2017 to 2019, going from 543 to 775 respectively and experiencing, subsequently, a considerable drop of -24.00 per cent in 2020. The number of regulatory councils, on the other hand, follows an upward trend since 2018.

In terms of accommodation typology, the three and four-star hotel offer is noteworthy, with a positive evolution in both types of establishments since 2018 and with more than 100 establishments since 2019. In terms of extra-hotel supply, rural houses stand out, with more than 200 establishments since 2019.

Table 1: Offer of wine tourism services.

	2017	2018	2019	2020	Variation Rate 2018-2017	Variation Rate 2019-2018	Variation Rate 2020-2019
Wineries	602	595	688	718	-1.16%	15.63%	4.36%
Accommodation	376	373	462	476	-0.80%	23.86%	3.03%
Restaurants	308	306	362	357	-0.65%	18.30%	-1.38%
Thematic leisure	106	98	111	102	-7.55%	13.27%	-8.11%
Museums and interpretation centres	86	82	95	132	-4.65%	15.85%	38.95%
Tourist offices	84	96	113	114	14.29%	17.71%	0.88%
Wine bars	79	71	75	81	-10.13%	5.63%	8.00%
Shops	65	62	70	75	-4.62%	12.90%	7.14%
Wine shops	53	50	60	57	-5.66%	20.00%	-5.00%
Incoming agencies	35	33	42	44	-5.71%	27.27%	4.76%
Transport companies	14	19	20	18	35.71%	5.26%	-10.00%
Wine therapy services	12	11	11	12	-8.33%	0.00%	9.09%
Agri-food companies	12	19	28	35	58.33%	47.37%	25.00%
Other services	11	13	21	26	18.18%	61.54%	23.81%
Digital-based companies	10	11	7	7	10.00%	-36.36%	0.00%

Tourist guides	9	6	15	12	-33.33%	150.00%	-20.00%
Visitor centres in the vineyard	6	9	16	9	50.00%	77.78%	-43.75%
Tasting services	3	11	31	20	266.67%	181.82%	-35.48%
Route Partners	1871	1865	2227	2295	-0.32%	19.41%	3.05%
City councils	543	642	775	589	18.23%	20.72%	-24.00%
Regulatory Boards	28	27	30	33	-3.57%	11.11%	10.00%
Other member institutions	47	71	67	76	51.06%	-5.63%	13.43%
Member entities of the routes	618	740	872	698	19.74%	17.84%	-19.95%
5-star hotels	8	7	8	9	-12.50%	14.29%	12.50%
4-star hotels	51	46	54	59	-9.80%	17.39%	9.26%
3-star hotels	40	44	59	63	10.00%	34.09%	6.78%
2-star hotels	31	33	39	36	6.45%	18.18%	-7.69%
1-star hotels	11	13	14	14	18.18%	7.69%	0.00%
Hostels and guesthouses	12	11	23	30	-8.33%	109.09%	30.43%
Flats	33	34	34	36	3.03%	0.00%	5.88%
Rural houses	166	163	202	201	-1.81%	23.93%	-0.50%
Hostels	3	5	7	7	66.67%	40.00%	0.00%
Campsites	4	6	10	9	50.00%	66.67%	-10.00%
Other accommodation	17	11	12	12	-35.29%	9.09%	0.00%
Number and places of accommodation	376	373	462	476	-0.80%	23.86%	3.03%
Total	2865	2978	3561	3469	3.94%	19.58%	-2.58%

Source: Prepared by the authors based on data provided by OTVE

With regard to the demand for wine routes in Spain, it is important to note that the most visited routes during the period analyzed were the Penedès Wine Route, the Marco de Jerez Wine Route and the Ribera del Duero Wine Route (see Table 2). In fact, these three routes represent more than 40.00 per cent of the total number of visitors to wineries and wine museums in the four years studied, which denotes their high specialization in wine tourism activity. Since 2017, the total number of visitors to wineries and wine museums associated with the Wine Routes of Spain had stabilized at around 3,000,000 visitors. However, in 2020 there was a drastic drop in demand, experiencing a drop of 73.53 per cent compared to the previous year.

With regard to the evolution of the number of visitors to wineries in the different Wine Routes of Spain, it is worth highlighting the significant increases achieved by the Wine Routes of Campo de Cariñena (41.59 per cent), Montila-Moriles (38.64 per cent) and Yecla (27.56 per cent) in 2018, as well as Navarra (76.24 per cent), Sierra de Francia (36.58 per cent) and Montilla-Moriles (26.98 per cent) in 2019. With regard to the evolution of the number of visitors to museums on the different routes, it is important to highlight the increases achieved in Montilla-Moriles (404.27 per cent), Arlanza (196.39 per cent) and Rueda (30.10 per cent) in 2018, as well as Cigales (236.94 per cent), Rioja Oriental (133.44 per cent) and Montilla-Moriles (107.86 per cent) in 2019. In 2020, on the other hand, all routes experienced negative rates of change, both in terms of the number of visitors to wineries and the number of visitors to wine museums. It is also important to note that the number of visitors to wineries is mostly higher than the number of visitors, given that, of the 32 wine routes, only in 7 (Arlanza, Bierzo, Bullas, Calatayud, Campo de Borja, Rioja Oriental, Valdepeñas) is there a greater weight of visitors to museums than visitors to wineries.

Based on the number of visitors to wineries and wine museums, the average price of the visit and the expenditure in store for each Wine Route, an approximation of the economic impact of wine tourism in the wineries and museums of the Wine Routes of Spain has been calculated (See Table 3). The economic impact of wine tourism in wineries and museums has been increasing from €75,269,963.10 in 2017 to €91,799,104.12 in 2019, an increase of 21.95 per cent. In 2020, however, there was a sharp reduction of -74.70 per cent compared to the previous year. Thus, the three routes that generate the greatest economic impact are those that receive the greatest number of tourists: the Penedès Wine Route, the Marco de Jerez Wine Route and the Ribera del Duero Wine Route. However, this relationship is not always the case, since there are routes with a greater number of visitors, but with a lower relative economic impact. By way of example, we can cite the case of the Rías Baixas wine route and the Somontano wine route.

Table 2: Number of visitors to the wineries and museums of the different Wine Routes of Spain.

Route	2017		2018		2019		2020	
	Winery visits	Museum visits	Winery visits	Museum visits	Winery visits	Museum visits	Winery visits	Museum visits
Alicante	36,228	5,434	41,822	5,685	49,137	5,931	18,246	3,088
Arlanza	4,905	11,123	4,758	32,967	3,210	32,967	1,726	17,250
Arribes	-	-	-	-	1,390	0	822	0
Bierzo	11,900	15,127	10,027	12,685	9,293	15,565	2,508	745
Bullas	4,229	17,383	3,955	18,468	3,538	19,428	1,577	6,532
Calatayud	3,434	293,163	4,239	292,086	4,368	295,372	1,537	72,226
Campo de Cariñena	8,903	11,733	12,606	9,449	13,845	10,066	3,510	2,025
Cigales	12,262	1728	12,520	1,911	11,820	6,439	534	1,663
Empordà	50,582	322,624	-	-	-	-	-	-
Enoturisme Penedès	380,815	57,297	384,888	56,579	315,944	54,312	84,784	47,632
Garnacha - Campo de Borja	3,763	52,882	4,054	52,767	3,424	51,331	638	22,953
Jumilla	32,772	4,001	38,448	4,274	41,464	5,641	13,359	208
Lleida	52,116	0	50,596	0	45,573	0	13,796	0
La Mancha	-	-	-	-	16,092	7,898	4,634	5,921
La Manchuela	-	-	-	-	22,308	0	3,783	0
Madrid	-	-	-	-	-	-	4,638	19,106
Marco de Jerez	550,945	23,297	553,786	28,565	550,530	18,467	96,396	2,610
Montilla-Moriles	17,085	164	23,686	827	30,077	1,719	4,368	270
Navarra	22,399	7,045	20,809	4,796	36,673	2,783	7,289	3,093
Rías Baixas	110,096	5,363	112,131	4,426	118,680	5,424	31,915	174
Ribera del Duero	256,369	122,294	243,211	139,939	249,935	139,442	62,938	31,971
Ribera del Guadiana	26,462	20,242	27,126	22,319	27,831	24,885	4,148	3,435
Rioja Alavesa	145,984	23,904	167,699	24,514	185,756	18,759	49,129	1,852
Rioja Alta	184,556	71,747	225,693	71,575	253,652	59,845	59,342	10,036
Rioja Oriental	-	--	3,614	2,282	2,968	5,327	1,291	393
Ronda	24,918	13,768	25,301	1,517	22,993	1,730	2,886	995
Rueda	29,375	2,997	34,110	3,899	36,675	4707	5,899	1,655
Sierra de Francia	1,388	0	1,479	0	2,020	0	573	0
Somontano	77,541	0	79,601	0	93,119	0	28,294	159
Txakolí	4,093	0	-	-	-	-	-	-
Toro	-	-	-	-	26,843	9,042	16,960	1,798
Utiel-Requena	44,757	26,538	50,440	26,187	53,678	25,226	18,830	5,798
Valdepeñas	-	-	-	-	2,492	11,477	554	2,564
Yecla	5,537	0	7,063	0	6,924	0	1,267	0
Total	2,103,414	1,109,854	2,143,662	817,717	2,242,252	833,783	548,171	266,152
	3,213,268		2,961,379		3,076,035		814,323	

Source: Prepared by the authors based on data provided by OTVE

Table 3: Economic impact of wine tourism in the wineries and museums of the Wine Routes of Spain.

	2017		2018		2019		2020	
Route	EIWV	EIMV	EIWV	EIMV	EIWV	EIMV	EIWV	EIMV
Alicante	1,072,711.08	54,503.02	1,342,904.42	64,297.35	1,563,047.97	69,155.46	652,112.04	36,963.36
Arlanza	74,899.35	111,563.69	107,292.90	372,856.77	72,385.50	384,395.22	60,686.16	206,482.50
Arribes	-	-	-	-	52,222.30	-	23,180.40	-
Bierzo	269,654.00	151,723.81	286,070.31	143,467.35	252,026.16	181,487.90	59,464.68	8,917.65
Bullas	65,676.37	174,351.49	67,472.30	208,873.08	66,266.74	226,530.48	39,078.06	78,188.04
Calatayud	128,775.00	2,940,424.89	187,363.80	3,303,492.66	186,076.80	3,444,037.52	55,332.00	864,545.22
Campo de Cariñena	125,710.36	117,681.99	205,351.74	106,868.19	213,213.00	117,369.56	102,351.60	24,239.25
Cigales	365,407.60	17,331.84	388,996.40	21,613.41	364,410.60	75,078.74	12,677.16	19,906.11
DO Empordà	1,711,189.06	3,235,918.72	-	-	-	-	-	-
Enoturisme Penedès	12,563,086.85	574,688.91	13,459,533.36	639,908.49	11,623,579.76	633,277.92	3,119,203.36	570,155.04
Garnacha - Campo de Borja	98,063.78	530,406.46	112,255.26	596,794.77	98,679.68	598,519.46	5,193.32	274,747.41
Jumilla	810,451.56	40,130.03	1,464,099.84	48,338.94	1,655,657.52	65,774.06	378,326.88	2,489.76
Lleida	1,650,513.72	-	2,799,982.64	-	1,475,653.74	-	459,406.80	-
La Mancha	-	-	-	-	381,863.16	92,090.68	127,064.28	70,874.37
La Manchuela	-	-	-	-	813,349.68	-	147,537.00	-
Madrid	-	-	-	-	-	-	174,574.32	228,698.82
Marco de Jerez	17,470,465.95	233,668.91	15,860,431.04	323,070.15	20,771,496.90	215,325.22	2,878,384.56	31,241.70
Montilla-Moriles	362,714.55	1,644.92	340,367.82	9,353.37	461,381.18	20,043.54	68,577.60	3,231.90
Navarra	217,942.27	70,661.35	526,259.61	54,242.76	670,749.17	32,449.78	195,199.42	37,023.21
Rías Baixas	2,174,396.00	53,790.89	2,575,649.07	50,058.06	2,622,828.00	63,243.84	866,492.25	2,082.78
Ribera del Duero	5,886,232.24	1,226,608.82	11,868,696.80	1,582,710.09	10,194,848.65	1,625,893.72	2,948,015.92	382,692.87
Ribera del Guadiana	1,238,686.22	203,027.26	549,844.02	252,427.89	554,671.83	290,159.10	82,669.64	41,116.95
Rioja Alavesa	5,931,329.92	239,757.12	6,565,415.85	277,253.34	6,679,785.76	218,729.94	2,375,387.15	22,168.44
Rioja Alta	6,380,100.92	719,622.41	9,409,141.17	809,513.25	11,021,179.40	697,792.70	2,363,591.86	120,130.92
Rioja Oriental	-	-	95,481.88	25,809.42	94,649.52	62,112.82	40,279.20	4,704.21
Ronda	970,306.92	138,093.04	526,007.79	17,157.27	974,443.34	20,171.80	112,467.42	11,910.15

Rueda	961,443.75	30,059.91	1,289,699.10	44,097.69	1,333,136.25	54,883.62	213,838.75	19,810.35
Sierra de Francia	19,057.24	-	29,269.41	-	46,439.80	-	17,785.92	-
Somontano	2,173,474.23	-	2,333,105.31	-	4,923,201.53	-	1,342,267.36	1,903.23
Txakolí	66,265.67	-	-	-	-	-	-	-
Toro	-	-	-	-	1,181,628.86	105,429.72	434,684.80	21,522.06
Utiel-Requena	1,170,395.55	266,176.14	1,434,513.60	296,174.97	1,551,830.98	294,135.16	618,188.90	69,402.06
Valdepeñas	-	-	-	-	40,918.64	133,821.82	25,484.00	30,691.08
Yecla	179,177.32	-	159,341.28	-	135,571.92	-	44,294.32	-
Total	64,138,127.48	11,131,835.62	73,984,546.72	9,248,379.27	82,077,194.34	9,721,909.78	20,043,797.13	3,185,839.44
	75,269,963.10		83,232,925.99		91,799,104.12		23,229,636.57	

Source: Prepared by the authors based on data provided by OTVE

CONCLUSIONS

The results of this research are of special interest for the academic community, as well as for companies and professionals in the wine sector, since they improve the knowledge about the Spanish wine tourism industry. In particular, the research contributes to improve the understanding of the supply and demand of the Spanish wine routes, allowing to know the evolution of the adhered institutions and the economic impact of wine tourism in the wineries and museums of the Wine Routes of Spain. In this way, the research aims to fill a gap in the literature, since the economic impact of wine tourism activities in Spain has not been addressed in the academic literature.

One of the first conclusions drawn from the work is the great impact of COVID-19 on the wine tourism industry, given that both supply and demand data show a sharp decline. COVID-19 has severely affected the Spanish wine industry, since, although there has been a rise in wine consumption in households, wine consumption through the horeca channel, direct sales in wineries and wine tourism activity has been severely affected by the coronavirus (Marco-Lajara *et al.*, 2021). As a consequence of the mobility limitations imposed during the COVID-19 pandemic, in 2020 there was a decrease in the total number of institutions adhering to the wine routes of 2.58 per cent, a decrease in the total number of visitors to the different Wine Routes of Spain of 73.53 per cent and a decrease in the economic impact of 74.7 per cent compared to the previous year.

The research shows the existence of differences between the Wine Routes of Spain, in terms of the number of visitors and their economic impact. On the one hand, the Marco de Jerez Wine Route and the Ribera del Duero Wine Route are the ones that generate the greatest tourist attraction, representing more than 40.00 per cent of the total number of visitors to wineries and wine museums in the four years studied. It is significant that the Rioja wine routes do not appear among the first three positions, since it is the most popular wine-growing area in Spain. This reflects the low level of development of tourist activity in this area compared to other Spanish wine-growing areas. On the other hand, although the three routes that generate the greatest economic impact are those that receive the greatest number of tourists, this relationship is not always the case, given that there are routes with a greater number of visitors, but with a lower relative economic impact. This is due to differences in the price of the visit and the average expenditure during the visit. Thus, those routes that are able to charge a higher price and encourage greater consumption during the visit can generate a higher relative economic impact.

The first management implication derived from the research is that winery managers should join the wine routes in which their wineries are located, since wine tourism activity under a wine route can provide several advantages, such as increased wine sales in the winery itself, improved reputation, and diversification of activities. For its part, the tourism observatory of the Wine Routes of Spain should provide constant

information to the market on the characteristics of its wine tourism offer, encouraging activities to increase the notoriety of the collective brands it represents. Similarly, the results of the research can serve as a guide for managers to make investments through acquisitions and/or their own investments in wineries located on the routes with the greatest economic impact.

Despite the contributions made, it is also possible to establish certain limitations of the work. In this regard, it should be noted that the research addresses the economic impact derived from visits to wineries and museums, so the total impact of wine tourism in the destinations that make up the routes would be greater if other concepts such as accommodation, restaurants or activity companies were considered. To overcome this limitation, as a future line of research the authors would like to extend the analysis of the economic impact to all the agents involved in the wine routes. We also intend to ask the wineries directly about the effects of the pandemic on their wine tourism activity, as well as their opinion on the different measures that the Spanish government has implemented to improve the situation of wine companies.

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RISK MANAGEMENT AND RESILIENCE CULTURE IN THE HEALTHCARE SERVICES: A SYSTEMATIC LITERATURE REVIEW

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ABSTRACT

The Covid-19 outbreak has drastically changed the healthcare systems, strongly impacting all the actors involved in the value creation process. In light of this, through a systematic literature review, the research aims to understand the current state of the art on how risks are addressed and managed to maximize the service quality and spread a resilience culture in the Emergency Departments.

The authors analyzed the bibliometric characteristics of 59 papers reviewed and synthesized existing knowledge into three key themes and four sub-themes. The review identified critical issues affecting healthcare service research and provides a future research agenda.

INTRODUCTION

Healthcare is a complex and critical service that plays a pivotal role in enhancing economies and individual and societal well-being (Patricio *et al.* 2020). The Covid-19 pandemic drastically disrupted and increased the pressure on the resilience of national healthcare systems (Fisk and Alkire 2021), affecting the actors involved in the value creation process. In particular, the Emergency Departments had to face and manage several critical issues that have produced substantial changes such as structural and environmental re-organization, new roles definition, skills and equipment (Giamello *et al.* 2020).

Indeed, the healthcare systems are constantly growing and require that hospitals implement lean practices to reduce waste, costs and improve patient care and satisfaction (Ramori *et al.* 2021). It's crucial to improve the emergency department service quality to achieve better levels of community and patient well-being, in an inclusive and social perspective, implementing innovative solutions for simplifying the accessibility to the healthcare services and reducing waiting times, decreasing the level of stress for both patients and their families, optimizing the level of efficiency, effectiveness and flexibility. In particular, hospitals and their Emergency Departments had to manage worldwide several changes such as the structural and environmental re-organization to guarantee covid-free accessibility, new roles definition, skills and equipment (Giamello *et al.* 2020) in order to assure safety and security accessibility.

Fear of infection increases anxiety and stress during the health emergency by generating burnout in emotional exhaustion, depersonalization, and reduced personal fulfilment (Jose *et al.* 2020). To prevent burnout, it is crucial to promote physical resilience (Dewey *et al.* 2020). Resilience is a person's adaptation to important stressful sources such as trauma, threat, tragedy, familial and workplace problems (Jackson *et al.* 2007; Jacelon 1997).

To increase resilience, the emergency department team, especially in times of crisis, such as Covid-19, must spread and share a supportive work culture (Dewey *et al.* 2020).

Administrative leaders and clinic managers must communicate best practices clearly, manage needs and expectations, clarify work hours, and provide sufficient resources and effective personal protective equipment. It is necessary to guarantee medical staff personal well-being and resilience throughout the pandemic. Medical managers should to constantly monitor clinician wellness and proactively address concerns related to the safety of clinicians and their families.

Resilience is important for medical staff who encounter many risk factors in their work-life and have to provide standard care to the patients to reduce burnout (Ahmed *et al.* 2020, Jose *et al.* 2020).

Several studies have shown a relation between resilience and increased psychological well-being. The diffusion of a resilient culture in the medical staff generated greater autonomy, personal growth, job satisfaction by positively facing family and work activities and decisions (Mealer *et al.* 2014).

In this regard, understanding the potential risks and identifying managerial practices that can facilitate the building of resilient health service systems represent a service research priority (Donthu and Gustafsson 2020).

The research aims to understand and delve into the bibliographic characteristics of existing papers and the main themes and results and further research of reviewed works.

To provide practical insights for healthcare actors and a roadmap for future research, this paper presents a systematic literature review (SLR) aimed to investigate how risks are addressed and managed to maximize the value creation process and spread a resilience culture in the Emergency Department, especially in time of crisis. This is also in line with the need to develop a connection between healthcare professionals and patients (Berry 2020) and delve into how to co-create well-being in healthcare systems (Chen *et al.* 2020; Finsterwalder and Kuppelwieser 2020).

METHODOLOGY

The Systematic Literature Review was performed following the three stages that Tranfield *et al.* (2003) proposed: planning the review, conducting the review, and reporting and dissemination.

The literature search was conducted in the Scopus database in July 2021.

The authors have chosen to use one database for reasons of rigour and clarity (Parè *et al.* 2015).

The search of literature was conducted using the following search query:

TITLE-ABS-KEY "emergency room" OR "emergency unit" OR "emergency department" AND "service quality" OR "quality management" AND "risk management" OR resilience

A total of 671 articles published in English between 1988 and 2021 were detected, and 59 full-text works were reviewed following the inclusion criteria (Moher *et al.* 2009).

Indeed, we included the records identified in the database Scopus considering conference papers, articles in journals, reviews, book and book chapters written in English, and the research has no time limits.

Regarding the characteristics of the identified studies, the authors included papers in full text mainly focused on resilience, quality and risk management topics from a managerial perspective. Technical and engineering papers are excluded.

First, the authors analyzed the bibliographic characteristics (year of publication, document type, study approach, research' country) of selected papers. Then, a content analysis was carried out to classify the works into specific key themes. For each theme, the researchers have analyzed the main results and summarized the research gaps and managerial implications to provide suggestions for professionals and academics.

REVIEW ANALYSIS AND RESULTS

The selected papers were analyzed to extract the relevant information (Webster and Watson 2002). The bibliographic characteristics of the 59 studies are summarized below.

The academic interest for the subjects detected has developed in particular among 2017-2021, with 34 papers published.

Most of the studies on resilience, risk and quality improvement topics in the emergency departments are articles in journals (68%), literature reviews (30%) and just one conference paper.

The study approach most used is empirical research (55%) and systematic literature review methodology (41%).

In particular, concerning empirical research, most of the studies were conducted in the USA (44%), UK (18%), Italy (11%) and Australia (11%).

As shown in Figure 1, the Systematic Literature Review, through content analysis, identified three main themes and four sub-themes: Resilience; Service quality, composed of Effectiveness of quality improvement strategies and Medical scribes; and Risk management, including Handoff and Crowding issues.

Figure 1: Themes in the healthcare services
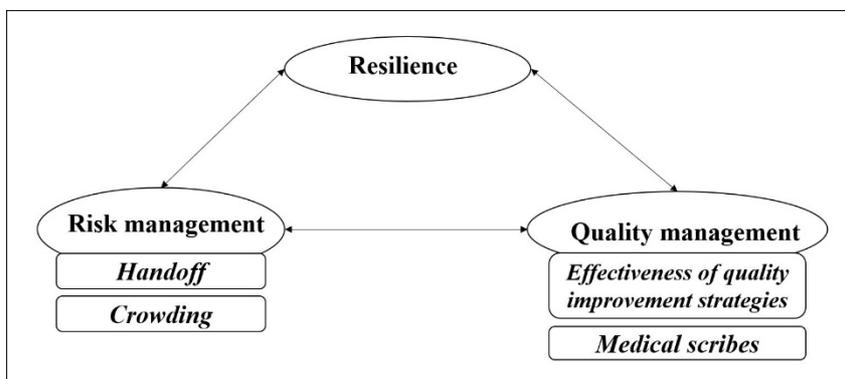
Below, we better explained the contents of each theme and sub-theme.

The *Resilience theme* revealed that anxiety, loneliness, depressive symptoms and fear of contagion are the main consequences generated by the Covid-19 pandemic. It is necessary to implement and spread a resilient culture that reduces moral distress, increases workplace involvement, reduces turnover and improves patient and medical staff satisfaction (Jackson, Firtko and Edenborough 2007). Through training courses, it is possible to identify system vulnerabilities and improvement interventions by transferring skills to implement a resilient culture (Jeppesen and Wiig 2020).

The literature focused on the *Quality management theme* highlighted that it is crucial to create a continuous quality improvement program using a suggestion-based model to empower physicians, increase communication effectiveness and reduce clinical risk (Duncan *et al.* 2020; Grant *et al.* 2018; Schuur *et al.* 2013).

The reviewed studies showed that the implement quality management must improve an underdeveloped quality culture, inadequate data collection, poor incentives for improvement and high external pressures, including staff shortages, departmental crowding, overcrowding of patients, a shortage of beds and lack of public empowerment (Sammy *et al.* 2013).

Several methodologies (i.e. QFD, LFA and Lean) (McCulloch *et al.* 2010; Jacobson *et al.* 2009) are effective to improve the quality and safety of care involving all stakeholders and adopting a process approach focused on patients (Buttigieg *et al.* 2016).

The *Effectiveness of quality improvement strategies sub-theme* evaluates how improving the coordination and organization of health care services (Tricco *et al.* 2014; Kringos *et al.* 2015). The study conducted by Tsou *et al.* (2020) highlighted the effectiveness of telemedicine services during the Covid-19 health

pandemic. In addition, interdisciplinary teams can improve the quality of healthcare provided through a more collaborative and global approach to the patient (Cassarino *et al.* 2018).

Another sub-theme connected to the quality improvement theme that emerged from the literature review is the figure of *Medical scribes*. These are key in the service improvement process as they reduce perceived risks in the emergency room. However, suppliers and scribes must receive training to improve healthcare processes safety (Ash *et al.* 2021).

Existing literature focuses on the *Risk management theme*. Indeed, to improve patient safety in the Emergency Departments it is crucial to decrease the length of time at triage, assessment, intervention and disposition. To improve patient safety, have to create specialized patient care units, strategic staffing, admission lounges, streamlining communication, and medical record delivery systems (Ciesielski and Clark 2007). It's necessary to alleviate burnout and increase resilience (Azizoddin *et al.* 2020). The main risks that emerged during Covid-19 highlighted a shortage of resources such as intensive care beds, emergency care beds, ventilators, personal protective equipment, drugs and staff shortages (Apornak 2021; West 2020). While, the most widespread pre-Covid risks in Emergency Departments are crowding and handoff.

The existing literature on the *Crowding sub-theme* showed that this issue generates delays or no visits for patients or patients' abandonment due to the long length of stay (Gaieski *et al.* 2017). For instance, The Event-Process-Chain is a useful tool for understanding the complexity of emergency medical care and identifying key performance indicators for effective quality management, reducing crowding and improving patient safety and satisfaction (Möckel *et al.* 2015).

Regarding the *Handoffs sub-theme*, nurses who provide all information about the patient play a crucial role during handoffs. This phase allows for identifying predictive actions or interventions on patient care (Matney *et al.* 2014; Staggers and Blaz 2013). In light of this, an effective communication process between medical staff to improve patient care is crucial.

CONCLUSION

The paper is the first to perform a systematic literature review on risk management, resilience culture and service quality in the Emergency Department, synthesizing the main articles' characteristics and identifying the major themes and implications for the future evolution of the healthcare service.

Our research highlighted the need to invest in Emergency Department improvement for pursuing the patients' well-being.

A cross-analysis of the themes showed that to improve service quality and spread a culture of resilience, the key driver is represented by the development of training courses. This driver produces multiple benefits for Emergency Departments management: improvement in the resource and responsibility management; increase of engagement, cooperation and communication between medical staff and patients; reduction of both organizational (overcrowding, shortage of staff, turnover) and security risks (lack of resources and beds).

Moreover, the review highlighted the need for further studies to compare patients and medical staff perspectives in different cultural contexts and investigate the technology contribution to enhancing service quality. These purposes could be achieved by implementing multiple methodologies (i.e. mixed methods and experiment).

The structured overview of the literature informs scholars and practitioners on future research opportunities and the development of interventions to enhance the value creation process in the healthcare ecosystem, providing a comprehensive classification of the risks managed in the Emergency Department in the past years and during the pandemic.

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