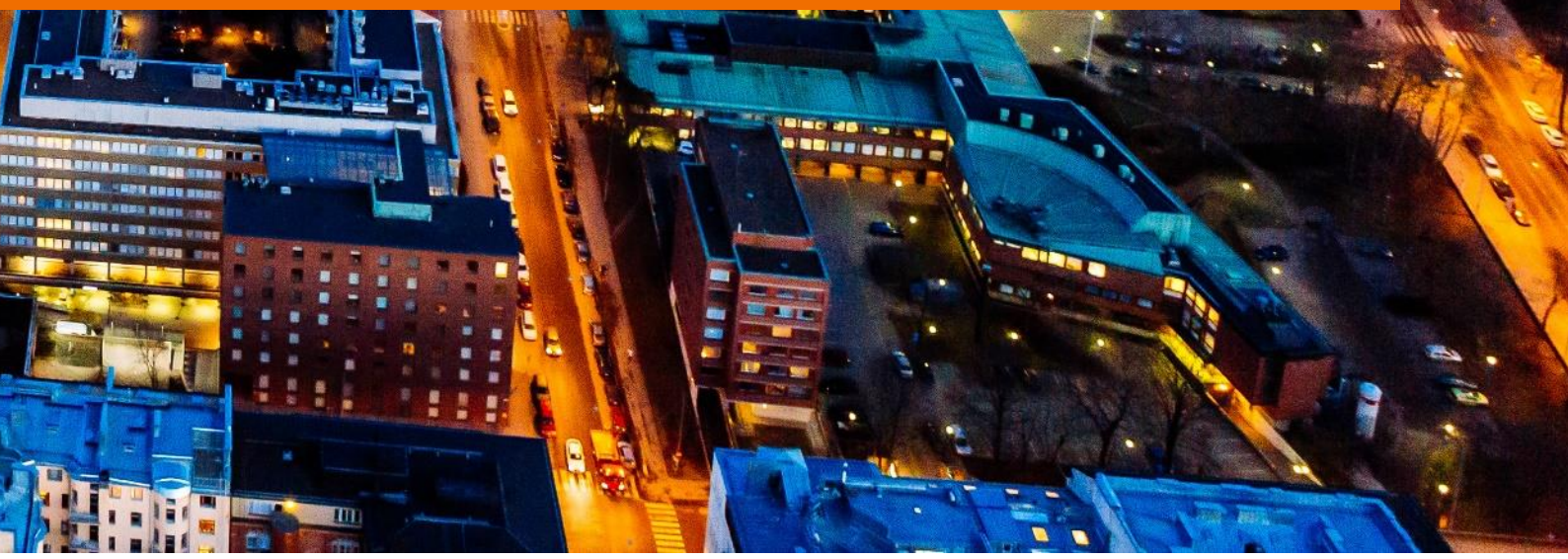
CO-CREATING SUSTAINABLE SOLUTIONS FOR FUTURE-PROOF SOCIETIES

The European Association for REsearch on SERvices (RESER), 34th International RESER Conference. Conference proceedings.

Suominen, Arho, Hyytinen Kirsi & Tuori, Helmi (Eds.)



Co-creating sustainable solutions for Future-proof Societies.

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Organizer message

RESER 2024, held in Espoo, Finland and hosted by VTT Technical Research Centre of Finland, brought together an international and interdisciplinary community of service researchers, practitioners, and policymakers. The central aim of this year's conference was to explore how service research can contribute to building sustainable, inclusive, and resilient societies—focusing particularly on the role of digital transformation, co-creation, and systems thinking in addressing complex societal challenges.

Under the conference theme "Co-creating Sustainable Solutions for Future-proof Societies," participants examined how multi-faceted innovations, both technological and service-based, can be integrated with new governance models and participatory practices to shape transformative change. Sessions highlighted the need for systemic approaches to sustainability transitions, involving collaboration across sectors, disciplines, and stakeholder groups.

A key area of discussion was the integration of digital technologies such as AI, digital twins, and data platforms into public services and urban infrastructures. These tools were not only evaluated for their technological capabilities but also critically examined through the lenses of ethics, inclusivity, and long-term social value. The conference also delved into sustainability in practice, showcasing innovations in energy, food systems, health care, and education that exemplify how services can support circular economies and more equitable futures.

Many contributions emphasized co-creation, not merely as a method, but as a value-driven principle for building shared futures. Case studies from hackathons, living labs, and collaborative policy initiatives illustrated the challenges and potential of participatory service design, especially when aiming to balance diverse needs, sustain engagement, and scale impact. Discussions extended to governance for sustainability, the empowerment of citizens and communities, and how service innovations can enable social and environmental justice.

Methodologically, RESER 2024 reflected the maturity of service research in addressing socio-technical transitions. Presenters employed a wide range of tools, from foresight and system dynamics to data-envelopment analysis and bibliometrics, demonstrating the field's growing capacity to evaluate, guide, and co-create impactful solutions.

This Book of Abstracts captures the breadth and depth of the conference contributions and reflects a shared commitment to bridging theory and practice. Together, the presentations represent an important step forward in consolidating service research as a key enabler of sustainable transformation.

We thank all contributors for their insight and engagement and look forward to

the continued evolution of this dynamic field.

Dr. Kirsi Hyytinen & Professor Arho Suominen,
Conference Co-chairs

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Contents

Assessing Living Labs' Impact on Smart City Readiness: A Quantitative Framework from Japanese and Korean Case Studies

01 Nov
10:45
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Jooho Park, Kentaro Watanabe
AIST

OBJECTIVES

In the rapid evolution of cities toward technologically integrated models, commonly referred to as smart cities, initial approaches often prioritized technical components while neglecting citizen involvement (Bouzguenda et al., 2019; Cardullo & Kitchin, 2019). This oversight hindered equitable public access to potential benefits and participation in governance. However, as discourse has matured, recognizing the importance of citizen engagement has become integral to smart city development (Park & Fujii, 2022, 2023; Sweeting et al., 2022). Consequently, living labs have emerged as collaborative environments that facilitate technology testing and real-world problem-solving, actively involving the community (García et al., 2015). This research explores whether living labs can mitigate the risks of citizen marginalization in smart cities by fostering public understanding of emerging systems and promoting more inclusive, citizen-centered urban growth. Through comparative case studies across countries that exhibit demographic, objective, and operational variations, this study explores how direct participation in living labs transforms individuals' knowledge, civic engagement, and perceptions related to smart cities. Three key research questions guide an empirical examination into: 1) the main factors driving competency and attitude changes among participants 2) how these changes tangibly manifest among citizens 3) whether such increased capabilities actually serve to precipitate wider public acceptance of the smart city paradigm as a new form of urban development. The study notably pioneers a quantitative approach to evaluating the impacts of living labs, providing a valuable framework blueprint for how participatory urban innovation platforms can be designed to empower inclusive and citizen-powered progression of smart cities most effectively.

METHODOLOGY

In the survey design of this research, a comprehensive approach was adopted that involved conducting interviews with the founders of two living lab case study sites, Min-lab in Japan and Seongdaegol Living Lab (SLL) in Korea. The research methodology encompassed two surveys for each living lab case study. Descriptive statistics were calculated for continuous variables as means with standard deviations, and for categorical variables with frequencies and percentages. The variables were systematically organized within the tiers of the research framework. In Phase I of the research framework, we investigated the relationship between tier 1 variables and tier 2 variables derived from living lab activities. This involved conducting a one-way analysis of variance (ANOVA) to explore mean differences in tier 2 variables based on tier 1 variables. A two-way mixed ANOVA was utilized to examine the association between participants' knowledge scores before and after participation and

their level or type of participation. Stratified analyses were conducted based on participation levels—categorized as low, medium, and high. Additionally, a Welch two-sample t-test was employed to compare participants who selected each networking response with those who did not, focusing on the participants' networking variable. Knowledge acquisition (tier 2) was quantified as the net difference between pre- and post-participation knowledge scores. To assess statistical differences in knowledge scores before and after participation, we employed either a paired t-test (Min-lab) or a Wilcoxon signed rank test (SLL), depending on the data distribution.

EXPECTED RESULTS

The findings highlight the broader significance of living labs as a flexible participatory mechanism for proactively transitioning and upgrading traditional community member mindsets and capabilities into empowered smart cities actors. This study thus provides promising initial evidentiary support to the proposal that when citizens are enabled to participate as authentic partners in decisions determining future community changes, they become increasingly empowered and mobilized drivers of progress, rather than passive or resistant recipients of external innovation forces over which they perceive no control or benefits.

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Service Ecosystem in mid-mountainous regions

01 Nov
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As the economic system is shifting from shareholder capitalism to stakeholder capitalism, service as a value co-creation process among stakeholders is an interdisciplinary topic of accelerated research. S-D Logic has changed the concept of services from intangible goods to "value co-creation mechanism through resource integration.

This has been followed by the emergence of the concept of service ecosystem (SE), which has been expanding both theoretically and practically. However, due to the difficulty in obtaining data collection representing the complex network structure of long-term co-creation activities of a large number of stakeholders, few studies have conducted comprehensive quantitative validation.

In this study, we will conduct a comprehensive analysis of the value co-creation network structure in SE, using the energy cycle in the mid-mountainous regions of Sweden and Japan as a case study, to clarify its components, inherent processes, and results, and to identify success factors and simultaneously develop indicators to manage long-term outcomes. By doing so, we can present a way for SE to promote the emergence of desirable forms of value co-creation. In particular, we will focus on the structure among participating actors in SE, the role of institutions as drivers of value co-creation, and the identification of outcome indicators to measure success. Since institutions are highly influenced by culture and history, we will make a comparison between Scandinavia (Sherefteå, Sweden) and East Asia (Maniwa, Japan), where differences are significant in terms of uncertainty avoidance orientation and hierarchical consciousness. Both cities are located in mid-mountainous regions centered on forestry, have challenges of declining population and deteriorating local economic environment, and are attracting attention for their efforts to build smart cities centered on new energy, making them the best field for SE. In both cities, after clarifying the macro, meso, and micro structures through a combination of qualitative and quantitative surveys, quantitative surveys that comprehensively capture SE were conducted to clarify the overall structure (components, processes, causal relationships, and outcome indicators) using methods such as hierarchical regression analysis and network analysis, and to clarify success factors. Clarify success factors. We believe that the construction of a co-creation value measurement scale will promote the creation of a mechanism for service innovation in local governments, which until now has not been properly evaluated due to the lack of a long-term co-creation perspective, and that this will make a significant contribution to society.

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Social sustainability value co-creation for future urban living

Maaria Nuutinen, Kirsi Hyytinen, Maija Federley
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OBJECTIVES

Addressing social sustainability in continuously evolving socio-technical systems necessitates flexibility, interconnectivity, and collaboration. That drives the emergence of networked structures and innovation ecosystems in which the value is co-created in a network of mutually dependent actors (Vargo et al., 2015) as part of their own processes. These networks are not merely collections of relationships but dynamic systems with a critical characteristic of self-adjustment. They simultaneously function and reconfigure themselves, with value expectations defined by the users and ecosystem collaborators.

This paper is theoretically grounded in the discourse of service marketing and management (e.g., Vargo & Lusch, 2004, 2016; Becker et al., 2023) and the emerging approach of Public Service Logic (Osborne, 2021), which focuses on the conceptualization of value (Osborne et al., 2021; Dudau et al., 2023). In the definition of value, emphasis is placed on both private value, including business value (Grönroos and Voima, 2013) and broader societal value (Osborne et al., 2021; Dudau et al., 2023). Definitions of societal value extend beyond individual self-interests to encompass ecological, political, social, and cultural dimensions (Bryson et al., 2017). Examples of societal value include environmental care, societal well-being, securing people's rights and justice, equal treatment, equal access to services, and the upholding of democratic principles.

Although public and societal value have been prominent topics in recent literature, the concept of "value" remains undertheorized and poorly understood in both theory and practice. The empirical understanding of how value is defined and operationalized is particularly limited (Osborne et al., 2022). Additionally, there is a significant lack of understanding and empirical research on the critical factors of value co-creation in multifunctional and multidimensional contexts and shared processes. This paper aims to develop a new understanding of the co-creation of social sustainability value, characterized by long time horizons and simultaneous processes involving multiple actors and stakeholders. The empirical multiple case study focuses on understanding the actors and their needs related to contributing to sustainable urban living in neighborhoods, with a particular emphasis on social sustainability as part of shared value creation.

The essence of sustainability research lies in understanding societal processes in relation to their interaction with nature (Littig & Griessler, 2005). The literature lacks a consensus on a single, comprehensive definition of social sustainability. We build on the view that social sustainability is both a desirable state for communities and an ongoing process to achieve that state (McKenzie, 2004). This approach contributes to social foundations that set boundaries for the economy alongside planetary boundaries (Raworth, 2017). Based on various definitions, five key dimensions

of social sustainability can be recognized: (1) safety and security; (2) equity (justice); (3) adaptability; (4) social inclusion and cohesion; and (5) quality of life (Ly & Cope, 2023). Thus, socially sustainable urban living should be enhanced by solutions, services, and decisions that promote these five dimensions within a community or society, while ensuring that economic activities remain within both social foundations and planetary boundaries.

According to the IPCC Sixth Assessment Report, most of the world's population lives in urban areas, which are major sources of risk and exposure to climate change. Population growth drives urbanization, increasing challenges like overuse of natural resources, congestion, pollution, and crime (UN, 2022). Climate change impacts predominantly affect economically and socially disadvantaged urban residents (IPCC, 2022). To enhance well-being and manage natural resources effectively, we need sustainable cities and communities, as highlighted by the UN Environment Programme. Sustainable urbanism requires good neighborhoods where daily needs are met in safe environments with quality urban and green spaces, accessible shops, leisure, jobs, education, childcare, and transport networks (UNEP, 2020). Achieving sustainability in urban living is a complex challenge requiring effort from public and private sectors and citizens. Understanding the systemic nature of the required change and the contribution of multiple stakeholders is essential. Realizing service opportunities to support the transformation of urban living necessitates co-creation in the ecosystem and better indicators for evaluating and communicating the environmental, economic, and social sustainability impact (Nuutinen and Lappalainen, 2020).

We will utilize the theory of service-dominant (S-D) logic, which describes the process of value co-creation by actors in service ecosystems (Vargo & Lusch, 2004, 2016). This theory emphasizes holistic, meaningful experiences, viewing value as subjectively and experientially defined by the beneficiary, the actor experiencing value in a particular context (Vargo & Lusch, 2016). Value emerges for both individual and collective actors, such as families, teams, firms, or networks, who act on potential resources to co-create value (Vargo & Lusch, 2019; Becker et al., 2023). Value determination involves beneficiaries defining value for themselves, individually or collectively, and/or attributing value to other actors (Becker et al., 2023). The research question is: what are the social sustainability expectations of actors and their ways to articulate them, and what kinds of tensions and discontinuities exist between them in value co-creation process?

METHODOLOGY

Our study utilizes multiple case studies to explore the co-creation of social sustainability value within a complex network of actors. We empirically investigate value co-creation at three levels and simultaneous processes:

- City planning, including traffic flows, housing type, public spaces, landscaping and setting up overall goals for the area. Three cases will be analysed: two focusing on perspectives of planning of a new area in a city, and the third case focuses on construction of a new office campus. - Housing development aiming to build homes and neighborhoods where people get to know each other naturally and have good

opportunities for inexpensive free time activities. Three housing concepts emphasizing communal aspects will be analysed. - Company led innovation process, aiming to create solutions for accessible built environment, enabling all kinds of people to lead an active life (social, cultural and physical). Integration of social sustainability objectives into innovation processes for 1-3 companies will be analysed. The empirical material is derived from documentary analysis, interviews, and workshops. The material includes documentation of six workshops and 16 interviews (tentatively). The informants represent both public sector organisations and private companies as key actors of the cases, but also partners and customers of the key actors.

We will analyse the empirical data in relation to different kinds of operational and decision-making processes through which various actors participate in the co-creation of the value of social sustainability in urban living. In the analysis we describe the operational processes in value co-creation on each level to generate an understanding of how the processes among different key actors with varying periods are interrelated. Additionally, we analyse tensions and discontinuities between actors in the value co-creation process. These linkages need to be better understood and described to maintain and promote social value within the actors and broader society. Furthermore, we analyse strategies for setting actionable targets for social value and how those are translated for different levels of actors, processes and time spans.

EXPECTED RESULTS

We will present three examples of different beneficiaries and their diverse value experience expectations as collective actors, tensions, and main discontinuities in the value determination process. The beneficiaries share the concern that the value experience of citizens typically does not correspond to the strategically intended impact, causing disappointments in their own value experience as well. We will discuss how multiple actors with diverse value expectations and discontinuities can increase the institutional complexity and make it more difficult to reach accurate value attributions (Becker et al., 2023)

We will outline both managerial and theoretical implications, which are tentative since the paper is part of an ongoing study. The study contributes to service research by providing an insightful empirical study with theoretical relevance. It supports previous ideas about the systemic and complex nature of value co-creation in ecosystems and emphasizes the need for both theoretical and practical tools to support value co-creation for realizing sustainability transition. Furthermore, it demonstrates the need to better understand the value creation of social sustainability in a multi-stakeholder and multi-level context. This paper contributes to the ongoing discussion that seeks to establish a social sustainability framework for facilitating value co-creation through relevant indicators that can inform decision-making in city planning, housing development and innovation process of solutions for sustainable living.

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Heads or Tails? Two Sides of the Municipal Open Innovation Coin

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01 Nov
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OBJECTIVES

Over the past two decades, local governments have sought to transform their cities, towns, or rural areas into 'smart municipalities' by using and interconnecting IT and big data to improve the lives and well-being of their residents (Ahad et al., 2020; Hollands, 2008; Hosseini et al., 2018; Ramaprasad et al., 2017; Rosemann et al., 2021). In the literature, the concept of a smart city or smart municipality is understood more as an ongoing transformation and the strategies, processes, and approaches of how a municipality is becoming 'smart' (Nam, 2012), where the involvement of its residents is a key aspect to ensure the orientation towards the whole society (Chourabi et al., 2012; Hollands, 2008; Kudo & Granier, 2016; Reynante et al., 2021).

However these active participation is often missing or not seen, resulting in an discussion about the 'absent citizen' (Shelton & Lodato, 2019). The reality may differ, and the residents may, in fact, be often discontent with the processes themselves (Van Twist et al., 2023). The resulting feeling that the residents' own voice and wishes are being overheard runs counter to the local authority's view that the ideas submitted are not within the remit of the municipality.

On the other hand, the transformation toward smart municipalities offers the potential for a wide range of novel inventions that can be driven by residents as innovators and not need to be necessarily operated by the municipality. For example, during the German federal government's "#WirVsVirus" hackathon in 2020, around 1,500 ideas were developed within 48 hours with the help of over 28,000 residents in response to the Covid-19 crisis situation (Haesler et al., 2020; Mair et al., 2021). However, this is not the only successful example, the concept of the "#WirvsVirus" hackathon has also been rolled out across the European Union as "EUvsVirus" (Bertello et al., 2022) and a follow-up project "UpdateDeutschland" was also conducted (see Mair et al., 2022). These hackathons bring together different types of actors, such as innovators from civil society (retired experts, grand students etc.), investors, and sometimes even companies (e.g. Bertello et al., 2022, p. 178), by providing a platform for otherwise partially unconnected actors. These actors group up in teams of sometimes very heterogeneous people (Bertello et al., 2022) working temporarily together for a specific project (Beretta et al., 2023). While citizen engagement has a long history in public administration (e.g., citizen polls, town hall meetings, etc.), open innovation tools (such as the hackathons mentioned above) offer municipal governments new opportunities for problem solving (Yuan & Gasco-Hernandez, 2021). The municipalities benefit in particular from the generation of ideas and a higher level of public engagement, which can also lead to greater satisfaction among the population (Yuan & Gasco-Hernandez, 2021).

This raises the question of how a municipality's role needs to change in order to better orchestrate innovation activities with its residents to harness their potential.

METHODOLOGY

Interviews were conducted with managers from the municipal administration as well as residents utilizing the problem-centered interview technique (Döringer, 2021; Witzel, 2000) and transcribed the interviews verbatim. For the data analysis, the qualitative content analysis approach according to Rädiker and Kuckartz (2020) was used. It uses an inductive-deductive method and is suitable for highly open-ended research questions (Kuckartz, 2019; Rädiker & Kuckartz, 2020).

EXPECTED RESULTS

Public open innovation can be in general distinguished between citizen-driven and government-driven innovation (Lee et al., 2012). Government-driven innovation is the most used form in public open innovation and the government as the dominant actor has nearly the full control over the innovation process (e.g., Porwol et al., 2013). This approach is particularly important when the interests of different resident groups need to be considered and balanced or if it is within the sovereign area of responsibility of a government. In contrast, citizen-driven approaches (e.g., Eskelinen et al., 2015), ideas can be addressed that may not be addressable by the local government (e.g., without its public mandate). In this case the government acts more as a consultant and domain expert for the addressed issue (Porwol et al., 2013). While the public sector can benefit from this approach of ideation to get new impulses on how to better adapt to the needs of its citizens, it also costs operational capacity to evaluate and align the incoming ideas (Schmidthuber & Hilgers, 2017) and sometimes the administration is not the best choice to implement some of these ideas. Nevertheless, a considerable number of these ideas are dismissed as "unsuited" and consequently lost within the process. Our findings provide empirical evidence that municipalities need to rethink their role as poor service providers, using citizen participation methods only to gather new input for their own service improvement. Instead, municipalities should become actors that seek to support residents in their own problems-solving activities. Residents could be supported by various means like digital platforms for collaborative work, networking or others that focus on the self-empowerment of residents (e.g., Noh, 2022; Putra & Van der Knaap, 2018). This innovation support would then become a public service offering of the municipality itself.

The results of this study will contribute to the understanding of the initiation of citizen-driven innovation projects through digital platforms. Municipalities can learn from these results, that the establishment of innovation support through digital platforms may allow them to leverage a greater innovation potential through their own residents and support the digital transformation into smart municipalities.

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1 Nov
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Did Technology Make Us Better? Comparing Brazilian Teaching Hospitals Performance Before and After Covid-19

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OBJECTIVES

The Covid-19 pandemic was a phenomenon that affected the world, and hospitals had to adapt promptly. The impacts on the teaching hospitals were even more severe given the required curriculum reorganization, fast advancements in telemedicine and research. Brazil, a country of continental dimensions (Paim et al., 2011) and the 5th largest population globally (OECD, 2024), established health as a universal right and State responsibility in the 1988 Constitution, materialized in 1990 in the Unified Health System (SUS), an innovative model in Latin America (Castro et al., 2019). SUS's sustainability hinges on ample public funding and effective resource allocation (Castro et al., 2019). During the pandemic, in December 2020, Brazil had the second-highest global Covid-19 burden (Bigoni et al., 2022). SUS remuneration for Covid hospitalization was insufficient to cover costs, and, in the setting of Brazilian teaching hospitals, the approved SUS amount for Covid-19 hospitalization remuneration proved insufficient to cover calculated costs (Sousa et al., 2023). Besides financial aspects, an increase in technological change is expected with the pandemic, given the investments made in infrastructure, vaccine development, and new products (Heshmati et al., 2023). In this context, the Brazilian Federal University Hospitals (FUHs) reorganized care and promoted conditions to face the pandemic, implementing healthcare, management, extension, teaching, and research actions (Santos et al., 2020). The pandemic period posed challenges and unexpected paths of accentuated technological advancements, crucial for enhancing performance (Mahardhani, 2023). Many criteria may be involved in the performance evaluation (Jahantigh & Ostovare, 2020), particularly on teaching hospitals, institutions that provide internships, practical experience, and research opportunities (Chen et al., 2021). Institutional performance is commonly grounded in economic efficiency, a concept that underlies technical efficiency (Kalirajan & Shand, 1999), and it is essential to assess technical efficiency based on valid models to avoid undesirable consequences in decisions that impact public policies (Hadji & Degoulet, 2023). The healthcare sector is one of the top five areas where data envelopment analysis (DEA) is extensively applied to assess technical efficiency (Emrouznejad & Yang, 2018). Most studies apply the DEA model in combination with other techniques (Almeida et al., 2022), regarding the binary classification performed by DEA (efficient or inefficient) provides weak discriminatory power among decision making units (DMUs). Additionally, DEA does not perform well when formulating many input and output variables, which can lead to a high number of efficient DMUs (Labijak-Kowalska & Kadziński, 2021). Studies exclusively dedicated to assessing teaching hospitals' efficiency apply more general hospital variables (e.g., number of beds, physicians, nurses, etc.), without considering variables that reflect intrinsic

aspects of managing a teaching hospital (Almeida et al., 2022). One conjecture for this pattern is that studies incorporate more available and replicable variables. In addition to add variables that represent specific aspects to the management of teaching hospitals (Almeida et al., 2022), models for evaluating the technical efficiency of hospitals should: i) consider financial variables, given that public health systems are under constant financial pressure (Cinaroglu, 2021), intensified by the pandemic; and ii) adopt a broader definition of technical efficiency that weighs the dimension of service quality, to prevent gaps that result in cost reductions for hospitals from leading to a loss of quality in health services provided to patients (Berger et al., 2020). Given the context presented, this study aims to assess the technical efficiency of the Brazilian FUHs, incorporating dimensions oriented to teaching, financial and service quality, as well as indicators disseminated in previous studies into a single model. The impact of the Covid-19 pandemic has brought unprecedented challenges and transformations to healthcare service systems worldwide, making it essential to assess how these changes have been affected by the technology developments of FUHs. Then, we conduct an evaluation on how technology changed based on the pre and post-pandemic years, providing a dynamic analysis of the structural and procedural changes in hospitals that occurred to optimize the quality of services provided to patients affected by the disease (Bernardino et al., 2021).

METHODOLOGY:

Regarding the Brazilian relevance in the pandemic context, and the FUHs' expressiveness in Brazilian territory, data for this study are relate to 37 FUHs under the oversight of the Ministry of Education in Brazil and managed for the Brazilian Company of Hospital Services (Ebserh). Ebserh is a public company responsible for managing FUHs, the largest network of public hospitals in the southern hemisphere, integrating education and health activities, and providing 100% SUS services (Brazil, 2022). As common in international literature, this study used DEA to assess technical efficiency in the selected DMUs. In this study, the input-oriented method was chosen due to the understanding that, in the context of the Brazilian Federal University Hospitals, inputs are controlled by decision-makers. In this study, 11 inputs and 7 outputs were selected in the theoretical-explanatory model. To confirm the variables, a statistical technique supporting principal component analysis (PCA) is applied, helping to analyze the interrelationships between the input and output variables (Hair et al., 2010). DEA is a technique commonly used in conjunction with the Malmquist index, which measures changes in the total factor productivity of DMUs in different periods (Agasisti & Wolszczak-Derlacz, 2016), giving the technological change over time. In this research, the index is applied, considering data from two periods, 2019, the year before the declaration of the International Public Health Emergency caused by Covid-19, and 2022, the year in which the end of the period was declared.

EXPECTED RESULTS:

This study assesses the technical efficiency of 37 Brazilian Teaching Hospitals managed by Ebserh and linked to the Ministry of Education. Using PCA, the proposed model overcomes DEA's challenge in handling numerous inputs and outputs (Labijak-Kowalska & Kadziński, 2021), encompassing key dimensions and variables. The multidimensional model includes teaching, economic-financial, quality, staff, and healthcare aspects through five variables (clinical staff, expenditure per bed, bed turnover, relative production unit and resident satisfaction survey score) interpreted by complexity level and regionality. Service quality is assessed based on user perceptions, specifically from residents, reinforcing quality and teaching aspects. Considering the multidimensional model application, 89% of the FUHs operate below the optimum level in both years considered. In 2019, seven FUHs were efficient, with a mean technical efficiency score of 0.78. In 2022, 10 FUHs were efficient, with a mean score of 0.82. We examine changes in technological efficiency between pre- and post-pandemic years (2019 and 2022) in the FUHs. Technological change expected due to pandemic-driven investments (Heshmati et al., 2023), did not offset productivity loss. While there was positive technological change, it was insufficient to sustain production increases from 2019 to 2022. Pandemic setbacks, such as appointment delays and team exhaustion (Bigoni et al., 2022; Santos et al., 2020), and financial constraints (Sousa et al., 2023), impacted FUHs productivity. However, educational quality, from residents' perspectives, improved. Teaching hospitals, designed for moderate and high complexity cases (Hosek & Palmer, 1983), adapted their equipment and staff to Covid-19 treatment. This adaptation incurred costs that impacted overall productivity. Future studies should assess the role of residents and preceptors in technical efficiency and technological changes pre-, during, and post-pandemic. Additionally, expanding DMU production capacity with available resources can inform public policy negotiations to better utilize hospital personnel and financial resources. Exploring the bed turnover rate variable could compare efficient and inefficient teaching hospitals between 2019 and 2022. Future research should analyze the 'black box' of 2020 and 2021 for a detailed context to understand the technical efficiency results of Brazilian teaching hospitals.

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Guidance development for assessing assistive technologies in care fields: lessons learnt

1 Nov
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OBJECTIVES

Global aging causes significant challenges to sustainable welfare systems for older adults. The lack of care professionals is becoming even more serious after the COVID-19 pandemic. Under the situation, the needs for assistive technologies for older adults are further anticipated. From the service research perspective, the service system concept is essential for technology introduction in nursing care services (Tuovila et al., 2023; Watanabe et al., 2024). In this concept, technologies should be parts of service systems where various actors co-create values using the technologies. For technology integration in service systems, Watanabe and Mochimaru (2017) suggest the technological support model. The technological support model consists of 1) technology, 2) activity guideline which describes general, customizable service activities using 1), and 3) application process of 1) and 2). This model has a potential to promote assistive technology adoption in welfare services.

This study reports the guidance development for assessing assistive technologies in nursing care service fields, conducted under the care robotics project in Japan (FY2021-2023). This guidance was developed mainly for assistive technology developers and the organizations which support the development and assessment of technologies (hereafter, supporting organizations). The guidance is expected to provide the overall process required for assessing assistive technologies in care service fields, including contacting with care service providers, planning a testing protocol, introducing a target technology to the service field, conducting the test, and utilizing its result. According to the technological support model, this guidance corresponds to the application process. By developing and disseminating such a guidance for technology developers, the technology assessment process in care fields and the quality of test results could be improved. High-quality testing results with the specific use process could promote the use of assistive technologies and accordingly the care for older adults would be more effective and productive. While there are several studies on the assessment of assistive technologies and its challenges (Johansson-Pajala & Gustafsson, 2022; Turja et al., 2020; Wu et al., 2014), the overall process for the assessment of assistive technologies in care service fields is still understudied.

Against the backdrop, this study aims to clarify the requirements for the guidance to assess assistive technologies in care service fields. Taking a case study approach, we investigated the practices of experienced supporting organizations who support care technology developers to assess assistive technologies in care fields. Its result was implemented as a guidance for assessing assistive technologies, which will provide a managerial contribution for assistive technology developers. In addition, we discuss the theoretical contribution to the technological support model.

METHODOLOGY

The care robotics project consisted of three phases.

- **Phase 1 (FY2021)**: Web survey and interviews of supporting organizations in Japan to clarify general requirements for assessing assistive technologies.
- **Phase 2 (FY2022)**: Depth interviews with four supporting organizations (including one service provider frequently testing technologies) to extract the assessment process and associated guideline items, which became the source for the first draft of the guidance.
- **Phase 3 (FY2023)**: Workshop with two groups of supporting organizations and assistive technology developers for evaluating the first draft with an assessment case retrospectively.

We adopted a case study approach to the project for extracting general requirements for the guidance to assess assistive technologies in care service fields. The results of the web survey, interviews, and workshop were the main data sources. We analyzed the collected data qualitatively and elaborated the requirements for the guidance.

EXPECTED RESULTS

Our study illustrates several general requirements for the guidance of assistive technology assessment from the service research perspective as follows.

- **Informing the service system concept**: The service system concept is not familiar to assistive technology developers; hence, it is important to introduce it in plain language. More concretely, multi-actor cooperation among technology developers, supporting organizations, and care service providers, as well as consideration of their values, need to be addressed in the guidance.
- **Requesting the support of supporting organizations**: For technology developers without experience in welfare sectors, it is difficult to assume the general requirements and situations of care service providers, leading to a mismatch between developed technologies and care needs. However, it is also challenging to create a concise document for technology developers to understand these needs. Therefore, the guidance should highlight the importance of support from supporting organizations and provide information on them. Having a supporting organization as an intermediary between a technology developer and its user ensures organized technology testing.
- **Focusing on overall care processes**: Assistive technologies are often developed with a narrow focus on solving a specific problem. However, the technology should be integrated into the overall care process, including the pre- and post-steps of its use. This means arranging the service process to test the target technology during the planning phase. The test should then follow a consistent protocol, making the results more reliable and applicable.

- **Emphasizing trust with care service providers**: Assistive technology developers may view a care field solely as a testing ground, which can lead to actions that lack respect. The guidance needs to emphasize building trust with care service providers for mutual satisfaction. For example, frequent site visits, comprehensive training (customer education), and feedback on test results are essential. Sharing the purpose of the test is also important for service providers to conduct testing confidently.

These general requirements were itemized in the guidance and became available online. Moreover, these requirements provide theoretical implications for the technological support model, which will be further discussed. In addition to promoting the use of the guidance, the long-term impact of the guidance should be evaluated in the future study.

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Stakeholder engagement in digital health interventions: a systematic review

01 Nov
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Takka

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OBJECTIVES

This paper aims to advance knowledge on stakeholder engagement in the domain of digital health. This topic has captivated a wider academic audience, with discussions highlighting the potential for patients and healthcare stakeholders to integrate innovative practices in healthcare delivery (Omachonu & Einspruch, 2010). Despite challenges, engaging multiple stakeholders (including patients, families, clinical and non-clinical teams, and other non-clinical support agencies) is crucial for the successful implementation and adoption of new technologies. As evidenced by past technology failures (Mair et al., 2012), neglecting stakeholder engagement at any stage of the healthcare process can jeopardize the success and sustainability of new interventions.

The current literature on stakeholder engagement in digital health is notably fragmented, specifically focusing on single technologies (Lyles et al., 2021; Olson et al., 2022) or theoretical development (Egan et al., 2021; Kim et al., 2018). While patient and stakeholder engagement is widely recognised as crucial for translating health research knowledge into practical policies and practices (Damschroder et al., 2009), this area remains underexplored in the context of digital health implementation, lacking a cohesive overview of stakeholder engagement. Additionally, new technology failing to address stakeholder engagement can create a further divide, especially when digital inclusion factors have not been considered (Godage et al., 2023).

In line with these assumptions, the potential of digital health can be maximized by considering multiple stakeholder perspectives, particularly those of actors in real-implementation contexts (Iyawa et al., 2017). Although there is some empirical research suggesting the validity of these assumptions (Lyles et al., 2021), a comprehensive analysis of the wider evidence base remains weak.

A systematic analysis of the current literature is essential to understanding the role and implications of stakeholder engagement in the digital health implementation context. Based on this interest, we formulate the following research questions: (RQ1): What do we mean by stakeholder engagement in the digital health contest? (RQ2) What are the most effective practices to improve stakeholder engagement in a health-implementation context?

This analysis will provide valuable insights for developing more effective, equitable, and inclusive health solutions.

METHODOLOGY

This paper employs a systematic literature review methodology as outlined by Kitchenham (2004) and follows the Preferred Reporting Items for Systematic Reviews (PRISMA) guidelines (Moher et al., 2009). A systematic literature review

synthesizes scientific research on a specific topic by thoroughly analyzing past and current studies (Kitchenham, 2004). Among various analytical methods, a well-conducted systematic review provides robust evidence, particularly valued in the health sciences (Purssell & McCrae, 2020). It generates knowledge applicable to various stakeholders, such as patients, healthcare providers, and policymakers (Polit & Beck, 2008). We searched five electronic databases (Scopus, Web of Science, PubMed, Cochrane Library, and ClinicalTrial.com). The search strategy involved using keywords linked to stakeholder engagement and digital health.

Our review process led us to identify 38 articles that met the inclusion criteria. We reviewed the contents of the selected studies in three primary phases. In the first phase, we focused on analyzing the content of the studies and the characteristics of digital solutions in different implementation contexts. Using a ten-category taxonomy, we organized the articles into a tabular format, noting each article's reference, source, aim, stakeholder identification, research method, theoretical framework, technological solution, population, engagement practices, and engagement barriers or facilitators.

In the second phase, our analysis involved understanding, assimilating, and operationalising the related concepts by examining similar studies and the insights from their main results. We applied content analysis (Strauss & Corbin, 1998) alongside open, axial, reflective, and selective coding methods (Scott & Howell, 2008).

In the third phase, we synthesized the literature to develop a theoretical framework that addresses the complexities of stakeholder engagement in relation to digital health interventions. Guided by Imenda's (2014) insights on what constitutes a conceptual model, we identified micro, meso, and macro levels to classify stakeholders and identify key practices and outcomes of their engagement.

EXPECTED RESULTS

Preliminary findings allow us to identify and classify stakeholders on the basis of their roles and engagement practices, adapting to their involvements. Of the 38 studies included, 25 identify patients as primary, directly involved actors in the solution implementations, often participating in feedback and decision-making processes. 27 studies include healthcare professionals, including doctors, nurses, and other medical staff, who directly interact with patients and play crucial roles in implementing innovative solutions and providing digital care. 10 studies recognise health service researchers and designers, and 13 also identify decision-makers (managers of service organisations and policy-makers) as facilitators by guiding the strategic direction and ensuring the implementation of effective digital solutions within healthcare institutions. Regulatory bodies and governmental agencies are identified as influencers in 7 studies impacting policies and regulations, while advocacy groups and non-governmental organisations are also considered (in 6 studies) for their power to influence funding for research and promote health education.

It is crucial for patients to be informed also through educational sessions (Yu et al., 2022). and partnering with them in some phases of decision-making can be done by including them in committees and co-design workshops (Yip et al., 2023). Similarly, healthcare professionals's feedback through regular meetings as

well as their involvement in pilot testing should be seen as beneficial along different phases of implementation (Wang et al., 2023). It is important to seek input from other researchers and organizational staff through focus groups and advisory panels (Dukhanin et al., 2023) while ensuring concerns about policy changes and resource allocation are addressed by engaging decision-makers in policy development (Lyles et al., 2021). Regulatory bodies need effective communication channels and partnerships to collaborate in the development of comprehensive and impactful healthcare solutions (Sibuyi et al., 2022) and NGOs should involved in educating the public and stakeholders about health issues and advocacy goals (Teck et al.,2023).

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1 Nov
10:45am
Takka

Human resources organising in the early phase of digitalisation in primary health service organisations: Case examples from Norway and Finland

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OBJECTIVES:

How do public service organisations that begin to provide digitalised services, make decisions on necessary human resources to run such services? In other words, how do organisations with different local work contexts try to resource the service work in tying (or configuring) it with digital service practices? Neither information systems research nor organisational or workplace learning research studying digitalisation has sufficiently addressed what kinds of service ideas and strategies occur and what kinds of competences emerge locally in various contexts (e.g. Vallo Hult et al. 2022). Thus, especially in the early phases, working towards local digital change can be constitutive for the further trajectory of digital transformation on organisational and network levels (Törmer & Henningsson 2018).

This paper explores human resourcing strategies in the early phase of digitalisation in two primary health service organisations. The Norwegian case organisation ('urban-distributed') comprises several independent urban city districts responsible for local services and several specialist central agencies, such as the health agency, responsible for care development in medical, dental, psychosocial care, public health and development of the municipality's professional systems. Economically, this local context can be characterised as 'resource-rich' environment. The Finnish case organisation ('rural-integrated') is responsible for both social and health care in a broad geographic region and comprises urban and large rural municipalities. This local context, in turn, can be characterised as 'resource-scarce' environment. We anticipated variation in the resourcing strategies of the two cases based on the developmental and demographic characteristics of both health care systems.

We aimed to investigate how the different local contexts are displayed in the work resourcing arrangements of these organisations, particularly how the context-specific environments address organising work roles and establishing anticipated competences in different ways. Hertzum and Simonsen's (2019) qualitative analysis of local competences in an IT development project in a hospital context inspired our paper. They formed a catalogue of seven competence categories, each of which comprised multiple qualitatively characterised competences that are needed locally to configure information systems and work practices for one another.

To broaden the analysis of locally required competences outside a single project level towards organisation-wide digital change, we employed a practice-based perspective on public service work facing digitalisation. According to Gherardi (2010, 505), a stabilised way of doing things becomes a practice when it is institutionalised and made normatively accountable for its practitioners. Therefore, we interpreted a work resourcing strategy as a set of local decisions, such as resource allocations and

aspired competences, to integrate digitalised services into the prevailing local care services (i.e. to make it socially recognised in the care units).

METHODOLOGY

The primary data comprised eight semi-structured interviews from the urban-distributed case and eight semi-structured interviews from the rural-integrated case concerning digital changes in homecare services. The interviews covered various positions, from leaders to new operative roles dedicated to enhancing digital change, and they represented different organisational functions. Supplementary data included strategy and planning documents.

The analysis was conducted in four steps: (1) identifying the timeline of the main digitalisation pilots or launches related to the studied period in the cases, which focused on the present, near past and expected future; (2) observing resource allocations (i.e. projects, positions and roles) in the pilots; (3) conducting a thematic analysis of anticipated competences or learning requirements associated with the roles; and (4) and reflecting our findings against Hertzum and Simonsen's (2019) catalogue of competences.

EXPECTED RESULTS:

The analysis revealed both similarities and differences in the resourcing strategies in the two cases. Both organisations used project-based organising and established new work roles dedicated to digital change that led to allocating resources from care units to development functions.

We found differences concerning organising the shift from project organising to daily care work. The new work roles were titled differently in the two cases, characterising the specific local contexts and orientations to change. We interpreted the resourcing strategy of the urban-distributed case as standard technology-driven and implementation-oriented (hierarchy-dominated), while the rural-integrated case seemed to apply a bricolage-model (Fuglsang & Sørensen, 2011), that is, a mixed technology- and rehabilitation-based strategy.

We discuss on the consequences of the characteristics of public service work organising under digitalisation, and reflect upon the opportunities for sustainable service work practices in the future.

Our analysis contributes to research on organising for digital transformation in public services by extending the catalogue of competences by Hertzum and Simonsen (2019), both horizontally and vertically; thus, it provides a view of organisation-wide service competence and its locally-driven nature in the digital era.

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Navigating the Complexities of Co-Creating Industrial Services in Ecosystems: Challenges and Insights from a Structured Literature Review

1 Nov
10:45am
Poli

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OBJECTIVES:

Co-Creating value in collaboration with other partners is gaining importance to deal with current challenges like digital transformation, globalization, market turbulences, or personalized products [1–3]. In this context, companies in the industrial sector are recognizing the importance of services to become solution providers [4, 5]. However, these industrial services are getting increasingly complex and require a broad set of competencies, which is contrary to the trend of a stronger focus on a few core competencies of most companies in the industrial sector[6, 7]. Therefore, co-creating value in service ecosystems is gaining importance to facilitate co-creation [8]. Apart from advantages such as reduced costs, higher process efficiencies or better possibilities to innovate, this comes with multifaceted obstacles related to people, technology, organizations and information [9–11]. Even though the problems and challenges of corporate cooperation in this area have already been addressed in several studies [12], research on the co-creation of industrial services and the general conceptual debate on co-creation are still at an early stage of development [8, 13]. Often, a comprehensive and holistic perspective that takes into account the inherent complexity of the topic is missing [14]. Therefore, authors call to research on the service ecosystem perspective [15]. In this context, researchers should focus to identify major issues that may occur during co-creation in B2B relationships. Pinpointing factors and mechanisms that influence co-creation should reveal insights on how these challenges could be avoided or managed [16, 9]

Against that backdrop, this research aims to shed light on the research question: "What are current challenges of co-creating industrial services in ecosystems?"

METHODOLOGY:

We carry out a structured literature review, which is crucial to build upon existing knowledge and identify knowledge gaps. Doing so, we follow the methodology proposed by Webster & Watson 2002 and vom Brocke et al. 2009 aiming to produce research outcomes for general scholars by identifying central issues on the representative base of literature [17–19]. First, we iterated a search string in different databases, resulting in a focus on certain research fields being especially relevant. To ensure high quality, we used the CABS Academic Journal Guide 2021 to only include journals with a rating of 3 to 4 [20]. Additionally, we added the International Conference on Information Systems (ICIS) as the most relevant conference in this field. We initiated the search string "(co-creation OR collaboration OR co-production) AND service AND (indust* OR b2b) AND service AND (ecosystem OR system OR network)" to title, abstract, and keywords in the Scopus database, including

all identified journals and the conference. This led to 139 publications, identified in March 2024. In total, we conducted three iterations of independent evaluation by two different researchers, resulting in 41 relevant papers. For instance, publications that dealt with interfirm or dyadic relationships focused on the consumer market or only involved loose cooperation rather than co-creation were excluded. We then conducted forward- and backward searches in Google Scholar, identifying four additional relevant publications, adding up to a total of 45 publications. As a first step to analyze and synthesize the literature in a concept-centered way, we developed a concept matrix. We followed the suggestions of Webster Watson, who build on the research of Salipante et al. 1982 [21]. Guided by our research question, we chose four key categories, giving insight into the state of art. We selected "contribution" to understand the maturity and maturity level of the research. "Methodology" is considered at the level of data collection. By examining the "research aspect" we give insights into the research priorities of the publications. Finally, we analyzed the "application" areas to show the areas of co-creation research.

To get further insights and not only present abstract concepts, we will analyze the literature by means of content [22]. Sorting the main problems, following the method of Gioia et al. 2013, will help to understand the main areas of challenges [23]. Furthermore, we want to develop a taxonomy according to Nickerson et al. 2013, to classify the state of the art of co-creation in companies [24].

EXPECTED RESULTS:

The analysis with the concept matrix already revealed first insights. In most research papers, contributions are only at the second level of abstraction and knowledge maturity. These contributions include instantiations of artifacts, frequently accompanied by detailed descriptions of the implementation. Only two publications have achieved the third level, which involves constructing theory. Regarding data collection, about half of the publications utilize empirical data. However, a limited number of authors employ quantitative data and none combine both, quantitative and qualitative data, to develop their artifact. Accordingly, many researchers rely solely on existing literature. Concerning the research aspects, nearly all papers focus on the organizational aspect, with the categories of people, technology, and information being addressed with similar frequency. The application areas in the studies are diverse. Many authors adopt a comprehensive approach by examining multiple areas.

For the further content analysis of the literature, we expect to derive areas of challenges, like trust, standardization, or organizational structures, each with several subordinated problems and corresponding descriptions. We can use the taxonomy, which could include categories such as type, goals, or participants of the co-creation, to categorize the collaboration of companies. Finally, this makes it possible to derive individual challenges in dependence on the characteristics of co-creation and give tailored advice on how to optimize.

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Tensions and Transitions: Implementing the Degrowth Paradigm in Traditional Business Models

1 Nov
10:45am
Poli

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OBJECTIVES:

The current climate crisis has been scientifically proven and is mainly caused by greenhouse gas emissions resulting from human activities (Intergovernmental Panel on Climate Change (IPCC), 2023) . There are two opposing visions for addressing this issue: Sustainable Development and Post-growth. Among these, Degrowth is the more radical vision. Sustainable Development is widely accepted and promoted by economic and political circles as it is represents a continuation of current practices (Kallis, 2018).

Degrowth represents a significant and heterodox current within the field of ecological economics. It presents a dual critique of mainstream neoclassical economics (Ali Douai, 2018). Firstly, the market is unable to integrate the planet's biophysical limits. Secondly, since nature has no marketable price, it has no intrinsic economic value. Degrowth, therefore, proposes integrating ethical and moral values into economic theory and practice. This contrasts with the individualistic rationality at the heart of neoclassical economic theory, which leads to the accumulation of capital (Latouche, 2003). The pursuit of limitless economic growth is measured by GDP, a unit of value that degrowthists (Parrique, 2019) strongly criticize.

Finally, degrowth challenges the concept of decoupling, which posits the possibility of separating economic growth and environmental harming. It has been the subject of considerable debate. Critics of this position argue that it is ineffective in resolving the ecological crisis. In the same vein, proponents of Degrowth challenge the possibility of the above-described decoupling as a viable alternative for saving our planet (Ward et al., 2016). They argue that a radical approach (i.e., a fair reduction in production and consumption) is the only effective way to combat global warming and to improve human well-being (Schneider et al., 2010).

Despite a well-articulated set of arguments supported by a substantial body of research, the Degrowth paradigm faces significant challenges, particularly in the context of corporate settings. The compatibility of the Degrowth concept with traditional economic models remains a subject of debate (Latouche, 2003), while businesses could play a pivotal role in the transition to a degrowth society (Vandeventer et al., 2019), given their centrality to our modern social and economic life (Khmara & Kronenberg, 2018). In recent years, research on the subject of business in a Degrowth society has received growing attention (Nesterova, 2022). However, the existing literature on this topic presents 3 gaps that must be addressed in order to integrate this perspective into the field of business.

First and foremost, the scientific community has not yet reached a consensus as to the characteristics that define a company that is compatible with Degrowth. The literature is replete with concepts, yet it is highly fragmented (Hankammer et al., 2021). There are three principal descriptive methodologies. The first is a broad

perspective, employing corporate micro-economic policy analysis, while the second is an intermediate approach, utilizing conceptual frameworks. The third is a shorter focus, built on empirical case studies.

The second point concerns the application of this approach. Indeed, without a clear definition of the concept, its characteristics, and fields of application, it is difficult to operationalise it (Schmid, 2018). Particularly in the corporate world, it is challenging to implement this approach in the absence of concrete measures and an inventory (even partial) of strategies. In addition, the lack of value creation models precludes a constructive dialogue with entrepreneurs.

The confrontation of theory with empiricism is a complex and challenging process. "We don't even know empirically what entrepreneurship looks like from a Degrowth perspective"(Toubiana et al., 2023, p. 4) .

The objective of this paper is to contribute to reducing this gap by outlining potential applications of this model in the corporate world, along with the inherent limitations of this approach within a consumer society.

METHODOLOGY

The originality of our approach lies in its focus on a commercial enterprise whose primary objective is profit generation. Our aim is to investigate the tensions generated by the degrowth paradigm within this context. We deliberately avoid investigating other forms of business that are more closely associated with this model such as the social companies, not-for-profit cooperatives (Khmara & Kronenberg, 2018; Hinton, 2021).

Our research adopts a conceptual approach to explore the application of the Degrowth paradigm within the context of commercial enterprises.

Our theoretical framework is grounded in the theoretical framework of business models (Osterwalder & Pigneur, 2010)., traditionally associated with growth, survival, and competitive advantage (Demil et al., 2019). We aim to explore how these principles can be adapted to support the Degrowth paradigm, which emphasizes a fair reduction in production and consumption (Schneider et al., 2010).

EXPECTED RESULTS

The research is expected to provide a clearer definition and detailed characteristics of businesses that align with the Degrowth paradigm. This will help reducing the fragmentation in the literature.

By integrating the Degrowth paradigm with established business model frameworks (e.g., Osterwalder & Pigneur, 2010), the paper will develop a conceptual approach to operationalize Degrowth in profit-driven commercial enterprises. This framework will help in identifying specific strategies and measures that can be implemented by businesses.

The study will highlight the inherent tensions and challenges that arise when attempting to integrate Degrowth principles into traditional profit-oriented business models. This includes exploring the conflicts between profit generation and the reduction of production and consumption.

Although the research is primarily conceptual, it aims to lay the groundwork for future empirical studies by highlighting key areas where theoretical models confront practical realities. This will include potential case studies and examples of businesses attempting to implement Degrowth principles.

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Mapping the Brazilian Photovoltaic Energy Community: actors, practices, and resources for value co-creation and co-destruction

1 Nov
10:45
Poli

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OBJECTIVES

Climate change is recognized in management and economics literature as a wicked problem due to its complexity, which demands integrated solutions (Andreoni et al., 2022). Energy transition, a measure aimed at replacing polluting energy with clean energy, has taken center stage in government agendas with the aim of reducing the impacts of climate change. Out of 120 countries, 113 have made progress in energy transition over the last decade (World Economic Forum [WEF], 2023). Major emerging centers like China, India, and Indonesia have stood out in this progress. Sweden leads the global energy transition ranking, followed by Denmark and Norway. Among the top 10 largest economies in the world, only France appears among the top 10 countries in the global energy transition ranking (WEF, 2023).

According to WEF (2023), Brazil ranks ninth in the ranking of the largest global economies and 14th in the 2023 Energy Transition Index, which evaluates the performance of countries' energy systems, as well as their preparedness for a safe, sustainable, accessible, and reliable energy future. Brazil has one of the least polluting electricity sectors in the world, as its energy matrix is heavily composed of renewable energies, especially hydropower. However, recent droughts have affected Brazil's hydroelectric production, resulting in the use of more expensive thermal plants and imports to meet electricity demand (WEF, 2023). Meanwhile, in recent years, the country has been significantly investing in diversifying renewable energy sources, especially wind and solar energy generation.

In order to advance the environmental sustainability agenda, energy communities have been formed through the mobilization of citizens for photovoltaic energy generation in partnership with the government and numerous other actors (Chen et al., 2021; Mustika et al., 2022). In Brazil, several energy communities are being formed through photovoltaic energy cooperatives. Although the provision of electricity to the population is the responsibility of the Brazilian state, the government can authorize citizens to produce photovoltaic energy, distributed through concessionaire companies. This is the model of shared energy generation (Law No. 14,300, 2022).

It is evident, therefore, that energy communities produce public services collaboratively for value co-creation. This new perspective on the provision of public services is characteristic of the New Public Governance paradigm, which succeeded, but not exclusively, the paradigms of Traditional Public Administration and New Public Management (Desmarchelier et al., 2019). In this context, the provision of public services does not only focus on processes and compliance to ensure order, predictability, and legitimation of government actions. The added value in the interaction between multiple actors such as citizens, public service users, community,

private companies, non-profit organizations, public agents, and public bodies is emphasized.

Interactive value formation (IVF) is the process in which practices and resource integration occur among various actors, which can result in value co-creation and/or value co-destruction (Echeverri & Skålén, 2021). Value co-creation is based on positive experiences of the parties involved through value aggregation. On the other hand, collaborative provision of public service can also be a negative experience. In this case, value co-destruction occurs, corresponding to the loss or reduction of value (Echeverri & Skålén, 2021). Laud et al. (2019) understand value co-destruction as a decline in individual well-being.

There are studies that have focused on identifying practices in IVF. Schau et al. (2009) identified 12 value co-creation practices in brand communities. Echeverri and Skålén (2011) reported five IVF practices in the transport service. Carù and Cova (2015) described eight consumption practices that can lead to value co-creation and co-destruction experiences. Camilleri and Neuhofer (2017) identified eight social practices between guests and hosts facilitated by Airbnb in the sharing economy. In the context of the sharing economy, Yin et al. (2019) also identified five practices of users of stationless bike-sharing systems that result in value co-creation and co-destruction. However, we did not identify research reporting practices in the energy sector. Djellal and Gallouj (2018) argue that environmentalism is still neglected in service economy studies.

Beyond practices, recent literature reviews highlight the importance of studying the integration of resources for value co-creation and co-destruction (e.g., Dang & Nguyen, 2023, Saha et al., 2022, Saxena et al., 2024). While Saxena et al. (2024) suggested new research on psychological and cognitive resources, Dang and Nguyen (2023) recommended studying technological resources, such as artificial intelligence. Although Echeverri and Skålén (2011, 2021) initiated research on interactive value formation from the perspective of practices, they later recognized the importance of resource integration for value co-creation and co-destruction. In this sense, the authors recommended conducting new research addressing the perspective of practices and resource integration in the analysis of interactive value formation (Echeverri and Skålén, 2021).

In light of this context, the following question was proposed: what are the actors, practices, and integrated resources in Brazilian energy communities for value co-creation and prevention of value co-destruction? To address the presented question, this research aimed to characterize the multiple actors of the energy community formed from the first photovoltaic energy cooperative in Minas Gerais, Brazil; identify the interactive value formation practices in the photovoltaic energy service of this cooperative; and identify the resources integrated by the cooperative members, photovoltaic energy users.

This is a qualitative research, adopting the strategy of a single case study, through documentary research and interviews with actors from the energy community. The research locus is the energy community initiated by the photovoltaic energy cooperative in Minas Gerais, Brazil, referred to as CPEF in this study. The state of Minas Gerais was selected for being the largest photovoltaic energy generator in Brazil.

The choice of the cooperative was due to its pioneering nature and experience in the photovoltaic energy service since its establishment in 2019. It is emphasized that CPEF was the first photovoltaic energy cooperative established in Minas Gerais. In data collection, documents identified on the websites of 18 public and private organizations were analyzed. Additionally, interviews were conducted with 7 representatives from public and private organizations, and 12 interviews were held with CPEF cooperative members. The data were analyzed using content analysis technique (Bardin, 2016).

The identification of actors, practices, and integrated resources in interactive value formation in the energy service aims to contribute to addressing the research gap in environmental service studies (Djellal & Gallouj, 2018). Furthermore, we aim to provide data for new studies aiming to analyze value co-creation and co-destruction in the energy service based on practices and resource integration. Ryszawska et al. (2021) argue that there are few studies on value co-creation in energy communities. By presenting the characterization of various actors in energy communities and identifying practices and integrated resources, we also aim to contribute to public and private managers who may use the findings for managerial practices, such as process mapping in the energy service and goal setting from the perspective of value co-creation. Finally, in this study, we hope to benefit society by demonstrating the role of citizens in energy communities.

After contextualizing and problematizing the topic and presenting the research objectives, we address the methods. Next, we report the results while discussing them based on the literature findings on the topic. Finally, we present the conclusions of this research.

METHODOLOGY

This study is characterized as exploratory-descriptive. The study approach is qualitative, as it was based on the interaction between the researchers and the research subjects. The case study was defined as the research strategy (Yin, 2015). A single case study was chosen as it is a critical case. The establishment of the energy community from the first photovoltaic energy cooperative in Minas Gerais, Brazil, meets the necessary conditions for the research object (Yin, 2015).

The choice of the research site occurred due to its representativeness in the global context. Brazil ranks 6th in the global photovoltaic energy ranking (International Renewable Energy Agency [IRENA], 2023). The Brazilian Energy Matrix reached 47.4% renewable energy, while the Brazilian Electrical Matrix has 88% renewable sources (Empresa de Pesquisa Energética [EPE], 2023). Minas Gerais (MG) is the region with the greatest representation in photovoltaic energy generation in Brazil. This state has been leading the national photovoltaic energy ranking for at least 10 years, when centralized and distributed photovoltaic energy generation are combined (Associação Brasileira de Energia Fotovoltaica [ABSOLAR], 2023).

For the purpose of delimiting the case and directing data collection (Lukosevicius et al., 2017), the first photovoltaic energy cooperative in Minas Gerais (CPEF) was defined as the unit of analysis (Yin, 2015). The choice of the cooperative was due to the pioneering nature of CPEF and its experience in photovoltaic energy production

activities. The cooperative was established in 2019 and currently operates seven photovoltaic energy microgeneration plants with over 100 members.

In data collection, first, we conducted an in-depth interview with the president of CPEF to map the multiple actors in its surroundings. The choice of CPEF for the interview was intentional, considering it as a key informant of the research (Duarte, 2005). Subsequently, we interviewed representatives of six organizations indicated by CPEF to understand their respective roles and identify other actors. The email interview eliminates time and space constraints and prioritizes participant comfort (Bowden & Galindo-Gonzalez, 2015). The selection of these six participants was through snowball sampling, used for specific groups of people or organizations (Naderifar et al., 2017).

Finally, we conducted semi-structured interviews with 12 members to identify new actors in the energy community under analysis. The interviews were conducted via video conference to provide more scheduling flexibility, save time, and avoid travel-related expenses (Gray et al., 2020). The selection of these members was convenience-based, considering participant availability (Duarte, 2005). The number of interviewed members was defined by theoretical saturation (Falqueto et al., 2019).

Continuing the triangulation of research sources (Zappellini & Feuerschüette, 2015), we conducted documentary research to report the constitutive characteristics of 18 organizations, especially their attributions. In the case of public entities, in accordance with the criterion of exhaustiveness in document selection (Kripka et al., 2015), the information from the organizational actors' websites was complemented with legislation dealing with the constitution, purpose, and/or competencies of public organizations or bodies. In the case of organizations that are not specific to the energy sector, such as financial institutions and philanthropic organizations, for example, efforts were made to identify information on renewable energy.

Data analysis was performed using the content analysis technique (Bardin, 2016). Data collected through documentary research were pre-analyzed by floating reading to identify the documents that constituted the research corpus, observing criteria of exhaustiveness, representativeness, homogeneity, and pertinence. Subsequently, the documents were inserted into MAXQDA for coding based on the categories described in Table 2:

Table 2: Categories of Data Analysis

Objectives	**Categories a priori**	**Source**
Characterize the multiple actors around the first photovoltaic energy cooperative in Minas Gerais, Brazil.	Sectors Nature Roles Activities	Avelino & Wittmayer (2016)
Identify the practices of interactive value formation in the photovoltaic energy service.	Practices	Echeverri & Skålén (2011) Reckwitz (2002)
Identify the resources integrated by the cooperative members, photovoltaic energy users.	Integrated resources	Vargo & Lusch (2004) Laud et al. (2019)
Source: Developed by the authors (2024).		

After describing the research methods and techniques, we proceed to the presentation and discussion of the research results.

RESULTS

Multiple Actors in the Energy Community

When analyzing power relations in sustainability transitions, Avelino and Wittmayer (2016) define actors as social entities, individuals, or organizations, or groups of individuals and organizations capable of acting. Actors can assume roles, "social constructions widely recognized as legitimate and normal characteristics in the social world" (Collier & Callero, 2005, p. 47). The mapping of actors in this study aimed to identify the multiple actors in the analyzed energy community and their respective sectors, nature, roles, and activities.

The actors were identified through triangulation of three different sources: a) the CPEF as a key informant; b) six organizations indicated by the CPEF: the National Electric Energy Agency (ANEEL); the Government of Minas Gerais; the energy distributor responsible for the CPEF region, hereinafter referred to as D1; the cooperative representing other cooperatives in Minas Gerais, hereinafter referred to as CREP; the private technology integrator company responsible for the CPEF's plant projects, hereinafter referred to as EITEC; and the credit cooperative partner of CPEF, hereinafter referred to as CCRE; and c) 12 photovoltaic energy users. Table 3 presents all the actors identified by each of these sources.

The ANEEL server indicated actors focused on defining public policies in the energy sector but did not mention energy users. The Government of Minas Gerais indicated the actors involved in the state project for the development of photovoltaic energy but did not mention the citizen energy user. The non-indication of the citizen is noteworthy because they are the recipient of public policies and, therefore, the central actor in the provision of photovoltaic energy services. Additionally, energy users have assumed the significant role of photovoltaic energy co-producers, contributing strongly to the sector's development. In Europe, the citizen is considered the core of the energy transition (Lotto et al., 2022).

The energy distributor (D1) demonstrated a broader view of the energy supply process, mentioning actors in generation (self-producer, cooperative), transmission (transmission companies), and distribution of energy (distribution companies), as well as the organizations managing these processes and the buying and selling of energy. However, D1 also did not mention the energy user, its customer. The citizen only emerged in the role of self-producer, that is, a competitor of the energy distributor (D1), which also acts as a producer of photovoltaic energy.

Table 3: Multiple Actors in the Energy Community

Source	**Actors**
1st Source (1 Key informant)	Photovoltaic Energy Cooperative of Minas Gerais - CPEF, Electric Energy Regulatory Agency - ANEEL, Government of Minas Gerais, Minas Gerais Energy distribution company - D1, Technology Integrator, Credit Cooperative, Representative Cooperative, Service Providers of the CPEF, Founding Cooperative Member, Investor Cooperative Member Level I, Investor Cooperative Member Level II, Consumer Cooperative Member
2nd Source (6 Organizations cited by the CPEF)	Employee of the Electric Energy Regulatory Agency - ANEEL, National Congress, National Energy Policy Council - CNPE, Federal Government (Ministry of Mines and Energy - MME), Government of Minas Gerais, Government of Minas Gerais (Secretariat of Economic Development of Minas Gerais - Sede and Secretariat of Environment and Sustainable Development of Minas Gerais - Semad), Investment Promotion and Foreign Trade Agency of Minas Gerais - Invest Minas, Representative Cooperative, Development Bank of Minas Gerais - BDMG, Energy distribution company - D1, Sector Associations, Education and Research Center, Energy Distributing Company - D1, Electricity Chamber of Commerce - CCEE, National Electric System Operator - ONS, Regional Government, Energy Transmission Companies, Energy Distribution Companies, Photovoltaic Energy Cooperatives, Self-producers
3rd Source (12 Cooperative members)	Photovoltaic energy users, Federal Government, Electricity Regulatory Agency - ANEEL, Energy Distribution Company - D1, Credit Cooperative, Technology Distribution Companies, Technology Integration Companies, Energy Generation Cooperatives, Sector Associations, CPEF Leader, CPEF Service Providers, Investor Cooperative Level I, Investor Cooperative Level II, Consumer Cooperative, Family, Friends, Colleagues, Neighbors
Note: ANEEL did not participate in this research. The questions intended for ANEEL were answered by a manager of this organization, and their responses do not necessarily reflect the position of this public organization. Source: Authors' elaboration (2024).	

The cooperative representing the region's cooperatives (CREP) under analysis demonstrated alignment with the Government of Minas Gerais project aimed at developing photovoltaic energy in the state, especially in the involvement of cooperative training activities. However, the representative cooperative also did not mention the relevance of the citizen as a consumer or cooperative member. The technology integrating company (EITEC) demonstrated a focus on the private market, indicating only private companies and associations formed by private sector companies in the sector. In this case, the citizen was also not mentioned.

The non-indication of energy users or consumers by the ANEEL server, the Government of Minas Gerais, and the energy distributor is a concerning result. In the case of the first two actors, the citizen was also not mentioned in the role of photo-

voltaic energy co-producer. This result suggests that there is no consolidation of the citizen as the central actor in the photovoltaic energy service in the analyzed energy community. This result suggests that the role of photovoltaic energy co-producer is not yet established as a public energy policy, despite the distributed generation in Brazil having grown exponentially with citizen participation in photovoltaic energy production (ABSOLAR, 2023). Osborne (2020) argues that public service users play a central role in co-production and value co-creation in public services since they are the reason for the existence of the respective public policies.

The credit cooperative (CCRE) was the only organization interviewed to recognize the role of citizens as energy consumers and cooperative members. This result is possibly related to the nature of the cooperative. It is an organization composed of citizens involved with the CPEF project, a photovoltaic energy cooperative. The CCRE acts as a partner of the CPEF, which strengthens its awareness of the citizen's role in the photovoltaic energy ecosystem. Another important factor to consider is the interpersonal relationships existing between the members of the credit cooperative and the members of the photovoltaic energy generation cooperative. Many members of the CCRE became members of the CPEF.

The 12 members of the photovoltaic energy cooperative (CPEF) highlighted various roles of citizens. They reported that relatives, friends, and colleagues associated with the CPEF play an important role in encouragement and knowledge exchange. Neighbors were mentioned as important actors in providing information about photovoltaic energy services. Chen et al. (2021) conducted a qualitative study to examine how sociopsychological factors influence the decision of low-income rural residents to adopt photovoltaic solar energy. The authors found that most participants received their information about photovoltaic energy from neighbors and that citizens are more willing to adopt photovoltaic energy when neighbors already use it.

The 30 actors identified in this study were classified as individuals or organizations. It was found that there were 19 actors classified as institutions: photovoltaic energy cooperatives, credit cooperatives, representative cooperative, sector associations, philanthropic organizations, education and research centers, technology distributors, technology integrators, financial institutions, the government of Minas Gerais, the Central Bank of Brazil (BACEN), electricity distributors, electricity transmission companies, National Electric System Operator, Electricity Trading Chamber, and National Electric Energy Agency. All organizations or groups of organizations identified in this study were classified as institutions. In the individuals category, 11 actors were identified: family, friends, colleagues, neighbors, consumers, founding cooperative members, level I investor cooperative members, level II investor cooperative members, consumer cooperative members, CPEF leaders, and CPEF service providers, as illustrated in Figure 1. Individuals were considered to be all people or groups of people indicated by various research sources.

The cooperatives were classified into four categories: a) founding cooperatives of the CPEF, listed in the Social Statute signed in 2019; b) level I investor cooperatives, who financially contributed to the construction of the photovoltaic plant and receive the benefit of approximately 90% reduction in the energy bill; c) level II investor cooperatives, who financially contributed to the construction of the photovoltaic

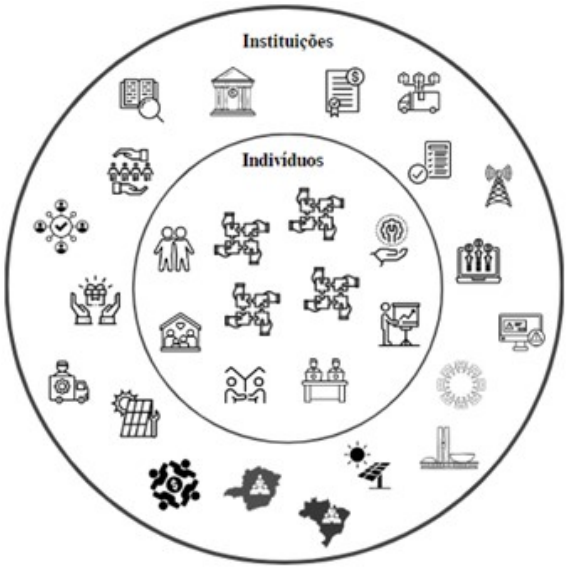

Figure 1: Categorization of actors into individuals and organizations. Source: Authors' elaboration (2024).

plant, receive the benefit of approximately 90% reduction in the energy bill, and also rent out the surplus energy produced to other cooperatives; and d) consumer cooperatives, who did not financially contribute to the construction of the plants but rent a fraction of the plant and receive around 15% reduction in the energy bill. The roles of the actors are related to a set of agreed-upon activities (Avelino & Wittmayer, 2016). Therefore, to define the roles of the actors in the analyzed energy community, we identified the 12 activities performed in the provision of photovoltaic energy service, as reported in Table 4:

Table 4: Activities of Multiple Actors in the Energy Community

Activities	**Examples**
Researching	"...aims to strive to be globally recognized as one of Brazil's leading study groups, specialized in the integrated approach to education, research, and technological development..." (Website of the Education and Research Center)
Informing	"... was extremely transparent with information, opening a group for the cooperative members of that plant where information was shared." (Interview 12 about the CPEF) "Juliano, Bruno, folks from Tonho and Maria, who are my neighbors. So, when I have doubts, (...) the boys are always giving me information." (Interviewee 10 about information provided by neighbors) "Monitor the photovoltaic solar sector to prepare news and reports, informing ABSOLAR members and the population daily." (ABSOLAR website)

Activities	**Examples**
Empowering	"... works to foster the best practices in education and sector development." (Representative cooperative website) "To inform about the availability of connection for new connections of distributed solar photovoltaic mini-generation projects, the Sol de Minas Project (...) developed the Network Availability Map." (Government of Minas Gerais website)
Innovating	"... has the mission to promote innovation and the development of skills, solutions, and products for the use of renewable energies." (Research and Education Center website) "The leader, he's an innovative guy..." (Interviewee 1 about the CPEF leader)
Promoting	"...to promote the photovoltaic solar sector in Brazil and abroad..." (ABSOLAR website) "I said: we use it, we did it. (...) then, later on, I found out she had also done it." (Interviewee 6 about recommending the service to a coworker)
Financing	"Projects related to energy efficiency and renewable energy received R$234.7 million in financing..." (BDMG website)
Planning	"... (ONS) is the body responsible (...) for planning the operation of the country's isolated systems..." (ONS website)
Managing	"The National Electric System Operator (ONS) is the entity responsible for coordinating and controlling the operation of electricity generation and transmission facilities in the National Interconnected System." (ONS website)
Executing	"...construct power plants and others, purchase and lease real estate and movable property for its own use, such as equipment, software, technology systems, or engage in any other type of commercial or non-commercial operation involving micro and mini-generation power plants..." (CPEF Statute)
Consuming	"I seek other cooperators who are consumers. Only consumers." (Interviewee 7 regarding consumers)
Regulating	"The National Agency of Electric Energy (ANEEL), a special regime autarchy linked to the Ministry of Mines and Energy, was created to regulate the Brazilian electric sector." "The Legislative Power is exercised by the National Congress, which consists of the Chamber of Deputies and the Federal Senate."
Monitoring	"Article 10. It is the exclusive competence of the Central Bank of Brazil: (...) To oversee financial institutions and apply the penalties provided;" "... responsible for monitoring and oversight, through preventive, advisory, or corrective actions, of the services and facilities for the generation, transmission, and distribution of electric energy."
Note: Categorization of roles performed by actors in the photovoltaic energy ecosystem. This study understands the activity "Regulate" as a broad concept that includes "Legislate" (Leal, 1946). Source: Developed by the authors (2024).	

To characterize the actors, we also adopted the classification into four sectors of society proposed by Avelino and Wittmayer (2016): a) the State, characterized as non-profit, formal, and public; b) the market, which is formal, private, and for-profit; c) the community, characterized as private, informal, and non-profit; and d) the third sector, which is formally private but has intermediary organizations that cross the boundaries between profit and non-profit, public and private, formal and informal, such as non-profit social enterprises and cooperatives. Table 5 summarizes all the characterization of the 30 actors in the energy community, considering the four previously defined categories: sectors, nature, roles, and activities performed within the scope of photovoltaic energy service:

Table 5: Characterization of Multiple Actors in the Energy Community

Sectors	**Nature**	**Actors/Roles**	**Activities**
Community	Individuals	Family	Promoting, Informing
Community	Individuals	Friends	Promoting, Informing
Community	Individuals	Colleagues	Promoting, Informing
Community	Individuals	Neighbors	Promoting, Informing
Community	Individuals	Consumers	Consuming, Informing
Third Sector	Individuals	Founding cooperative members	Promoting, Informing
Third Sector	Individuals	Investor cooperatives - Level II	Financing, Promoting
Third Sector	Individuals	Investor cooperatives - Level I	Financing, Consuming
Third Sector	Individuals	Consumer cooperatives	Consuming, Informing
Third Sector	Individuals	Leaders of the CPEF	Managing, Innovating
Third Sector	Individuals	Service providers of the CPEF	Executing, Informing
Third Sector	Institutions	Photovoltaic energy cooperatives	Executing, Informing
Third Sector	Institutions	Financial cooperative	Financing, Promoting
Third Sector	Institutions	Representative cooperative	Promoting, Empowering
Third Sector	Institutions	Sector associations	Promoting, Informing
Third Sector	Institutions	Philanthropic Organizations	Consuming, Promoting
Market	Institutions	Centers of Education and Research	Researching, Innovating

Sectors	Nature	Actors/Roles	Activities
Market	Institutions	Technology Distributors	Innovating, Executing
Market	Institutions	Technology Integrators	Executing, Promoting
Market/State	Institutions	Financial Institutions	Financing, Promoting
State	Institutions	Secretary of Economic Development / Government of the State of Minas Gerais	Promoting, Informing
State	Institutions	Central Bank of Brazil - BACEN	Regulating, Monitoring
State	Institutions	Electricity Distributors	Executing, Monitoring
State	Institutions	Electricity Transmission Companies	Executing, Informing
State	Institutions	National Electric System Operator - ONS	Planning, Managing
State	Institutions	Electricity Trading Chamber - CCEE	Planning, Managing
State	Institutions	National Electric Energy Agency - ANEEL	Regulating, Monitoring
State	Institutions	Energy Policy Council	Planning, Regulating
State	Institutions	Ministry of Mines and Energy / Federal Government	Planning, Regulating
State	Institutions	National Congress	Regulating, Monitoring

Note: In cases where there was more than one individual or institution performing the same role, the actors were identified by the role played by the group. In cases where there was only one individual or institution performing a certain role, the actor was identified individually. Source: Developed by the authors (2024).

We identified five community actors, 11 third-sector actors, three market actors, one actor that could be from the market or the State, and 10 state actors. It was found, therefore, that the presence of public agencies and the third sector stood out in the energy community. Individuals primarily act as informers and promoters in the provision of photovoltaic energy services in the energy community. Private institutions proved to be relevant in the development and provision of technology as a resource for the provision of photovoltaic energy services. In public agencies, the prevailing roles are as planners, regulators, and overseers.

Gjorgievski et al. (2021) analyzed the different actors, their roles, and interactions in energy communities and proposed classification into three categories: a) consumer, beneficiary of energy services provided by another actor; energy service provider, including all actors involved in the generation, distribution, storage, and supply of energy; and c) initiator, an actor that triggers the organization or coor-

dination of the community project, such as photovoltaic energy cooperatives. The authors emphasized that the consumer can take on the role of an energy service provider. In this case, they are called prosumers. Policymakers were considered external stakeholders. In this study, we adopt the broader concept of energy community advocated by Mucha-Kus et al. (2021), which includes public authorities.

After characterizing the actors of the ecosystem formed from the CPEF, we present the results of the second specific objective: identifying the practices of interactive value formation in the photovoltaic energy service.

Practices for Interactive Value Formation

In the context of photovoltaic energy generation through cooperatives, Table 6 describes the three practices of interactive value formation that were identified through interviews with the CPEF: informing, paying, and helping. In this study, the three practices were analyzed in two dyads: a) photovoltaic energy users and the photovoltaic energy cooperative (CPEF); and b) photovoltaic energy users and the electricity distributor (D1).

Table 6: Practices for Interactive Value Formation

Theory	**Practices**	**Description**	**Examples**
Echeverri & Skålén (2011)	Informing	Exchange of information between actors, such as requests, questions, suggestions, and complaints.	Requesting or providing information about the service. Suggestions about the service. Complaints about the service.
Echeverri & Skålén (2011)	Paying	Interactions between actors necessary for the payments.	Sending and receiving the invoice with a breakdown of the amount charged for the service. Bank transfer. Payment of bank slip. Collection of overdue amount.
Echeverri & Skålén (2011)	Helping	Voluntary actions aimed at achieving results that benefit other individuals or institutions.	Suggestions for improvement on the service provided. Positive feedback about the service. Sharing of knowledge for the service provision.
Source: Authors' elaboration (2024).			

The CPEF reported that communication with the cooperatives can occur via the CPEF website, phone, text messages, email, and in person. During the establishment phase of the CPEF, many in-person meetings were held, especially among founding cooperatives. Currently, the CPEF has "cooperatives in various cities, which makes in-person meetings difficult/impossible. We usually hold meetings through apps and exchange information via Email and WhatsApp." (CPEF interview, June 15, 2023).

The CPEF sends cooperatives quarterly information about the cooperative's activities and financial statements via email. Additionally, the CPEF shares text messages with service information for the group of cooperatives through a closed social network. There is also an annual virtual meeting for the cooperatives to hold the cooperative's assembly. The CPEF occasionally receives questions, suggestions, and complaints from cooperatives via phone, email, or text message.

The CPEF reported that cooperatives can also contact the distributor (D1) directly to request information and present questions, suggestions, and complaints. The D1 website offers various communication channels: virtual service through the website, social media, the D1-specific app, phone numbers, an ombudsman, and in person at service centers listed on the site. However, to resolve issues related to photovoltaic plants, it is common for the CPEF to exchange information with D1 on behalf of the cooperatives' interests. The practice of Informing between cooperatives and CPEF and between cooperatives and D1 was confirmed in interviews with all cooperatives.

The second practice, called Paying, concerns the interactive activities that must be performed for payments to be made. The CPEF reported that the cooperative has monthly expenses for preventive maintenance and management of the photovoltaic plants, such as internet usage, production monitoring by a technician, cleaning of the technological panels, among others. It was decided in the CPEF assembly that cooperatives should pay these costs in proportion to each one's fraction of the plant. The CPEF sends cooperatives the financial statements of expenses and payment details via email, and payments must be made by bank transfer.

The electricity bill is paid by the cooperatives directly to D1, considering the discount for the photovoltaic energy produced by CPEF. The D1 website offers services for checking the electricity bill, obtaining a second copy of the electricity bill, checking debts, viewing the history of electricity consumption, and accessing digital accounts, automatic debit, and annual debt clearance certificates. The practice of Paying between cooperatives and CPEF and between cooperatives and D1 was confirmed in interviews with all cooperatives.

The third practice, called Helping, refers to voluntary interactions aimed at achieving a result that benefits the other or both parties. The CPEF reported that photovoltaic energy users, especially some founding cooperatives, collaborated in the establishment of the cooperative, particularly through the exchange of knowledge about photovoltaic energy service and cooperativism. Currently, collaboration is more sporadic, but there are always cooperatives who collaborate in some way to improve the operation of the photovoltaic plants. The practice of Helping between cooperatives and CPEF was confirmed in interviews with cooperatives, although it does not apply to all respondents. Regarding collaboration with D1, only one cooperative interviewed confirmed the existence of this practice.

The practices Inform, Pay, and Help identified in this study were also found with correlating names, Informing, Charging, and Helping, in the study by Echeverri and Skålén (2011), which dealt with the relationship between provider and customer in public transport. Skålén and Cova (2015), in a study on brand communities, called the practice that includes dialogue, questions, and answers between actors Interacting. Therefore, it is evident that the practices analyzed in this research are

common to other services.

After identifying the practices of interactive value formation in the photovoltaic energy service, we present the results of the third specific objective: identifying the resources integrated by the cooperatives, users of photovoltaic energy.

Integrated Resources for Interactive Value Formation

This study focused on analyzing the resources integrated by the cooperatives, users of photovoltaic energy. The CEPF reported that the cooperatives integrate four resources: financial, time, knowledge, and technology. The cooperatives confirmed the integration of these resources and did not indicate any others beyond these. However, not all cooperatives reported integrating all four resources. Time and knowledge are characterized as operant resources, while financial resources and technology are considered material resources.

Financial resources were integrated in three ways by the cooperatives analyzed in this study: a) a value proportional to the fraction acquired by each cooperative, initially paid for the construction of the photovoltaic plant; b) a fixed amount of R$100.00 for all cooperatives, intended to constitute the cooperative's social capital; c) an amount allocated for preventive maintenance and management of photovoltaic energy production. Financial resources were identified in Plé's (2016) study, which analyzes resource integration in the context of interaction between service employees and clients. Smith (2013) examines financial resources in research on value co-destruction resulting from the misuse of client resources by organizations.

Time as a resource is integrated by all cooperatives but to varying degrees. Some cooperatives consider dedicating an almost negligible amount of time to photovoltaic energy service, while others are more proactive and interested in dedicating time to the service. Time is integrated by cooperatives in the exchange of information and knowledge, payment, monitoring the operation of the plant, and managing the energy transferred to third parties, in the case of Level II investor cooperatives who transfer excess energy to third parties. Laud et al. (2019) describe time as a common and scarce resource. Temporal resource was one of the 12 resources listed by Plé (2016) in a study on value co-creation.

The knowledge resource is integrated by a few cooperatives but is highly valued by them. Some cooperatives share knowledge about electrical energy acquired in academic training and professional life. Other cooperatives share knowledge about cooperativism, management, and communication. Knowledge is a fundamental resource for value co-creation (Vargo & Lusch, 2004). Smith (2013) addresses the knowledge resource alongside time, money, physical and emotional energy in the "Energies" category.

Of the 12 cooperatives, four reported integrating technology, as they provide internet and basic software for the provision of photovoltaic energy service. The technological equipment for constructing photovoltaic energy generation plants is provided by other actors, generally by the integrating company. However, it is emphasized that this study only analyzed the resources integrated by the cooperatives. Orlikowski (1992) argues that technology can be an operant or operand resource, as it can be a means or result of human action. In this context, the resources identified by the cooperatives are means for human action. On the other hand, Akaka and

Vargo (2014), by conceptualizing technology as a combination of practices, processes, and symbols that fulfill a human purpose, advocate its classification as an operant resource. After identifying the resources integrated in the interactive formation of value in the photovoltaic energy service, we present the results of the fourth specific objective: categorizing the trust of cooperatives, users of photovoltaic energy, in the actors of the energy community.

CONCLUSIONS

The energy transition is an urgent measure. Economic and social risks increase with drought and severe heatwaves (International Monetary Fund [IWF], 2023). In November 2023, the World Meteorological Organization [WMO] (2023) reported that it was the hottest year on record. Photovoltaic energy generation has emerged as a promising contribution to mitigating the effects of climate change. The partnership between government and society is fundamental for environmental sustainability. Energy communities, a model that includes partnerships between citizens, government, and other multiple actors, have proven to be capable of accelerating the energy transition (Mustika et al., 2022).

However, it is noted that there are still few studies on the service economy in the environmental field (Djellal & Gallouj, 2018). Ryszawska et al. (2021) highlight the need for more research on value co-creation in energy communities. Echeverri & Skålén (2021) recommended that new studies on interactive value formation address practices and resource integration. Given this context, this study aimed to report the actors, practices, and resources integrated into Brazilian energy communities for value co-creation and prevention of value co-destruction.

In a case study conducted in the first photovoltaic energy community in Minas Gerais, Brazil, we identified 30 actors and 12 activities performed in the provision of photovoltaic energy. Each actor was classified based on the sector of society (State, Third Sector, Market, and Community), nature (individual or institution), roles, and activities (Avelino & Wittmayer, 2016). These results can serve as a basis for new cartographic studies on energy communities.

Additionally, we reported three practices in the provision of photovoltaic energy services in the energy community: informing, paying, and helping. We identified four resources integrated by CPEF cooperatives: time, knowledge, financial resources, and technology. These results can contribute to new studies dedicated to analyzing the co-creation and co-destruction of value in the energy service provided in energy communities.

It was found that the actors still have a very fragmented view of the energy community. On one hand, the cooperatives have difficulty recognizing the relevance of public bodies that play a fundamental role in the planning, management, and execution of the service. ONS, CCEE, and CNPE were not mentioned by any of the cooperatives. On the other hand, the manager of the National Electric Energy Agency (ANEEL) and the Government of Minas Gerais did not indicate energy users, beneficiaries, and co-producers of the service as relevant actors. This finding suggests that, despite the cooperative feeling like a protagonist in photovoltaic energy generation, the Brazilian Public Administration still does not recognize them

in this role.

Although the renewable energy sector is developing in Brazil, the lack of awareness about climate change is a barrier to the energy transition (Lotto et al., 2022). It is important to highlight that distributed photovoltaic energy generation, which includes citizen participation in the photovoltaic energy production process, is important not only from the perspective of production increase but especially for raising awareness about the urgency of the energy transition and the citizen's role in this context. This study aimed to shed light on the importance of energy users taking an active role in the energy transition. As citizens become more aware of the severe climate issues, besides collaborating in photovoltaic energy generation, they can also, for example, start saving more energy. In Europe, citizens are at the core of the energy transition process, which has been fundamental to the success of the changes implemented in those countries (Lotto et al., 2022).

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The functional economy: a multifaceted concept

1 Nov
10:45am
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OBJECTIVES:

Given the intensity of competition in many sectors, and following the globalization of the economy, organizations' productivity gains can no longer progress. Business managers are looking for new sources of growth. At the same time, some small businesses are facing difficulties in surviving in the face of unpredictable order flow, and are looking at other ways of producing. Other organizations that are proactive in terms of sustainable development want to pursue a path that is low in materials and energy and/or high in social benefits. These organizations are moving towards the functional economy and the circular economy as new production and consumption models.

The concepts associated with sustainable development were put forward as part of the work of the Club of Rome. The circular economy was developed in the 1960s through the work of K. Boulding (1966, 1972). The concept of the functional economy (Stahel, 2006) was first presented as the 'new service society' in the report The Limits to Certainty: facing Risks in the New Service Economy. In this report, published in 1989, Giarini and Stahel explain how this new service society could respond to the limitations of the Fordist model. This notion of functional economy has subsequently been integrated or enriched by different approaches, mainly economic and managerial, to such an extent that the notion has not yet stabilized, and the boundaries are moving depending on the approach considered (Merlin-Brogniart, 2024). So, like the new concept of the circular economy, the notion of functional economy has begun its trajectory in political discourse, corporate strategies and scientific literature. The functional economy has crossed paths with the circular economy. According to the ADEME institution, the functional economy is one of the pillars of the circular economy. Depending on the author, it either fits into the circular economy or overlaps with it.

The aim of this article is to clarify the boundaries of the functional economy, not only in terms of the approaches considered but also, and this is new, in terms of the potential for transformation of the organizations and players pursuing this path. This paper is based on ongoing research in which we show that different trajectories can lead to the functional economy depending on the sustainable development perspective favored by the company: the functional economy can result in a complete substitution of services for products or in the constitution of product-service systems, within which the place of services must be identified (Laperche, Picard, 2013, Laperche, Merlin Brogniart, 2020). Some companies are attracted by a specific dimension of the circular economy before thinking more globally and offering 'functionalities'. Other companies will address their challenges directly through the social economy model. This work consists of comparing the theoretical definitions of functional economy with the reality of the field studied as part of the project.

METHODOLOGY

This research is based on a qualitative study involving around twenty interviews with companies in the Hauts-de-France region involved in a functional economy strategy. The study is part of the ToDo Circular programme conducted with the Hauts-de-France Region. The interviews took place between May 2022 and May 2024. The companies were selected on the basis of their development project, but also according to their size, sectoral distribution and, to a certain extent, their territorial integration.

EXPECTED RESULTS:

The first result is that, from a theoretical point of view, the spectrum of organizations falling within the functional economy is very different depending on the definition of the functional economy adopted.

The weakest approaches in terms of sustainability (in other words, those with the broadest spectrum) consider that the functional economy begins when companies undertake a servicization strategy. These approaches belong to the product-service systems. This restricted definition has since been amended by the addition of the environmental dimension. Advanced sustainability approaches consider that it is necessary to have a transfer of ownership in order to belong to the functional economy and a modification of the production of useful effects with a view to modifying the three spheres of sustainable development (reduction of negative externalities - particularly environmental - increase in positive externalities, whether social or environmental, or even economic). In these advanced models, cooperation (internal and external) and reconsideration of the relationship to labor are essential. Between these two approaches lie intermediate perspectives whose common denominator remains the optimization of use value (essentially provided by the non-transfer of property rights) and the extension of the scope of producer responsibility, on the other hand (Serra, Buclet, 2020).

The second result consists of highlighting the variety of forms of functional economy, by taking into account the degree of sustainability of the use functions developed by companies.

In our view, to achieve advanced sustainability, these functions need to incorporate an environmental concern, generally associated with the circular economy, and a social welfare dimension (inclusion, training, health) often associated with the social and welfare economy.

The more the sustainability of the functions developed is advanced, the more the cooperative and territorial dimensions will be involved, giving rise to (one) of the territorial ecosystems dedicated to the development of (the) projects. The variety of forms of functional economy is reflected in equally varied trajectories. The path taken by organizations towards the functional economy will depend not only on the purpose of the project, but also on the sustainable development approach chosen (circular economy, social dimension, or both).

Based on these trajectories, we propose a typology based on the nature of the organizations studied, the nature of the transformations undertaken, and the scale of the projects proposed.

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Enabling municipal public service companies to use AI-driven solutions

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OBJECTIVES

Data-driven services based on artificial intelligence (AI) are indispensable in an industrial context and use internal and external data [1] as a raw material [2] to create various added values in economic, technical, and organizational terms. These include the stabilization of payment flows [3], high margins [4], sustainable competitiveness [5], optimization of products and portfolio services [6] and simplification of business processes [7]. In addition, internal data-driven services create capacities for new fields of activity [8].

Data-driven AI services have so far mainly been accessible to large companies with sufficient resources and expertise, which often set up their own business units for this purpose [9]. However, despite the high capital investment, they often experience the problems of the service paradox before positive effects materialize [10]. Small and medium-sized enterprises (SMEs) and the public sector are often not able to invest the high level of resources required to develop data-driven services and bear the associated risk [11].

Scientific considerations on strengthening services of general interest are not new per se. Elinor Ostrom has already shown how common property, which also includes municipal companies providing services of general interest, can be successfully managed in the area of conflict between citizens and the state [12]. The potential of information systems for public administration was already recognized with the emergence of digitalization [13] and further developed into the model of eGovernance [14]. The effects of open-source and open-data have also already been investigated in the context of the public sector [15]. There are also various current concept papers [16-18] relating to the vision of digital services of general interest. Nevertheless, there is yet no established transformation process for the participation of municipal public service companies in data-driven services based on artificial intelligence.

The realization of low-threshold access to data-driven services based on artificial intelligence is the focus of our ERDF research project Smart-DLWD (start: July 2024). The aim of the research project is to develop guidelines for action and transformation, tailored to the special circumstances of municipal companies providing services of general interest, which enable the development and implementation of data-driven AI services at a low threshold to strengthen the competitiveness of municipal companies compared to supra-regional companies in the private sector. This strengthening of municipal companies using AI services to optimize the service portfolio ultimately benefits citizens and the state in a special way, as on the one hand the services offered by municipal companies directly influence the quality of life within the municipalities and on the other hand the public budgets are relieved in the long term.

METHODOLOGY

A mixture of exaptation and exploration is being pursued as an innovation approach. The broad experience of the consortium partners in research and IT development from past industry and research projects on the topic of data-driven AI-supported services will be transferred to application partners in municipal services of general interest. Particularly during the survey of desired use cases and scenarios at the application partner, including the survey of the process environment, special requirements of municipal companies and desired data-driven services, similarities to the industrial context will emerge, as well as significant differences. These similarities and differences will be exploratively investigated to assess the exact interdependencies on the development of data-driven AI-supported services and to design these in a way that is adapted to public service companies. Following the initial surveys, various data-driven services will be developed, implemented, and evaluated over the course of the project. From the findings of these work steps on the development methodology itself, the action and transformation guidelines for the utilization and subsequent use by other municipal public service companies will be derived.

The aim of the joint project vision is to enable the structured development and introduction of data-driven services for companies in the public services sector, thereby reducing the high hurdles to independent transformation. The guiding question of the research project is therefore: How can municipal public service companies tap into data-driven AI services at a low threshold and use them effectively and efficiently?

To answer this question, the design science approach [19] is used as a research methodological framework to develop and validate design knowledge in the form of concepts, instruments and procedures relating to data-driven services of general interest. Using service-dominant logic [20-22] as a research-theoretical lens, the problem space is first explored for barriers, potentials, and solution approaches. After the problem and goal induction phase, the iterative work on the necessary artifacts begins to prototypically implement the envisaged application scenarios. These artifacts are continuously demonstrated, evaluated, and further developed in ongoing iterations according to the Action Design Research approach [23].

On the one hand, this makes it possible to conduct structured research into the development of data-driven AI services for public service companies to apply existing descriptive knowledge from industrial practice in the sense of exaptation and to derive prescriptive knowledge about the interdependencies and their optimal design in the development of AI services in the field of municipal public services. On the other hand, the findings from the area of prescriptive knowledge, in the form of the elaborated AI service artifacts, are in turn transferred into descriptive knowledge, in the form of the resulting guidelines, to make the resulting collection of descriptive knowledge available to other companies in the field of municipal services of general interest.

The technical task for the application and development partners is the design of the envisaged AI services based on the various use cases, the development and processing of the necessary data basis and infrastructure as well as the joint development, implementation, piloting, and evaluation of the AI services. In addition to the general support and moderation of the exploratory work, the scientific task

is to extract the descriptive knowledge for the development of AI services from the industrial sector, to analyze the current and envisaged states of municipal companies, to extract the prescriptive knowledge in the work around the technical task of the consortium and to prepare and transfer the identified prescriptive knowledge into descriptive knowledge for subsequent use by other companies in the form of guidelines.

EXPECTED RESULTS

As part of every city and municipality in Germany, public service companies play a particularly relevant role in society and the economy. Data-driven AI services enable these companies to provide services more effectively and efficiently. This in turn increases the benefits for citizens and at the same time relieves the budgets of cities and municipalities. There is therefore a public interest in competitive public service companies with access to modern technologies and service portfolios. The processed findings and results in the form of the guidelines offer other public service companies in NRW (332 companies), throughout Germany (1514 companies) and in Europe the opportunity to tap into the field of data-driven AI services [24].

Due to the high regional coverage with services within the municipalities, a broad collection of use cases has already emerged which will be examined in a structured manner over the course of the project and implemented if the feasibility is assessed as positive. Promising use cases include:

1. The continuous collection of various data by using in-house vehicle fleets as a sensor platform to measure, for example, air quality in the city, the conditions of roads and associated technical facilities, or network coverage. This expands the service portfolio to include aspects of a data trustee.

2. Municipalities are increasingly working with their own smart city apps, whose functionalities and applications can be supplemented by services from municipal companies to optimize citizen interaction in a user-friendly way, independently of human resources. For example, generative AI services in the form of chatbots can assist in this optimization.

3. AI services can also be used to optimize internal business processes relating to the management of areas to be maintained, the vehicle fleet, and operational processes.

4. In addition, municipal companies, like all companies, are faced with the challenge of working towards the climate neutrality of their fleet, business processes, and company buildings as quickly as possible. These efforts are giving rise to further use cases for data-driven AI services. These include:

   (a) Optimization of existing buildings, such as the energy assessment of business premises.

   (b) The automated identification, in the long term up to automated planning, of refurbishment potential in technical building equipment (TGA).

(c) The automated analysis of expansion potential for solar energy on roof surfaces.

(d) The use of predictive maintenance for the maintenance of technical building equipment and the fleet of this equipment.

The integration of AI in Germany's public services enhances efficiency, service quality, and sustainability. This research provides a strategic roadmap for leveraging AI across public service companies, highlighting key areas for future study. Engaging in these discussions will ensure that AI implementations align with community needs and environmental goals, promising a transformative impact on municipal management and civic life.

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Unlocking AI Potential: The Role of Digital Literacy and Technology Awareness in Business Transformation – A Systematic Review

1 Nov
12:00
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OBJECTIVES

Artificial Intelligence (AI) has emerged as a transformative technology capable of revolutionizing various sectors of the global economy. Companies' adoption of AI represents a significant opportunity to boost productivity and competitiveness, especially in a context where digital literacy, technology awareness, and technology readiness are essential for effectively integrating these emerging technologies. Recent studies indicate that, despite advancements, many organizations still face considerable challenges in accessing and implementing these technologies due to a lack of expertise and necessary resources (Iaia et al., 2024; Prasad Agrawal, 2023)

A critical research gap identified is the need to explore how companies can overcome barriers related to digital literacy and technology readiness to adopt AI (Marr, 2024). According to the research 24 Top AI Statistics and Trends In 2024 (Haan & Watts, 2023), organizations that have adopted AI report significant improvements in operational efficiency and growth. However, successfully implementing AI requires a shift beyond mechanical and analytical aspects, necessitating the development of capabilities involving intuition and empathy, integrating human factors with technology (Xu et al., 2023).

The general objective of this study is to conduct a systematic literature review to identify and analyze the main barriers and facilitators for adopting AI by companies, focusing on digital literacy, technology awareness, and technology readiness. Specifically, the research aims to: (1) map the primary challenges faced by companies in adopting AI; (2) identify successful strategies for AI adoption in different business contexts; (3) analyze the role of digital literacy in facilitating AI integration; and (4) explore how technology awareness and technology readiness influence AI adoption.

The justification for this research lies in understanding how companies can prepare for and adapt to rapid technological evolution. Successful AI adoption can enhance operational efficiency and contribute to creating new market opportunities, increasing competitiveness, and promoting sustainable development. In the context of the "Future directions in technological development" theme of the 34th RESER International Conference, this study aims to provide valuable insights into how companies can navigate the complexities of digital transformation and leverage AI to build a more resilient and innovative future. The contributions of this research will be relevant to academics and professionals, providing theoretical foundation and practical recommendations for implementing AI in companies, thereby promoting technological advancement and economic sustainability.

METHODOLOGY

This research methodology follows a protocol for a systematic literature review, aiming to ensure the comprehensive and precise collection and analysis of high-impact studies on the adoption of artificial intelligence (AI) by companies, focusing on digital literacy, technology awareness, and technology readiness. The systematic literature review protocol will be implemented as outlined below.

1. **Initial Search:** The initial search will be conducted using a combination of terms and Boolean operators in the SCOPUS, Web of Science, and ProQuest databases through the University of Brasilia platform. The search query to be used is:

    a) **Query Search:** ("artificial intelligence" OR "AI") AND ("digital literacy" OR "e-literacy" OR "digital skills" OR "digital competence" OR "information literacy" OR "technology awareness" OR "technological awareness" OR "tech awareness" OR "awareness of technology" OR "technology familiarity" OR "technology readiness" OR "technological readiness" OR "tech readiness" OR "readiness for technology" OR "technological preparedness")

2. **Filtering Criteria:**

    a) Title, abstract, and keywords (no specific field for keywords in ProQuest).

    b) Timeframe: 2019 – 2024.

    c) Material type: papers.

    d) Language: English.

    e) Research areas: Business, Management, Accounting, Economics, Econometrics, Finance, Public Administration, Communication, Education.

3. **Data Collection, Cleaning, and Screening**

    a) Using EndNote and its plugin to collect and organize materials and references.

    b) Utilizing the Systematic Literature Review (SLR) Table to list and analyze preliminary results from data sources.

    c) Removing and merging duplicates across different databases by grouping common titles.

    d) Applying a filter to select only high-impact journal articles, using the Impact Factor and Journal Citation Reports (JCR).

    e) Checking the scope and alignment of the papers with the research project using the Covidence tool, removing publications outside the research scope.

    f) Selecting the final literature (papers) for reliability assessment (bias), data categorization, and analysis.

4. **Data Categorization:** The data will be categorized according to the predefined main themes:

    a) Artificial intelligence, digital literacy, technology awareness, and technology readiness.

    b) Methodological approaches, theories, findings, gaps, etc.

5. **PRISMA Results:**

    a) The PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) methodology will be applied to structure and report the systematic review results. This stage involves constructing a PRISMA flow diagram to document the study selection process, from identification to final inclusion (Page et al., 2021).

EXPECTED RESULTS

The expected outcomes of this research aim to provide a reflective and detailed understanding of companies adoption of artificial intelligence (AI), with an emphasis on digital literacy, technology awareness, and technology readiness.

The study is anticipated to identify the main challenges and barriers companies face in adopting AI. These include obstacles related to digital skills, organizational resistance, ethical and privacy concerns, and the need for adequate technological infrastructure. Understanding these challenges will enable the development of targeted strategies to overcome them, promoting a more effective and sustainable adoption of AI.

The research is expected to highlight successful strategies for AI adoption in various business contexts. These strategies may include digital literacy training programs, technology awareness initiatives, and management practices that promote technology readiness. Identifying such strategies will provide a practical guide for companies seeking to implement AI efficiently.

One of the primary expected outcomes is understanding the crucial role of digital literacy in facilitating AI integration. The research should demonstrate how improving employees' digital competencies can accelerate AI adoption and enhance the effectiveness of these technologies within organizations. This insight will be vital for formulating educational, public, and business policies that promote digital literacy.

The research should explore how technology awareness and technology readiness influence AI adoption. It is expected that awareness of AI capabilities and limitations, as well as companies' readiness to integrate these technologies, will be key factors in successful AI adoption. These findings can inform the creation of training and development programs to increase technology awareness and readiness within companies.

Finally, the research is expected to offer significant contributions to technological development. The study will provide a sturdy foundation for future research and technological advancements by identifying gaps and opportunities in AI adoption.

The recommendations will benefit researchers, professionals, and policymakers, promoting effective AI adoption and contributing to technological advancement and economic sustainability.

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1 Nov
12:00
Lumituuli

Risk Denial in the Age of AI: A Counterfactual Approach in the Service Industry

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OBJECTIVES

The phenomenon of risk denial is significantly influenced by cognitive biases. Optimism bias leads individuals to believe they are less likely to experience negative events (Sharot, 2011). Normalcy bias causes people to assume that things will always function as they have, even in the face of disaster (Helweg-Larsen & Shepperd, 2001). Confirmation bias makes individuals favor information that confirms their existing beliefs while ignoring contradictory evidence (Nickerson, 1998). The availability heuristic complicates risk perception by causing people to overestimate the likelihood of events based on easily recalled examples (Tversky & Kahneman, 1973). Emotional factors also play a crucial role in risk denial. High levels of fear can lead to avoidance behaviors, including risk denial, as a coping mechanism (Slovic & Peters, 2006). Overwhelmed individuals may deny some risks to reduce stress (Lazarus, 1993). Psychological defenses, like denial, protect against uncomfortable truths (Vaillant, 1992) and wishful thinking can lead to denial of potential negative outcomes (Buehler, Griffin, & Ross, 1994).

Historical examples show that risk denial and excessive optimism often lead to severe consequences, highlighting the need for realistic risk assessment. The Deepwater Horizon Oil Spill in 2010 resulted from overconfidence in safety measures, causing a massive environmental and economic disaster. Early in the COVID-19 pandemic, several governments displayed optimism bias by downplaying the severity and potential impact of the virus. The 2007-2008 Financial Crisis stemmed from excessive borrowing and speculative investments in the housing market, leading to a global economic downturn. Similarly, the Dot-com Bubble in the 1990s saw inflated technology stock prices due to irrational exuberance, resulting in significant financial losses when the bubble collapsed.

Digital risk management is increasingly important in the private, public sectors and everyday life. The Global Risks Report 2024 (World Economic Forum, 2024) ranks AI-related risks among the top global concerns, emphasizing the economic and ethical implications of digitalization. These include the influence of algorithms on consumer culture and potential biases (Airoldi & Rokka, 2022), creation of isolated information environments leading to a "filter bubble" (Pariser, 2011), risk of consumer manipulation through AI (De Marcellis-Warin et al., 2022), unchecked AI development and lack of control by major tech companies (Marcus, 2023), algorithmic pricing affecting market competition (Assad et al., 2024), and risks of agent-mediated electronic commerce (He, Jennings & Leung, 2003).

This research will analyze the implications for service science, examining how AI and digitalization affect service delivery, customer experience, and operational continuity during crises. By integrating interview insights with theoretical frameworks, the study aims to design resilient and ethical AI systems supporting sustainable

service ecosystems. The findings will inform organizational practices and policy recommendations, contributing to the broader discourse on ethical AI and digital resilience in service science

METHODOLOGY

The research aims to comprehensively address the risks and ethical considerations associated with AI, proposing actionable strategies to enhance resilience and promote sustainable, inclusive development in the digital era. The role of mental simulations and counterfactual thinking is an effective tool for identifying opportunities and risks (Gaglio, 2004) and aligns with our objectives by engaging stakeholders to generate actionable insights.

The counterfactual thinking will be developed from an hypothetical scenario (in this case a massive denial-of-service (DoS) causing disruption that affects all aspects of daily life, from purchasing essentials to managing businesses, leading to widespread economic and social instability). To investigate the potential consequences of such an event, we will conduct, record and transcribe 12 semi-structured interviews. The participants will include key stakeholders from various sectors, including finance, technology, public administration, and civil society. The objective of the interviews is to gain an understanding of the perceived risks, preparedness, and resilience strategies in the face of such a crisis.

The Nvivo software will be employed to conduct a discourse analysis, with the objective of identifying recurring themes, concerns, and strategies discussed by participants and subjected to a critical examination in the context of existing scientific literature, with the objective of either validating or challenging current understanding.

EXPECTED RESULTS

The project is anticipated to yield several pivotal outcomes. A risk assessment will be produced that is a comprehensive analysis identifying the human capacity for resilience in the face of digital transformation due to AI. Furthermore, this assessment will address the issue of energy consumption and the environmental impact of intensive AI use.

In concrete terms, our primary objective is to generate counterfactual projections that are comprehensive and illustrate the evolution of individual roles as citizens, consumers, and employees in the context of AI. Moreover, these projections will consider the governance and regulation of AI in an increasingly connected society. The resulting recommendations are intended to assist businesses in improving governance, risk management, and compliance (GRC), thereby enhancing investor, employee, and customer confidence.

Mitigation strategies involve effective measures for organizations to safely, ethically, and strategically use AI, preventing crises from excessive optimism and enhancing societal stability. Policy contributions aim to inform public policy and regulatory frameworks, promoting sustainable development that includes social, environmental, and economic dimensions, with a focus on inclusion and equity.

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1 Nov
12:00
Lumituuli

Beyond the Interface of Industry 4.0: Status Quo of Interaction with Digital Twins and Artificial Intelligence

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OBJECTIVES

The emergence of Industry 4.0 marks a transformative era characterized by the seamless integration of cyber-physical systems, the Internet of Things and advanced data analytics, with Artificial Intelligence (AI) and Digital Twin (DT) standing out as central technologies [1–4]. DTs are becoming indispensable tools for reshaping the industrial business landscape by enabling digital transformation, optimization and managing factories more smartly and efficiently [5, 6]. AI algorithms, benefiting from DTs' single source of truth, drive intelligent decision-making and automation across various industrial domains. [5, 7].

As technology evolves, emphasizing interactions between humans and machines in industrial systems and services becomes crucial [6, 8]. These Interactions can be utilized throughout various operational scenarios, e.g. in training through Augmented Reality (AR) or Virtual Reality (VR), informative dashboards and human-robot collaboration [9–11]. They aim to combine human intelligence, skills, and adaption with machine repeatability, precision and predictability [12, 13]. Following this, they are pivotal for fully tapping into the potential of Industry 4.0, making it as effective and efficient as promised [14, 15].

Despite the great developments continuously taking place, human interaction at the heart of Industry 4.0 has been comparatively less researched [16]. Thus, to realize the full potential of these technologies, it is essential to have a comprehensive understanding of the stakeholders and how they interact with them [17, 15]. Based on this knowledge gap, the identification and classification of interactions and interfaces with DT and AI is the central goal of this paper.

Within the first objective, stakeholders will be identified and analyzed across various application areas of Industry 4.0. Following this, our respective research questions are:

- **RQ1**: Which stakeholders interact with Digital Twins and Artificial Intelligence? Building on this identification, the next analysis will delve deeper into the nature of these interactions, thus shedding light on how stakeholders engage with DTs and AI.
- **RQ2**: How do these stakeholders interact with Digital Twins and Artificial Intelligence?

METHODOLOGY

This paper aims to provide an overview of the most relevant stakeholders and central types of interaction with DTs and AI from the literature. Against this backdrop, we conducted a systematic literature review following the methodological guidelines

of vom Brocke et al. (2009) and Webster and Watson (2002) to answer RQ1 and RQ2. [18, 19]. In this research, we focus on practices and applications according to the taxonomy of Cooper (1988) to develop a general statement on the status quo of interaction from a neutral perspective [20]. Vom Brocke et al. (2009) suggest a structured approach for conducting a literature review, which involves five steps: defining the review scope, conceptualizing the topic, searching the literature, analyzing the findings, and establishing a research agenda [18].

First, we defined the scope of the literature review to include papers on DTs and AI, specifically focusing on their interactions with humans, sourced from the established databases Web of Science, IEEE Xplore and Scopus. In the second step, we conceptualized the topic. We used the following search string to include all types of interactions: "Digital Twin" AND "Artificial Intelligence" AND human NEAR/10[1] interaction. In the third step, we carried out the literature search. In the fourth step, we refined our results. Therefore, we screened the abstracts to exclude all publications that did not address interactions with at least one of the technologies within Industry 4.0. Next, we excluded all papers that were either inaccessible or unpublished. The selected papers were then organized into a concept matrix, as recommended by Cooper (1988), to gather data for answering RQ1 and RQ2 [20]. The research agenda described in the fifth step by vom Brocke et al. (2009) will be developed following the complete analysis of the literature as part of the discussion of the results [18]. In this step, we will explicitly define future research directions for the development of services in the context of socio-technical systems.

EXPECTED RESULTS

Interaction with digital technologies is becoming increasingly important to realize the full potential of Industry 4.0. This paper aims to provide a comprehensive overview of the current interaction with DTs and AI within the industry. We explore which stakeholders are involved in these interactions and examine the nature of their engagement. By doing so, we expect to identify patterns that offer rich insights into the state of Interactions with these key Industry 4.0 technologies. Based on the theoretical background and our literature review we will provide a portfolio of meaningful use cases for different stakeholders. The target audience for this article is general researchers and practitioners who want to put the interaction with digital technologies and related services into practice.

In this context, the analysis developed in this paper serves as a fundamental basis for future developments in two ways. First, future projects in science and industry may use the insights provided by this work to involve the right group of people in the development of their solutions in research projects. Second, it will also simplify the identification of meaningful use cases for interactions with DTs and AI, and their associated services. Subsequently, this overview will help to align the research and technological development with the needs of relevant stakeholders for the major use cases of interacting with DTs and AI.

[1]We adapted NEAR/10 to W/10 to use Scopus

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1 Nov
12:00
Lumituuli

Digital Servitization in the Italian machinery industry: an empirical survey

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OBJECTIVES:

The purpose of this study is to explore the current landscape and future outlook of digital servitization in the machinery industry, specifically assessing the awareness and maturity of machinery manufacturers in Italy on these issues. The analyses aim to provide an in-depth understanding of the trends, challenges, and opportunities in the machinery sector. The main objective is to map the current landscape, assess the digital maturity of companies and their evolutionary path, and identify the most promising practices.

Research focused on a specific sector and topic is of great importance as it provides crucial insights to guide future industrial policies and business strategies towards innovation and competitiveness. Additionally, this study, though primarily centered on digital servitization, also touches on aspects of environmental sustainability. By integrating sustainability considerations, the research aims to highlight how digital servitization can contribute to more eco-friendly practices within the machinery industry.

The research aims to answer the following questions:

- How much is the machinery sector investing in digital servitization?
- What role will digital services and new business models play in the future?
- How can digital servitization contribute to achieving sustainability goals within the industry?

METHODOLOGY

Survey research was selected to gather accurate information about large populations, a method endorsed by Rea and Parker (1992) and Rossi et al. (2013). Scholars typically differentiate between exploratory, confirmatory (theory-testing), and descriptive survey research (Filippini, 1997; Malhotra, 1998; Pinsonneault and Kraemer, 1993). This study employs a descriptive survey approach to understand the significance of digital servitization and describe its prevalence in the machinery sector. Descriptive surveys are particularly useful when the phenomenon is relatively well-understood, as they allow for a detailed description of variables and context (Dubin, 1978; Malhotra, 1998; Wacker, 1998). The primary objective is not to develop new theories but to investigate the impact of digital servitization in this sector by assessing the knowledge levels, achieved benefits, and perceived challenges associated with it.

The research, conducted between October 2023 and March 2024, involved a sample of 160 original equipment manufacturer (OEM) companies. This study was

designed by researchers and disseminated through various channels, referencing the main sector associations. These associations played a crucial role in ensuring the study's comprehensive coverage and relevance.

This approach is particularly suitable for our study's goals, given that digital servitization is a well-understood phenomenon within the machinery sector, and the context and variables involved can be thoroughly described. By focusing on descriptive survey research, the study aims to provide a detailed picture of how digital servitization is impacting the industry, rather than developing new theoretical frameworks.

The complete questionnaire, was distributed to enterprises via a web survey. A web survey was chosen for this research because, compared to face-to-face and email surveys, it eliminates the need to manually transfer responses into a database, minimizes costs, and ensures greater anonymity, thus reducing interviewer biases.

The questionnaire is further divided into seven segments, each designed to extract information on a specific aspect of the company. These segments are:

1. Survey sample: the composition and size of the companies
2. Turnover composition: the revenue structure and the impact of services on overall revenue
3. Strategy and business organization of services: the forecasted value of services and the actions taken
4. Service portfolio: the number and types of services offered
5. Digital services: the digital services provided
6. Role of technology in service: the influence of digital technologies on service offerings
7. IT systems and platforms: the adoption of digital technologies

EXPECTED RESULTS:

In the machinery sector, the revenue from services is currently limited but expected to grow. The most monetized services are transactional, such as post-sales services, which account for a significant portion of revenue. Digital services and "as-a-service" models currently have a minimal impact on revenues, but their significance is anticipated to increase as companies improve their communication and monetization strategies. Many companies (50

The focus on services as a lever for environmental sustainability is currently limited, but there is an expected shift towards integrating sustainability into service offerings. Companies are projected to develop services that promote sustainability and reduce their environmental footprint.

Connected services, such as remote monitoring and support, have widespread adoption and are expected to become more prevalent and sophisticated. Currently, less than half of companies have a defined strategy for growing digital services. This is expected to change as more companies develop and implement comprehensive

digital service strategies. To offer digital services, more than half of the companies have developed new skills and established partnerships with external entities. Large companies are more advanced compared to SMEs in all aspects, including service offerings, strategic vision, and technological development.

Overall, the expected results indicate a positive trajectory for digital servitization in the machinery sector, with increasing recognition of its importance, growing investment in digital services, and a gradual shift towards integrating sustainability into service offerings.

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Empowering Industrial Services: AI, GAIA-X, and Blockchain Solutions for SMEs

1 Nov
12:00
Lumituuli

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OBJECTIVES:

Industrial services companies, especially small and medium-sized enterprises (SMEs), face considerable challenges. One central problem lies in data integration and data sovereignty, which is exacerbated by a lack of technology and resources [1, 2]. Many SMEs have difficulties integrating their data, algorithms, and service bundles into networked value-added structures. At the same time, they have problems ensuring that this data is handled with integrity and sovereignty [3]. In addition, there is a lack of comprehensive regulations and standards for the exchange and utilization of service-relevant data, which leads to high costs and unrealized potential [4]. This is especially relevant in the industrial services sector, since co-creating value together with other partners is gaining importance due to increasingly complex markets, single companies often cannot serve anymore[5, 6]. The exchange of data at the interfaces is a repetitive process, yet the information provided is often incomplete due to the presence of various obstacles, including the use of disparate exchange platforms and general security concerns. This results in an overall increase in the coordination effort, which, however, does not contribute to the generation of value. [7, 8]

The challenges mentioned require innovative solutions to ensure the competitiveness of SMEs in the industrial services sector. In this context, modern technologies and initiatives are promising tools for addressing existing problems and tapping into new potential. In particular, artificial intelligence (AI), blockchain technology (BCT) and the European data infrastructure initiative GAIA-X can play a central role in this, which can be summarized as follows: Firstly, artificial intelligence (AI) can reduce the coordination effort involved in the cooperation of several actors and increase efficiency through automated processes [9–11]. Secondly, blockchain technology (BCT) offers transparent and tamper-proof methods for data management, which strengthens trust in digital platforms [12, 13]. Thirdly, GAIA-X enables a secure and sovereign digital infrastructure that promotes the trustworthy exchange of data while ensuring data integrity and sovereignty [3, 14].

Based on the potential highlighted, artificial intelligence (AI), blockchain and GAIA-X can make a decisive contribution to solutions whose combined added value exceeds the sum of the individual parts. With this in mind, this paper aims to take a look at the status quo and future potential applications of the trending topics of blockchain, AI and GAIA-X. The insights gained should ultimately form the basis for the future technological development of SMEs.

Following these objectives, we want to answer the research questions: “What is the current state of art in industrial services sector concerning the trends of blockchain, AI and Gaia-X” and further “How can SMEs in industrial services industries make use of blockchain, AI and Gaia-X”.

METHODOLOGY

To answer the research question, we carried out a case study in the industrial maintenance sector in the petrochemical industry. We conducted this case study within two embedded units of analysis by applying it to two independent research projects of different practical partners and research institutions. [15, 16] During a total of more than four years, different empirical and non empirical methods in contact with practitioners were used to gain insights on the topics blockchain, AI, and Gaia-X. This includes structured literature reviews to get an overview of the current body of literature [17, 18]. Furthermore, we utilized different methods of requirements engineering to derive specifications for further development in the research projects [19, 20]. Additionally, we applied various sets of expert interviews to gain deeper insights and practical knowledge [21, 22]. We also conducted a survey with 200 participants, and another one with 300 companies from the field of mechanical and plant engineering will follow soon to get an overview of specific developments in this sector [23]. This was accompanied by focus group workshops, monthly consortium meetings and embedded in agile project management method SCRUM, to extract knowledge and develop different software solutions [24, 25]. As part of this case study, the knowledge gained was used to develop a digital marketplace in the form of a platform on which the supply and demand of industrial services can be brought together. The three approaches mentioned – blockchain, AI and Gaia-X – were integrated and thus tested in practice. Continuous validation loops enabled the incorporation of feedback from practice, thus facilitating continuous improvement of the platform. Within this case study, we used these collected insights to develop a digital platform

RESULTS

During the ongoing case study, we have already been able to derive knowledge and implement solutions in practice.

Blockchain: In our use case within the industrial services industry, we implemented the so-called digital lifecycle record. This transparent, complete, and historical information base supports the documentation of knowledge and information, making it retrievable and, in particular, usable by tracking the machinery within its different phases of use. Employing technical feasibility, this posed no challenges. In consideration of the technical aspects, it can be stated that the implementation did not present any significant challenges. As part of the implementation process, it was first necessary to define the components and structure of a digital lifecycle file in order to ensure compliance with industry standards. The implementation offers the potential for new business models for one of the partners, such as pay-per-use, as usage behavior can be recorded in a tamper-proof manner. However, it is currently not possible to make a statement about the future distribution, although the technical implementation is comparatively simple. Many companies are still reluctant to embrace new technologies such as blockchain, which represents a missed opportunity for growth.

AI: In recent years, artificial intelligence has attracted considerable attention in both academic research and practical applications. As part of the aforementioned

use case, an AI tool was initially developed with the capability of reading the data pertinent to the specific order from the relevant documents. However, it was first necessary to determine which data are relevant for the preparation and execution of the respective trades. Consequently, AI-supported matching was implemented for the supply and demand sides of industrial services, thereby facilitating the increasingly complex and therefore fragmented provision of services. The primary challenge was the unavailability of data. On the one hand, companies frequently lack the requisite database due to the general low level of digitalisation. Furthermore, the data is frequently disorganized and incomplete, necessitating significant processing resources. Consequently, AI implementation hinges on the availability of sufficient training data, which is often only feasible for large organizations. This highlights a gap in the ability of small and medium-sized enterprises to utilize AI effectively. Gaia-X: The overarching goals of Gaia-X are notably ambitious and far-reaching. The initiative currently offers promising conceptual and technical starting points. Nevertheless, further optimization is possible with regard to the practical implementation. This issue can be attributed to technical limitations, as the individual components have not yet reached the requisite level of technical maturity. The necessity for recurring revisions of the components results in a continuous effort to maintain the components within the system in accordance with the latest standards. Furthermore, as the Gaia-X components have not yet become a widely established standard, the effort involved is often not yet commensurate with the cost. Nevertheless, various Gaia-X-ready parts have already been implemented so that the theoretical possibilities could be demonstrated in practice in our case.

It is evident that each of the three approaches – blockchain, AI and Gaia-X – possesses considerable potential, which is also well justified in theory. In practice, however, a number of challenges have emerged in each case, which have so far prevented widespread implementation. Nevertheless, the different approaches can support each other, for example by Gaia-X providing data that can be securely transferred with the blockchain via standardized interfaces. In this way, they can contribute to providing data for AI. In this context, the current focus in science and practice should be on this.

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1 Nov
12:00
Takka

Bridging the Knowledge-Behavior Gap: Nudging Sustainable Food Choices in Finnish Supermarkets

Tom Tamlander[1], Essi Ovaska[2], Pasi Ruuskanen[3]. Mikko Polso[3] and Anu Seisto[1]
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The necessity for dietary changes, particularly a reduction in meat consumption and increase in the use of plant-based proteins, to mitigate the environmental impacts of the global food system has been identified as a key challenge (Willett et al., 2019). Supermarkets play a crucial role in steering consumer behaviour towards sustainability. Prominent stocking and display of plant-based proteins, clear labeling, and educational materials can enhance customer knowledge and support informed decisions. Behavioural strategies such as product placement and promotional discounts significantly influence purchasing choices (Vandenbroele et al., 2020). The EAT-Lancet Commission underscores the ecological and health impacts of current dietary patterns, advocating substantial changes (Willett et al., 2019). Despite widespread awareness, a significant gap exists between knowledge and sustainable consumption behaviours (Geiger et al., 2019). Knowledge alone does not predict sustainable behaviour; attitudes, norms, and perceived behavioural control are also crucial (Heeren et al., 2016).

OBJECTIVES

This study aimed to identify consumer segments with a knowledge-behavior gap in sustainable food consumption, explore enablers and barriers, and devise an intervention in a supermarket context to promote plant-based protein consumption.

METHODOLOGY

Using the COM-B model of behavior (Michie and Van Stralen, 2011), the prior survey study involved 1,000 Finnish consumers to examine behavioral variations. 24 participants with a large knowledge-behavior gap were invited to join a two-week qualitative study, sharing their food habits and exploring new habits while identifying enablers and barriers for behavior change (Oksman et al., 2024). The participants included families with children, for whom lack of time was the main barrier, as well as participants with financial barriers or health benefits being prioritized over sustainability. Information collected was used to design service concepts that would help this segment to move towards more sustainable food consumption. A store in Northern Finland was selected for the intervention. The month-long intervention in March 2024 included a dedicated shelf with ingredients for selected vegetarian recipes and an information booklet. A survey involving 400 respondents who visited the store during the intervention was conducted to assess the effectiveness of the intervention and service strategies employed.

EXPECTED RESULTS

Results showed that nearly 30% of all respondents noticed the shelf, out of whom 40% purchased products from it, and 50% felt inspired by it. The analysis revealed

that among those interested in the shelf, concerns about health, environmental impacts, and the well-being of future generations were prominent. Inspiration from the intervention varied across demographics; younger individuals, women, and families with children were more inspired, while those with higher incomes were less so.

Based on the results, the intervention reached the target group well, at the same time also reaching consumers from other segments. Even though the highest motivation was within a segment that appeared to already have good routines for sustainable food consumption, around 50% of the target group would be motivated to increase their intake of plant-based proteins and diets through a similar intervention. In addition, in the segments that were less interested in the topic, some motivation and inspiration was also found. Sales data from the store and a comparable reference store will be available in August 2024.

The study gives a promising indication that services provided for consumers in the supermarket may assist them in choosing more sustainable options, and in the long run help in building new, more sustainable routines. Collaboration with informed consumers can create a positive feedback loop, enhancing demand for sustainable products. Understanding barriers specific to different consumer segments enables targeted interventions, boosting the effectiveness of sustainable practices. This study will offer insights into the effectiveness of service strategies in promoting sustainable food choices in supermarkets. By addressing the knowledge-behaviour gap and leveraging consumer motivations and preferences, supermarkets can significantly foster sustainable dietary habits and support broader environmental goals.

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The Value of Local Food: How food retailer can change consumers' shopping-as-a-practices

Elena Palani, Jakob Trischler and Helen Williams
Karlstadt University

1 Nov
12:00
Takka

OBJECTIVES

This paper examines how food retailers can build stronger consumer-food relationships via shopping experiences designed around local food products. We argue that shopping experiences designed around local food can create a stronger connection to food and as a consequence, move the value of food away from a primary price focus to lift other non-monetary values. We use a practice theory lens, including field data, to investigate how emphasizing local food changes consumers' shopping-as-a-practice. Practice theory allows us to better understand the impact of retailers' activities on consumers' purchasing behaviour and related practices, for example, through new materials, competences and meanings around food.

While scholarly interest in local food production and consumption has expanded, there is no consensus on a precise definition of local food and its value for consumers (Campbell 2013; Bianchi and Mortimer 2015). While we acknowledge that 'local' is as complex phenomenon (Khan and Prior 2010), we follow King et al. (2010) to define local food, namely food that is raised, produced, and processed in the locality or region where the final product is marketed. Recently, local food has gained attention due to perceived benefits such as freshness, sustainability, and community support. Paradoxically, despite this heightened interest, consumers have become increasingly disconnected from their food sources. Existing studies underscore the pivotal role of retailers in supporting and enhancing consumers' interest in purchasing local food (Campbell 2013). Some researchers argue that consumers actively seek to establish connections with producers and farmers, aiming to " link between the food they buy and the production origins and methods underlying them" (Weatherell, Tregear, and Allinson 2003, 234). However, despite the growing interest in local food we are still missing the understanding how we can reconnect consumers to the local food. Addressing this gap, this study explores how a food retailer's efforts designing experiences around local food products affects consumers' behaviour, especially in terms of their everyday shopping-as-a-practice. To address this question, this study takes a practice theory lens. Practice theory describes the social world through practices (Nicolini 2013). Practices depend on physical and mental activities, knowledge and use of various elements, as well as the background that entities have in itself (Reckwitz 2002). Practice theory enables the generation of a richer understanding of consumers behavior during shopping because it gives insights into how various elements influence the decisions consumers make. Therefore, practice theory is deemed a suitable lens to investigate the complexity underpinning consumer behavior, and in particular, exploring the underlying drivers leading to consumers changing their behavior towards more sustainable consumption practices.

Drawing upon practice theory, this study provides a context-based perspective on food shopping within the food retailer. By examining elements related to materiality, practical knowledge, and the physical environment in which food is purchased,

we examine how consumers construct meanings around local food. Additionally, our study acknowledges that everyday activities related to planning, storing, and cooking local food are deeply embedded in consumers' routines. These practices are influenced by social, economic, and cultural factors (Warde 2014). Practice theory emphasizes that practices do not exist in isolation; rather, they are interconnected in harmonious or conflicting relationships. The vitality of a practice—and its potential for change—depends on the totality of material elements, meanings, and competences (referred to as a 'practice bundle') that underpin it (Nicolini and Monteiro 2016). In other words, shifting to a new practice requires interventions that enable consumers to intuitively make better choices when faced with competing sets of practices.

In line with these arguments, our present study investigates the food retailer's role in (un)intentionally affecting people's shopping behavior and subsequent food practices. It is also for this reason that policy programs, such as the United Nations (UN) Agenda 2030 and related national initiatives specifically zoom into the retailer-consumer interface and tailor policy mixes to support rural development evolving from this interface. Our contribution is to develop an understanding of how food retailer can modify their offerings (i.e., templates) in a way so that food becomes new meanings and a new understanding in the consumer's eyes.

METHODOLOGY

In this paper, we focus on identifying the specific combination of shopping practices that lead to local food products purchases. Our study employs a multifaceted approach, combining an ethnographic investigation of a Swedish food retailer with consumer interviews and observations. The context for our study involves a unique arrangement within a Swedish food retailer. This arrangement, known as "shop-in-shop," facilitates interactions between consumers, local food producers, and the retail environment. Within designated spaces in the retail stores, consumers engage with local food products, creating a dynamic setting for our research. Our ethnographic study of this research relies on observation and taking pictures of the local products in store. Through direct observation, we document consumer behavior and interactions with local food items. The first phase of our fieldwork spanned two months (April to June 2024). During this period, we conducted observations, recorded data, and documented consumer experiences. Additionally, we will conduct short interviews on random days and at various times to measure customers' perceptions of this shop-in-shop initiative (scheduled for June, August, and September 2024). Our overarching goal is to evaluate how customers perceive this initiative and how it impacts their understanding and experiences related to local food. By examining the interplay between shopping practices, consumer behavior, and the presence of local products, we aim to contribute valuable insights to the field.

EXPECTED RESULTS

The data collection is still ongoing, but the focus of analysis will be on studying how retailers' practices related to highlighting local food impact consumers' shopping-

as-a-practice. Our preliminary findings indicate that consumers primarily purchase local products available in stores, but not frequently. By emphasizing new local products, consumers become more aware of the local food options within the region and discover small producers who lack their own marketing capabilities. Furthermore, consumers prioritize factors such as taste and quality over prices when selecting local food items. Preliminary results highlight the new meaning on supporting small local producers through the purchase of local food. In addition, there are indications that providing more information around local food creates new competences that make consumers aware of the effort and people behind food. Establishing these competences is important to establish practices that lead to consumers taking more care of food themselves – thus leading to household food waste reduction. Because our research is currently in the data collection phase and engages in continuous data sampling, we expect to present the full findings at the conference.

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Future-oriented Food Court Workshops: Exploring Finnish Stakeholder Engagement for Sustainable 2040 Food Systems

1 Nov
12:00
Takka

Tiina Kymäläinen, Anu Seisto, Tom Tamlander, Samil Aledin
VTT Technical Research Cnetre of Finland

OBJECTIVES:

The global food system makes a significant contribution to climate-changing greenhouse gas emissions, biodiversity loss, water extraction, and pollution, with all stages in the supply chain - from agricultural production through processing, distribution, retailing, and home food preparation - playing a part [1]. This abstract summarizes the key context and objectives of the Future-oriented Food Court Workshops, which aimed to engage Finnish stakeholders in discussions on how to transition towards a more sustainable food system. The stakeholders included representatives from industry, the public sector, third-sector organizations, educational institutions, and individual consumers. The main objective of the social design research was to discuss the transition pathways of the food ecosystem towards the year 2040; for example, the emergence of locally grown, cellular agriculture-based food products and new protein alternatives were explored to gain an understanding of the stakeholders' attitudes towards future food production and consumption patterns.

METHODOLOGY

Social design has flourished as a promising methodology to address the inefficiency of existing models and policies targeting the most pressing global concerns [2]. Social design emphasizes the process of solving social problems with ecological technology design, carefully predefined community samples, and the aim of social ecology transformation [2-5]. This social design setup took the form of Future Food Court Workshops that applied participatory co-creation [3,4], future-oriented design [6] and semi-structured focus group discussions (FGD) for research [7,8].

The Future-oriented Food Court Workshops were implemented in November 2023. The future-oriented restaurant, located at a shopping mall (Kämp, Helsinki), was simulated as a 2040 food court. Altogether 18 collaborative workshops included a diverse set of Finnish stakeholders from industry (13 companies), the public sector (10), third-sector organizations (11), educational institutions (4), and consumers (14 individual participants). There was a total of 70 participants (51 female and 19 male). During the sessions, a butler (a scripted actor role) delivered small food portions ¬¬- a fictional menu with innovative food items such as cell-agriculture-produced wine and coffee, and dishes incorporating insect-based and cellular-agriculture-produced proteins - to stimulate discussions and help participants "live in the future". The participants were further introduced to future-oriented food scenarios enhanced with AI-generated visuals and videos (see Fig 1). The focus group discussions were facilitated by eight (8) researchers to ensure that the discussion threads remained active, and the received comments in line with the predefined framework.

Figure 2:

Figure 3:

The research framework utilized in the analysis is based on the concept of Futures Consciousness [9] and the Theory of Planned Behaviour (TPB) [10]. Futures Consciousness is a critical concept in futures research that presents a five-dimensional model and a corresponding scale to measure the outcomes of the focus group discussions. The Theory of Planned Behaviour is associated with the adoption of social future-oriented behaviors, including reflection on the role of past behavior.

EXPECTED RESULTS:

The workshops facilitated in-depth discussions on the impacts of food on sustainability, highlighting the need for changes in the current food system. Participants envisioned a future where sustainable practices are implemented to address environmental concerns and promote healthier food options. The exploration of changes in the world by 2040 revealed the importance of adopting sustainable practices to mitigate climate change and ensure food security. Additionally, discussions on the safety and healthiness of food produced in controlled conditions emphasized the potential benefits of controlled environment agriculture. Attitudes towards the use of animals as raw materials varied among participants, with some expressing concerns about animal welfare and others considering alternative protein sources. Lastly, personal choices in the 2020s were explored, showcasing the potential for individuals to make sustainable choices that positively impact the food system.

In general, the participants delivered more positive responses to the overall topics, such as the anticipated changes in 2040 (see Table 7). The safety of food produced in controlled conditions was a more negatively biased topic, whereas the

healthiness in the same context included somewhat more positive responses. The use of animals as raw materials in the future aroused vivid conversation, as participants working closely in the field had favorable opinions, while others had several reasons for reducing meat production.

Topic	**Positive**	**Negative**
Changes in the World by 2040	80	48
Safety of Food Produced in Controlled Conditions	18	24
Healthiness of Food Produced in Controlled Conditions	11	8
Use of Animals as Raw Materials in the Future	28	38

Table 7: Survey Results on Future Topics

More formal analysis of the social design is built upon the framework, including Future Consciousness and Theory of Planned Behaviour. The semi-structured interviews are coded in NVivo (software transcribing qualitative and mixed methods data), and the analysis delves into aligning emergent themes from the interviews, cross-tabulation, and comprehensive analysis. The aim is to dissect the interrelations among the discussed themes and uncover complex patterns that indicate how the participants perceived the future food scenarios and concepts. The research is anticipated to provide valuable insights for researchers, policymakers, and practitioners in the food domain.

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Exploring Consumer Values in Healthy Food Delivery Services

1 Nov
12:00
Takka

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OBJECTIVES

Demographic changes, globalization, and rapid transformations in social and economic domains characterize the current global context. These phenomena influence consumption choices and are causing significant changes in food preferences and production and sales methods, particularly in the food industry (World Bank, 2022). In Italy, the time dedicated to cooking and meals has decreased, while awareness of the link between food and health has increased (Greco et al., 2020). This has led many companies to offer time-saving services and products, such as home delivery of ready meals, a trend accelerated by the COVID-19 pandemic (Zhao & Bacao, 2020; Sharma et al., 2021). Traditionally, food delivery is associated with fast food or junk food. However, recently, new trends, including healthy diets, are emerging. This study, stemming from a spin-off activity of the University of Federico II of Naples, explores the emerging food delivery phenomenon focused exclusively on healthy food (Healthy et al. - HFD). The paper is based on data collection conducted among selected customers who regularly order healthy food, to understand the purchase values of HFD consumers.

This work aligns with other contributions that seek to identify the values guiding customers in choosing home delivery services (Kaur et al., 2021). However, it mainly addresses a gap in the literature concerning the values related to ordering healthy food for home delivery.

The research question is "Which consumption values influence purchase intentions toward healthy food delivery applications?

The existing literature has examined the evolution of the food industry and new trends from a business and consumer perspective. Previous studies have explored the impact of food delivery on consumer service perception, emphasizing the importance of food quality, convenience, and customer satisfaction (e.g., Ludden and Hermsen, 2019; Ramli et al., 2021). Moreover, the pandemic has stimulated the use of food delivery apps, leading to increased awareness of riders' working conditions and the influence of platform algorithms.

According to the relevant literature, while food quality remains a significant factor, other elements also become crucial for online food delivery. These include delivery timing, app interface usability, and the quality of service provided on weekends (Suhartanto et al., 2019; Hirschberg et al., 2016). Additionally, the service's communication and perceived value to customers directly influence customer loyalty (Suhartanto et al., 2019; Ahn, 2021).

There is a reference work that studies the business models of Italian healthy food delivery companies (Greco et al., 2022), but this primarily focuses on the perspective of entrepreneurship. One of the primary studies investigating consumer motivations, attitudes, and behavioral intentions toward online food delivery services using an

integrative theoretical model and partial least square path modeling is Yeo et al. (2019).

The main theoretical framework we are using is the Theory of Consumption Value (TCV) in the context of Food Delivery by Kaur et al. (2021).

The theory of consumption values (TCV) proposed by Sheth et al. (1991) provides a formal theoretical lens for examining consumption values. Since its formulation in 1991, many scholars have applied the TCV to investigate consumer choice behavior. The study of Kaur et al. (2021) explores consumption values influencing food-delivery application use. It extends the theory of consumption values (TCV) to the FDA context, employs mixed-method research, and analyzes data with structural equation modeling. Key findings reveal epistemic, conditional, price, and social values as significant drivers of purchase intentions.

Despite such references, no studies explicitly analyze the values underlying consumer choices and behaviors in healthy food delivery services. Therefore, this study aims to fill this gap.

METHODOLOGY

The qualitative methodology uses semi-structured interviews, a method already employed in consumer behavior research in the food sector (Cerjack et al., 2014; Priyadarshini, 2020; Ray & Baia, 2021). Data were collected from official company sources, such as websites, social media, and reports. Two main dimensions were observed to analyze the value propositions: the characteristics of the offerings and the service operations. The research is based on the conceptual model by Frow et al. (2014), which identifies five characteristics of value propositions: choice, convenience, responsiveness, security, and feel-good. The research process involves selecting from the authors' spin-off database a set of customers who regularly order exclusively healthy food, interviewing them, and gathering useful insights for the research perspectives.

EXPECTED RESULTS

The preliminary results indicate we have selected approximately 40 customers who regularly order from our spin-off company. Most of these customers consistently and exclusively order healthy food. Initial insights suggest that the key factors influencing their purchase decisions include perceived health benefits, convenience, and meal quality, reflecting a strong preference for maintaining a healthy diet through food delivery services. Customers may systematically order food delivery because they need more confidence in their cooking skills and have limited time. Typically, the meals they order are simple and inexpensive, which may also influence their choices. The results obtained from the interviews will confirm or refute these hypotheses and provide additional evidence.

The preliminary results suggest that perceived health benefits, convenience, and meal quality are primary factors influencing consumers' decisions to order healthy food through delivery services. This aligns with previous studies highlighting the importance of convenience and quality in food delivery services (Ludden & Hermsen,

2019; Ramli et al., 2021). Our findings imply that companies should emphasize these factors in their marketing strategies to attract health-conscious consumers. Additionally, understanding the simplicity and affordability preferences can help tailor offerings to meet customer demands more effectively. Further research is needed to explore how these values interact with other factors, such as delivery timing and app usability, to enhance overall customer satisfaction.

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Exploring the Future of Stationary Retail: Assessing Customer and Staff Acceptance of Socio-Technical Solutions Amidst Socio-Economic Challenges

1 Nov
12:00
Takka

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OBJECTIVES

Stationary retail has been suffering from the growth of e-commerce for decades. City centers are experiencing a continuous decline in footfall and lower sales in stores, while online retail is growing (Metter, 2017). Socio-economic challenges such as rising rental costs and increasing vacancy rates are exacerbating the financial burden on businesses, exacerbated by declining footfall in city centers (Zijlstra, 2022). The lack of qualified workers makes it difficult for retailers to maintain high service standards. Demographic changes and changing shopping habits of younger generations are also affecting the customer base. The dominance of large corporations and e-commerce creates an uneven playing field that often pushes smaller retailers to the brink of closure. These challenges require an approach with user-friendly socio-technical solutions for a resilient and sustainable future of stationary retail. Medium-sized retailers are looking for such solutions to remain competitive. The challenge lies not only in the implementation of the technologies, which involve significant costs and technical hurdles, but also in their acceptance by sales staff and customers. These technologies can be met with resistance and fears as employees may not be tech-savvy or have privacy concerns. This research, which is part of the Future Retail Store project funded by the Rid Foundation for Bavarian Retail, aims to investigate the acceptance of technology by customers and sales staff and to identify the challenges and success factors in the implementation of new technologies. In addition, recommendations for action are to be derived that will benefit medium-sized retailers. Particular attention will be paid to the socio-technical interaction between people and technology to develop sustainable and accepted solutions.

Over a period of three months, two different technologies were evaluated in cooperation with a design furniture retailer. Both an existing store of the company and the Open Innovation Lab JOSEPHS were used as test rooms. The focus of the study was on both customers and sales staff, as both groups interact with the technology as users. Recording their experiences with the technology, the user-friendliness of the technology and the acceptance of customers and sales staff was therefore of central importance.

METHODOLOGY

Over a period of three months, two different technologies were evaluated in cooperation with a design furniture retailer. Both an existing store of the company and the Open Innovation Lab JOSEPHS were used as test rooms. The focus of the study was on both customers and sales staff, as both groups interact with the technology as users. Recording their experiences with the technology, the user-friendliness

of the technology and the acceptance of customers and sales staff was therefore of central importance.

Technology 1: Hologram technology

Hologram technology projects people or objects in real time, enabling direct interaction and communication. It works by capturing subjects in a specially equipped studio with cameras and sensors. This data is transmitted via the internet to another location with a hologram box, where the subject appears as a life-size, three-dimensional hologram. Research is being conducted on the acceptance of hologram technology by customers and sales staff, and processes for implementing and using new technologies in retail are being identified. The hologram studio (transmitters) was set up in the retailer's store (location A). The hologram box (receiver) was installed in the Open Innovation Lab JOSEPHS (location B). Customers could make consultation appointments in advance or have spontaneous conversations with sales advisors.

Technology 2: AR/VR technology

AR/VR technology is used to present content (company and product presentations) and is transmitted to the customer via VR glasses or a tablet. In addition, the presentation of 3D models via tablet or VR glasses is intended to support sales and reduce the need for the physical presence of furniture. As with hologram technology, the test of VR/AR technology should also help to explore the acceptance of technology by customers and sales staff and find a sustainable way to integrate technical solutions more easily into retail. This technology was tested both in the company's retail store and in the Open Innovation Lab JOSEPHS. Due to its portability and mobility, it was easy to use the technology in two locations.

Survey of customer acceptance

A standardized questionnaire was developed for both technologies in order to measure customer acceptance. In addition to key demographic information, the questionnaire also included questions on the handling of the technology and the customers' subjective perceptions. Customers were asked to complete this questionnaire after trying out the technologies.

Staff interviews

At the end of the test period, company employees were interviewed independently for each technology. Semi-structured expert interviews were used to record the personal opinions and experiences of the participants in detail. The interviews lasted around 60 minutes. In addition to the sales staff, the company's IT specialists and members of the Management Board were interviewed. This methodical approach made it possible to gain comprehensive insights into the acceptance and challenges of implementing new technologies in the retail sector.

1. **Project planning**: Regular meetings with all parties involved (project manager, IT, sales staff, etc.) throughout the entire period of use of the technology are required.

2. **Project team**: A well-selected project team is crucial, whereby the selection of sales staff should be considered in terms of technical affinity, charisma, and spontaneity to communicate the technology effectively.

3. **Training**: Comprehensive staff training is required to ensure effective technology use and reduce techno-aversion. The usage method should be clear so staff can smoothly communicate it to customers.

4. **IT capacities**: Sufficient IT resources are essential for handling technical difficulties and time-consuming content uploads. Keeping the technology up to date minimizes complications and frustration, optimizing the user experience.

5. **Benefits**: A clearly communicated benefit is essential for technology attractiveness: for customers, access to extensive content and unavailable products; for staff, increased sales and product familiarization.

6. **Privacy**: Privacy during use should be guaranteed and considered accordingly in the premises.

The implementation of these recommendations supports the user-centered implementation of new technologies in retail and ensures long-term success by continuously considering the needs of customers and sales staff.

In summary, technological solutions such as live hologram consultations and products in VR/AR can address some of the socio-economic challenges of stationary retail. Live hologram consultations provide personalized customer service and reduce the need for large staff, mitigating the skills shortage. These technologies create a unique shopping experience that attracts more customers to stores and counteracts the decline in footfall. VR/AR can lead to savings in retail space as fewer physical products need to be displayed, reducing rental costs. The research project aims to help small and medium-sized retailers better compete with large companies and e-commerce giants through modern shopping experiences. In this way, retailers can improve customer loyalty and develop a more resilient business model.

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Logistics in the City: A Neverending Story? The case of Compagnie des Entrepôts et Magasins Généraux de Paris

1 Nov
12:00
Takka

Gilles Paché

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OBJECTIVES

For several years now, a major trend has been affecting the organization of supply chains: the return of warehousing facilities to the heart of cities. One of the most dynamic companies in this field is Amazon, which is setting up a growing number of micro-fulfillment centers to deliver goods to consumers within a few minutes of placing an order online. The same-day delivery model corresponds to a significant evolution in the purchasing behavior of "digital natives," who favor extreme speed in accessing products. A large body of literature has been devoted to the subject, particularly in service management, and it concludes almost unanimously that these developments are contemporary. In other words, the return of warehousing facilities to the heart of cities is exclusively linked to the rapid development of e-commerce and online sales.

As is all too often the case, the absence of a historical perspective in management research, and particularly in service management, means that early manifestations of certain practices are ignored. Fortunately, an academic movement proposing a connection between history and management, represented by journals such as Business History Review (United States), the Journal of Management History (United Kingdom), or Entreprises & Histoire (France), is opening stimulating avenues of research, following on from the seminal work of Alfred Chandler. The aim of this paper is to draw on this current to identify the roots of logistics in the city, using a case study: the Compagnie des Entrepôts et Magasins Généraux de Paris. The company was founded in August 1860 to provide the French capital with secure, regular supplies and storage facilities for agricultural products and raw materials (wheat, flour, sugar, alcohol, wood, coal, metals, etc.), at a time when Second Empire period in France was in the throes of an industrial, economic and commercial boom.

It is therefore both an economic and a political project, since the aim is to avoid the "hunger revolts" that France has been accustomed to in the past. In terms of logistics, Compagnie des EMGP is at the origin of a highly interesting innovation insofar as it relies on a network of warehouses that are directly connected to the heart of the city, but near river and rail lines of communication. In short, product flow optimization was very much in evidence long before the triumph of "managerial doxa." In today's terminology, we can speak of a successful articulation between global supply chains and local supply chains, as Amazon is proposing today with a highly sophisticated system of mega-warehouses (far from the cities) and micro-fulfillment centers (in the heart of cities). From this point of view, to borrow from Pierre Bayard's analysis of "plagiarism by anticipation," the instigators of the EMGP seem to have been inspired by a logistical model that would not see the light of day until 150 years later.

METHODOLOGY

To understand the context in which the Compagnie des Entrepôts et Magasins Généraux de Paris, which disappeared decades ago and whose warehousing facilities have been partly transformed into cultural spaces, was created and developed, secondary data are used exclusively. This secondary data comes from the Archives de Paris, but also from work carried out by historians on the company (like Elisabeth Philipp), its various owners and the choices made in the management of logistical activities over time. Secondary data are widely used in retrospective research, and although they do not exclude reinterpretation by the researcher, as JoAnne Yates points out, they provide useful material in the absence of direct witnesses and decision-makers then involved in operational and strategic processes.

EXPECTED RESULTS

The paper proposes a retrospective analysis, pursued over several years, to identify several invariants in service management. In the past, work has explored triangular trade based on the hub-and-spokes model formalized in the 1960s, or the construction of the pyramids based on transport and supply systems implemented centuries later as part of major construction projects. The case of Compagnie des Entrepôts et Magasins Généraux de Paris shows the extent to which contemporary supply chain approaches resonate with pre-logistical approaches, both in terms of divergence and convergence. A link is proposed with Fernand Braudel's vision of the three times of history: short time, from one event to the next; intermediate time, from one period to the next; long time, from one secular movement to the next. While work in urban logistics focuses on the short term, the long term opens stimulating analytical perspectives.

In reference to the Braudelian approach, the experience of the past could thus be of interest in better understanding current trends, and possible evolutions, for example in the context of a coercive political interventionism limiting the expansion of warehousing facilities in urban space, as is the case in Europe with the multiplication of bans on the establishment of Q-commerce dark stores. From a pedagogical viewpoint, the paper wishes to emphasize the crucial importance of a history of managerial thought and practice, particularly in service operations, which is clearly lagging courses in the history of economic thought.

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Hotel Distribution Channels in Europe: A Typology and a Comparative Analysis by Size, Management, Classification, and Country

1 Nov
12:00
Poli

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The hotel distribution landscape in Europe has undergone significant transformations, influenced by technological advancements and the evolving preferences of consumers (Kracht & Wang, 2020; Kontis & Skoultsos, 2022). The results of a global study by Martin-Fuentes & Mellinas (2018) show that three factors seem to influence the level of usage of OTAs like Booking.com: independent vs. chain hotels, small vs. large hotels, and low vs. high category hotels worldwide, highlighting the fact that European hotels are more reliant on Booking.com.

The European Hotel Distribution Study commissioned by European hotel associations highlights key trends and shifts in this domain for the reference year 2021 (HOTREC, 2022). Key findings indicate that despite an increase in direct bookings, the dependency on OTAs remains substantial, with major players like Booking Holding dominating the market. The study also reveals the persistent influence of OTAs, with many hoteliers feeling pressured to conform to their terms and conditions. The pandemic further underscored the importance of direct contact with hoteliers, as travelers sought reassurance through direct communication channels.

OBJECTIVES:

The primary objective of this study is to analyze the variation in hotel distribution channels across Europe, focusing on how socio-demographic variables such as hotel size, management type, star classification, and country influence these distribution patterns. Specifically, the present study aims to assess the current distribution landscape by • Firstly, evaluate the market share of various distribution channels (direct bookings, Online Travel Agencies (OTAs), meta-search engines). • Secondly, highlight a typology of hotels based on the use of different booking channels by hotel guests, and describe these homogeneous groups of hotels on the basis of socio-demographic variables.

This study will make it possible to: • Examine the use of direct booking channels, including bookings made through hotel websites and emails, and the factors contributing to this trend. • Measure the impact of OTAs by investigating the extent of reliance on OTAs and the implications for hotel operations. • Understand the role of socio-demographic variables by analyzing how factors such as hotel size, management type (independent vs. chain), star classification, and geographical location (country-specific differences) affect the choice and effectiveness of distribution channels. • Provide strategic insights by offering actionable insights for hoteliers and industry stakeholders to optimize their distribution strategies in a rapidly changing market environment

By addressing these objectives, the study aims to provide a comprehensive understanding of the current state and future trends in hotel distribution channels in Europe.

METHODOLOGY

Between January and April 2021, an online questionnaire was administered to member hotels affiliated with various HOTREC hotel associations. This questionnaire, translated into 27 languages, comprised three sections. The first section focused on the percentage of nights booked through different direct and indirect distribution channels, including bookings made via online travel agencies (OTAs). The second section explored undercutting, multi-sourcing, and hoteliers' strategies for managing online distribution channels and interactions with meta-search engines. Finally, the third section examined hotel establishment characteristics, such as star ratings, room sizes, total overnight stays, location, and primary target audience.

The survey received 3,221 responses from both private hotels and hotel chains across 30 different countries. 344 incomplete questionnaires (on all the variables relating to distribution channels orall the socio-demographic variables) were withdrawn from the study.

To identify homogeneous groups based on consumer distribution channel preferences for booking overnight stays, a cluster analysis was conducted. Following the recommendations of Punj & Stewart (1983), two complementary classification methods were successively implemented: an ascending hierarchical analysis and a non-hierarchical k-means analysis.

EXPECTED RESULTS:

To date, the initial analyses have enabled us to describe the sample and draw up a first typology of hotels.

The 2977 hotels included in the analysis situated across 30 different countries; however, 77% were concentrated in the following 7 countries: Germany, Italy, Austria, Greece, Switzerland, Holland and France.

A. Characteristics of the hotels in our sample:

- **Hotel classification**: 73% of establishments are classified, with 3-star hotels (49%) and 4-star hotels (32%).
- **Size**: The average size of the hotels in the sample is 57 rooms, with 50% of hotels having fewer than 30 rooms.
- **Customer segment**: The leisure segment is the dominant target group for 63% of hotels, followed by business customers for 31% of establishments.
- **Location**: The establishments are mainly located near small towns (46%) or towns with fewer than 50,000 inhabitants (23%).

B. Distribution channels used: Almost 60% of overnight stays are booked directly with the hotels (telephone, email, IBE, form on the hotel website, walk in, post or fax). However, bookings via OTAs alone account for 28% of overnight stays. Finally, only 8% of overnight stays are booked via travel agencies, tour operators, event organisers, etc.

C. Typological analysis A first typological analysis based on the overnight stays booked via 15 distribution channels has revealed 8 homogeneous groups of hotels.

The first group of hotels (representing 13% of the establishments in the sample) is largely dominated by OTAs, since more than 60% of their overnight stays are booked via this distribution channel. For 5 clusters of hotels, between 66% and 88% of bookings are made directly; however, they vary in terms of type of direct channel used and the number of channels. A 7th cluster of hotels (6%) book their overnight stays mainly via tour operators and travel agencies. A last cluster of hotels (27%) make extensive use of several booking channels.

These groups resulting from the cluster analysis will be described in more detail and related to the socio-demographic variables in our study. Complementary analyses (PCA, SNA, LTA) will be carried out to study the link between socio-demographic variables and the use of distribution channels.

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Elevating Italy's Tourism Competitiveness through Value Co-Creation: A Collaboration between ENIT and Tencent

1 Nov
12:00
Poli

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OBJECTIVES

This study aims to investigate the value co-creation between ENIT (Italian National Tourist Agency) and Tencent, the company that manages the WeChat instant messaging services in China. Through a case study analysis, we explore the collaborative efforts and examine how this partnership contributes to the overall competitiveness of the Italian tourism industry.

Introduction

Tourism plays a crucial role in the Italian economy, significantly contributing to its growth and development. However, despite its rich cultural, historical, and natural assets, Italy continues to face significant challenges in terms of competitiveness in the tourism sector. According to data provided by the World Tourism Organization (UNWTO, 2023) and the Travel & Tourism Competitiveness Index (Calderwood and Soshkin, 2019), since 2016, Italy has consistently maintained the 5th position for international arrivals and the 6th position for revenue generated by international arrivals, while in 2019 it was ranked 8th in terms of competitiveness in the Travel & Tourism sector. This study represents a novel contribution to the field of destination management by focusing on the concept of value co-creation between two entities within the same tourism system. Unlike previous studies which have predominantly examined collaborations between traditional tourism stakeholders, such as hotels and tour operators, this research explores a unique partnership between ENIT, the Italian National Tourist Agency, and Tencent, a leading technology company. By investigating this collaboration, the study sheds light on innovative approaches to enhancing the competitiveness of tourist destinations through non-traditional alliances. Furthermore, the case study analysis offers valuable insights into the strategies, mechanisms, and outcomes of value co-creation in the context of destination management, providing a nuanced understanding of how such partnerships can drive sustainable tourism development.

By focusing on the specific collaboration between ENIT and Tencent relating to the online marketing campaign implemented to attract Chinese tourists in Italy during covid-19, the work attempts at answering to the following research questions: RQ1: How do the main dimensions of service ecosystems (actors, technology, resource integration and institutions) integrate in the collaboration between ENIT and Tencent? RQ2: How does the integration of these elements enable the co-creation of value and improve the competitiveness of the Italian destination?

Background

To propose a framework for conceptualizing new value co-creation processes in the service era, Service Dominant logic introduces a service ecosystems view, expanding the notion of Service Systems from Service Science. Service ecosystems (Vargo and Lusch, 2010; Vargo and Akaka, 2012) include the social sphere in system dynamics and value co-creation. This perspective uses both reductionist and holistic optics to identify value co-creation drivers and innovation emergence, emphasizing social norms in exchanges. Instead of focusing only on technology for innovation, service ecosystems incorporate social knowledge and institutional dimensions, highlighting the impact of social connections on value co-creation.

Service ecosystems, analyzed in various sectors (Frow et al., 2016; Gretzel et al., 2015; Koskela-Huotari et al., 2016), lack a unified classification of their main elements (Banoun et al., 2016). Matching the main dimensions taken in consideration from the main scholars of service ecosystems (Vargo and Lush, 2010; Vargo et al., 2016; Lush and Nambisan, 2015; Vargo and Akaka, 2012), Polese et al. (2018) summarized the main elements of service ecosystem as: (1) actors, (2) technology, (3) institutions, (4) resource integration.

1. Actors are all stakeholders involved in the service exchange of services. They are "resource-integrators" in an A2A reticular approach, in which everyone can share resources to obtain mutual benefits for each.

2. Technology a main dimensions of service ecosystems because it accelerates the passage of shared information and allows the creation of new institutions.

3. Institutions are social rules, norms, shared practices regulating exchanges and acting as prerequisites for resource integration.

4. Resource integration occurs during actor interactions. It allows for the co-learning of the actors which can turn into value co-creation. The resources are divided into operand, represented by the usually tangible and static natural or economic resources that require manipulations to take on values, and operant, i.e., human knowledge and skills, cultural or social resources, usually intangible and dynamic, which have the task of acting on operands and other operants to create value.

METHODOLOGY

To identify the main features of the Italian destination, herein reread as a service ecosystem (Akaka et al., 2013; Vargo et al., 2015), the research is based on the case study methodology (Yin 1984). A qualitative approach is adopted since it represents an ideal approach when a holistic and system analysis is required (Yin 2003; Feagin et al. 1991; Tellis 1997). This technique allows studying the dynamics underlying a single setting, by examining in depth the phenomenon characteristics within a specific context (Eisenhardt, 1989). The case study methodology can involve many levels of analysis, many cases, and many points of view (Yin 1984), therefore it is considered the best methodology to analyze the relationships within service ecosystems as a series of nested and multi-stakeholder systems.

The analysis focuses on the relationship between Chinese tourists and the competitiveness of Italy as a destination. With a growing middle class and increased travel propensity, Chinese tourists are a major revenue source for international destinations, including Italy. Their interest in authentic experiences, Italy's rich cultural and historical heritage, and luxury shopping makes Italy highly attractive. Therefore, developing targeted strategies to meet the needs of Chinese tourists is crucial for enhancing Italy's global tourism competitiveness. For the case study analysis, both secondary data and primary data were examined. The latter were collected through semi-structured interviews with key players from ENIT and Tencent. Both the draft interview and the analysis of the results are based on four macro areas corresponding to the four dimensions of the service ecosystem (actors, technology, resource integration and institutions) to test whether the interaction of these elements enables value co-creation.

RESULTS

The study results show how the partnership between ENIT and Tencent integrates digital and cultural resources, improving travel planning for Chinese tourists. This integration promotes new travel planning norms and enriches the travel experience for Chinese tourists, demonstrating how digital innovation can enhance global tourism. Our study highlights the collaboration between ENIT and Tencent in promoting Italy as a tourist destination, focusing on four key categories: actors, technology, resource integration, and institutions.

Actors

Our study identifies two key players in boosting Italy's tourism competitiveness: ENIT (Italian National Tourist Agency) and Tencent. ENIT promotes Italy's cultural, historical, and natural assets through innovative promotional activities and strategic global partnerships, blending traditional and digital marketing. Tencent, a leader in the Chinese tech industry, collaborates with ENIT via initiatives like the "Welcome with WeChat Alliance", targeting Chinese tourists with customized digital solutions.

Technology

In their collaboration, ENIT and Tencent use sophisticated technologies to engage Chinese tourists. WeChat, combining social networking, messaging, and transactions, is central to their promotional activities. Livestreaming offers real-time views of Italian attractions, enhancing visibility and engagement, and creating a dynamic, interactive experience.

Resource Integration

ENIT and Tencent exchange operand (material) and operant (immaterial) resources to co-create value in tourism. Operand resources include Italy's tourism infrastructure, showcased digitally. Operant resources involve sharing knowledge and digital

capabilities. ENIT provides cultural insights and promotional strategies, while Tencent uses its technological expertise to offer personalized travel recommendations and content, enhancing user engagement.

Institutions

The ENIT-Tencent collaboration has transformed digital travel planning for Chinese tourists via WeChat. This shift introduces new norms, such as relying on digital platforms for booking and exploring. Features like instant booking, travel suggestions, instant translation, and currency conversion have made WeChat the preferred tool for Chinese tourists seeking authentic Italian experiences.

The ENIT and Tencent partnership demonstrates how digital technologies can enhance tourism by integrating cultural and technological resources. This collaboration promotes new travel norms and enriches the experience for Chinese tourists.

Value Co-Creation

We aim to address research questions by analyzing the collaboration between ENIT and Tencent to enhance Italy's tourism appeal, ENIT promotes Italy's assets through innovative marketing, while Tencent's WeChat engages Chinese tourists via the "Welcome with WeChat Alliance" program. This collaboration enhances Italy's visibility, increases tourism revenue, and strengthens cultural ties.

In 2023, a strategic agreement was signed to amplify Italy's promotional content using digital innovations like gamification and influencer campaigns. This partnership exemplifies how technology can bridge cultural and geographical gaps, transforming international tourism and creating new opportunities for cultural and commercial interaction.

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EXPECTED RESULTS

The test phase results provide insights into the acceptance and implementation of retail technologies. These findings are categorized into customer and staff views, addressing both challenges and success factors. Recommendations for practical implementation can be derived from these results. A total of 34 customers were surveyed for hologram technology evaluations, and 156 for VR/AR technology. Younger and more educated individuals showed greater openness to both technologies. Customers also expressed a desire for more privacy.

Hologram technology

Customer perspective: Hologram technology was rated as user-friendly by end users and did not cause any significant complications in use. 68% of users considered the hologram box to be a future-oriented technology for the retail sector, as it supports flexibility in everyday shopping. The technology was also seen as a potential solution to the shortage of skilled workers and as a way of reducing rising costs such as store rent and staff costs. However, 35% of customers felt the technology was less useful for shopping as the tactile experience was lacking and the technology was not suitable for all products, particularly larger items whose functionality was not fully conveyed by the technology.

Sales staff perspective: Sales staff found the hologram technology easy to use, as the necessary installations had already been carried out in advance. However, challenges arose during the sales talk within the hologram capsule, as the entire focus was on the sales assistant and there was a lack of a natural atmosphere due to the day-to-day business environment. The sales assistants had difficulty fully grasping the customers' reactions and responding accordingly.

VR/AR technology

Customer perspective: VR/AR technology was predominantly rated as easy to use and positive in terms of user experience (65%). Customers were able to recognize the usefulness of the technology in the shopping context and also rated it as a future technology in retail (94%). Particularly noteworthy is the perception of the technology as very real and tangible, the intuitive operation and the outstanding shopping experience. Customers' interest in continuing to use the technology in retail was also high.

Sales staff perspective: Sales staff perceived VR/AR technology as rather complicated due to technical difficulties and the associated frustration. It was striking that technical affinity and previous experience with the technology had a significant influence on successful use.

Recommendations for action

The results on the acceptance of technology by customers and sales staff can be translated into specific recommendations for action. These recommendations support small and medium-sized retailers and help to make socio-technical interactions between people and technology more sustainable.

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Community as a context for collaborative innovation and public value creation: a case of tourism

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OBJECTIVES

Although many service innovation phenomena involve collaborative activities, innovation research has largely focused on collaborative networks among firms, public organizations, and other formal parties, with very little exploration of collaborative innovation generated by communities from below. This paper argues that current theorization of collaborative innovation is insufficient for capturing the role of communities in collaborative innovation, a critical role in that the creation and maintenance of sustainable communities is likely crucial for future life on the planet. Drawing on insights from public value theory and using a case of tourism collaborative community innovation as an illustration, we explain how collaborative innovation can emerge within a community as it creates public value. This study contributes to research on collaborative innovation by conceptualizing community collaborative innovation and advancing scholarly understanding of the role of public value in community collaborative innovation. Three practices of collaborative community innovation relative to public value creation emerged from the data: Sharing intentions, contesting and co-creating public value. The research question is: how is public value assessed, debated and settled in collaborative community innovation?

Prior theorizations of collaborative innovation stress that collaborative relationships among firms, public organizations, and other formal parties can help involved actors pursue their societal aims (e.g., Torfing, 2019; Najafi-Tavani et al., 2018; Ketchen et al., 2007). Collaborative innovation is the development of new or improved products and services through the exchange of ideas, knowledge, and other resources among interdependent organizations (Taillard et al., 2016). Scholars use collaborative innovation to analyze how such organizations can jointly tackle complex economic, political, and societal challenges that none can tackle alone (Hartley et al., 2013). Yet collaborative innovation often involves community relationships that go beyond collaboration between formal organizations (McMillan & Chavis, 1986; Moayerian et al., 2022). For example, people living in the same neighborhood may form a community to deal with certain common problems. Likewise, people in remote areas may seek to develop their community by generating income and supporting livelihoods through sustainable tourism (Marasco et al., 2018).

These examples show that purely organizational approaches to collaborative innovation are insufficient for understanding collaborative innovation, because they overlook the way that (a) collaborative innovation engages heterogeneous actors (e.g., people, communities, government) and (b) community constitutes a particular context for such innovation. Given that many innovations and business phenomena emerge from community settings—which may be crucial for future sustainable developments (McMillan& Chavis, 1986)—purely organizational approaches in research on collaborative innovation is therefore problematic. Therefore, research needs a

richer understanding of collaborative innovation, one that takes into account the community context and its value creation.

The construct of public value (Benington, 2015; Hartley et al., 2017; Hartley et al., 2024) offers a highly useful approach for assessing collaborative community innovation within its value context. Public value captures collective or shared intentions (Taillard et al., 2016; Bratman, 1999) associated with development of products and services. Public value theory, according to Benington (2015), focuses on how not only public managers and public sector organizations but also other actors can widely contribute to public value creation. Moreover, Benington (2011) argues that because what counts as public value is contested and dynamically framed, public value is a subjective category. Building on Benington's (2015) argument, we argue that researchers can study community contexts of collaborative innovation, and extend research by exploring how public value is assessed, debated and settled in such a context.

METHOD

We illustrate our conceptualization of collaborative community innovation with a case of local tourism development in Denmark and the shared intentions and collaborative processes that revolved around a notion of what they called "small tourism." Illustrative case studies help readers imagine how a conceptual framework can be put into practice (Taillard et al., 2016; Siggelkow, 2007). Our case shows how the notion of public value creation applies to community collaborative innovation and how different value creating practices of sharing, contesting, and co-creating public value were present. What also emerges from the data is how these practices were formatted and performed.

EXPECTED RESULTS

This study contributes to research on collaborative innovation by conceptualizing community collaborative innovation and advancing scholarly understanding of the role of public value in community collaborative innovation. Through the data analysis, we capture three practices to public value creation: Sharing, contesting, and co-creating. We explore and discuss how public value is assessed, debated and settled in relation to these practices and implications for research and management.

This study is expected to contribute to tourism and service innovation research in three ways. First, it develops a new understanding of collaborative innovation by conceptualizing and theorizing the role of community in collaborative innovation. Second, it contributes to public value theory in the following three ways: (1) theorizing how innovation can lead to public value creation within a community context, (2) stressing the role of community in value creation, and (3) emphasizing shared intention, contestedness and co-creation as practices of public value creation and how they are formatted and performed in context. Third, the paper contributes to tourism research by conceptualizing the role of community and public value in collaborative tourism innovation.

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1 Nov
12:00
Poli

From Virtual to Real: The Never-Ending Experiences of the Korean Wave

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OBJECTIVES

This paper is part of an ongoing research project that explores how digital and AI-enabled transformations, combining virtual and real-world experiences, create a new experience industry. The paper has two main objectives. First, it presents preliminary results from a literature review that conceptualizes the notion of never-ending experiences and develops an analytical framework. Second, the framework is applied as an analytic lens to qualitatively analyse the globally successful Korean Wave as a case study from user perspective.

METHODOLOGY

- Literature review and development of a theory framework for analysis of never-ending experiences.
- Qualitative case study exploring experiences connected to the phenomenon of Korean Wave in social, digital and physical spaces.

EXPECTED RESULTS

The paper aims to contribute to the conceptualisation of never-ending experiences as a holistic concept and links it with the consumer journey, which integrates and encompasses various activities and services into a cohesive whole within the everyday life of a person.

Introduction

This paper addresses the need for a holistic understanding of user experiences that bring together loosely coupled events and practices a person engages over time and in different contexts. After the literature review, we explore the phenomenon in the context of the Korean Wave (Hallyu). This global cultural phenomenon encompasses a variety of offerings and touchpoints in social, digital, and physical spaces enabling value co-creation and continuously evolving experiences. The case study uses material collected through from a real user-journey and desktop research on Korean Wave.

1. Literature review and theory framework

Theoretical insights drawn from research on customer experience (Pine and Gilmour 1998), consumer journey (Hamilton and Price 2019; Akaka and Schau 2019), and

complex service products (Windrum 2023) inform our framework. A central concept is the consumer journey, emphasising a holistic view of the experiential nature of various activities that individuals engage in over time, across different settings and roles. Complex service products help understand opportunity spaces and value co-creation as people make choices between services and service bundles based on preferences during their journey (Windrum 2023). The notion of never-ending experiences is embedded within the consumer journey, highlighting the continuous and open-ended nature of experiences, enhanced by new digital offerings (Prodinger and Neuhofer 2023).

Pine and Gilmore (1998) categorise customer experiences into four realms: entertainment, educational, escapist, and esthetic. The entertainment involves passive participation, such as when watching a movie. The educational realm requires active participation, engaging customer to learn something new. The escapist dimension involves active participation with immersive experiences, whereas the esthetic features passive immersion in an environment.

These dimensions are visible in activities creating never-ending experience and they are not only restricted to physical space but also contains elements from social and digital spaces. New service characteristics enable users to explore social, physical, and digital spaces in novel ways (Windrum et al. 2023).

Qualitative Case study

The Korean Wave represents a global cultural phenomenon characterized by the widespread popularity of Korean entertainment and culture, including music, TV dramas and cuisine. It has evolved through three phases, from 1997 to the present and it has been supported by Korean government policies promoting cultural exports, invest in creative industries, and leverage digital platforms to reach global audiences. (Kim 2021)

The Korean Wave is a phenomenon that continuously integrates into daily life, by offering a diverse and dynamic array of cultural elements that collectively enrich and sustain long-term engagement. Through examples of a real user journey (Figure 1) and analysis using the framework, we examine how consuming Korean culture integrates into one's interests and routines.

Physical Space

The Korean Wave has initiated global interest in Korean culture. The physical space involves services and offerings that bring Korean culture directly to consumers outside of Korea. These include the operation of Korean restaurants, organizing international tours by Korean artists, and establishing educational institutions. Each of these services requires coordination between cultural agencies, event organizers, educational bodies, and local businesses to ensure that consumers can engage with Korean culture in their own countries. Travel services are necessary for experiencing Korea firsthand, encompassing tourism packages and event-specific travel coordination.

Figure 4: An example user journey about never-ending experience with Korean culture. Services and digital platforms supporting the journey as touchpoints are presented in the middle.

Digital Space

Social media platforms like YouTube, Instagram and Weverse engage audiences with K-content. These platforms provide videos, music streaming, real-time updates, fan interactions, and interactive live concerts. Media platforms like Netflix and Disney+ make Korean content accessible globally. The development of the metaverse offers new opportunities and virtual experiences. Yoon et al. (2022) highlights virtual tourism as an viable alternative. The metaverse contributes to social sustainability by enabling inclusive virtual experiences and offering sustainable alternatives to physical experiences (Johri et al. 2024).

Social Space

Social space involves social media platforms that support interaction and content sharing, as well as the organization of online events like live streams and virtual fan meetings. Interaction among people with similar interests promotes community building and creates a space for virtual engagement. As an example, K-pop fandoms have evolved into a global phenomenon, uniting individuals from diverse cultural backgrounds into extensive and supportive communities (Yong, Jin, Dal, 2023).

Table 8 highlights how various experience dimensions manifest in different activities and spaces. Activities can span across these dimensions and spaces, offering opportunities for individual engagement.

Table 8: User activities related to the Korean Wave

	Physical space	Digital space	Social space

Entertainment	Participating in events, such as concerts, K-pop dance shows and parties.	Watching Korean movies, series, and variety shows. Participating in virtual concerts enabled through digital platforms.	Engaging and participating virtually e.g. in online concerts, artist live streams, backstage recordings and variety shows. Watching K-dramas or participating events together with family and friends creating shared experiences.
Education	Participating Korean cultural workshops, incl. history, language, calligraphy. Participating meditation courses and dance classes.	Engaging in continuous learning through online courses, mobile apps, tutorials, and communities such as acquiring new skills (e.g. in dance, language, or cooking).	Participating in online communities for learning new skills enables co-learning with other participants, adding a social layer to the educational journey.
Escapist	Traveling to Korea provides an immersive experience allowing consumers to emotionally escape their daily lives. Attending Korea-themed events in different locations outside of Korea.	Utilising opportunities of virtual tourism and metaverse experiences allowing to experience Korean culture through virtual platforms at home.	Connecting with people of shared interests via social media and sharing content like reaction videos, dance challenges, and Korean cultural analyses. Nurturing interaction and community building creating a shared escapism journey through virtual engagement across the globe.

Esthetic	Visiting exhibitions of Korean artists in art museums and theatres. Visiting and enjoying Korean cuisine in restaurants.	Enjoying Korean concerts and award shows online with interactive elements. Enjoying music videos featuring cinematic quality and advanced visual effects offers immersive digital experiences.	Enjoying the events together with friends and family. Enjoying the online shows together with social media community, other fans and people with similar interests.

Discussion and conclusions

The Korean Wave is shaped by multiple providers, including entertainment companies, digital platforms, educational institutions, and community organizers, each playing a distinct role in the consumer journey. Users engage with these touchpoints across various platforms – physical, digital, and social – creating a holistic experience. The cross-platform engagement ensures that the journey is not confined to a single touchpoint but spans multiple stages of interaction. These touchpoints are adaptive, varying according to consumers' needs and valuation allowing for customized interactions that enhance their connection to Korean culture.

Preliminary findings of the study suggest that never-ending experiences form a holistic continuum, deeply embedded in the consumer journey. These types of experiences are characterised by continuity, evolvement, and open-endedness. The emerging results imply importance of exploring consumer and user experiences as ongoing journeys, not only in relation to specific events or processes.

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1 Nov
12:00am
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Navigating Bcorp communications on social media. Insights from the Creative Industry

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OBJECTIVES:

Over the past decade, there has been a growing emphasis on the "fourth sector," where the traditional profit-oriented approach of businesses begins to intersect to make a positive impact on society, a responsibility typically associated with public institutions (Baudot et al., 2020). This emerging space has led to the formation of cross-sector partnerships aimed at addressing pressing social challenges, shedding light on hybrid organizations (Haigh et al., 2015). Within this context, the "B" movement emerges as a new paradigm, prompting businesses to balance their financial returns with their environmental, social, and governance (ESG) performance. This shift involves moving away from the traditional focus on shareholder interests and instead prioritizing the interests of all stakeholders (Chen & Marquis, 2022).

Among the emerging managerial models of hybrid-purpose business organizations part of the B movement (Alberti & Varon Garrido, 2017), Benefit Corporations (BCs) and Certified B Corporations (B-Corps) play a key role in reconciling the traditional and alternative frames of profit (Kopaneva, 2022) by defining their mission to include a social component as part of their operating activities. BCs are businesses that comply with specific legislation, while B-Corps are distinguished for obtaining certification for meeting high standards of verified performance, accountability, and transparency. This involves maintaining significant levels of social and environmental performance, committing to stakeholder governance, and being transparent about their performance to consumers, communities, and suppliers (Cantele et al., 2023).

The social impact created by these companies within their communities is acknowledged by scholars and practitioners (Block et al., 2021; Cheah & Ho, 2019) as they recognize the pivotal role of purpose-oriented organizations in addressing complex social dynamics. Within this context, the rise of social media has opened new avenues for studying communication practices (Gherardi, 2019) deeply intertwined with social transformation, driven by both human and social actions. Businesses have leveraged social media to cultivate stronger relationships with customers, resulting in heightened engagement, loyalty, satisfaction, and expanded market opportunities. Establishing emotional connections with customers has been linked to improved prospects and a positive impact on a firm's profitability (Brandao et al., 2019). Indeed, social media green marketing, cause-related marketing, and digital marketing have been found to have a positive relationship with sustainability competitive advantage (Amoako et al., 2023). Social media platforms have also become instrumental in examining the co-creation of value within virtual communities (Tregua et al., 2015). Therefore, the language and tone used in social media posts can influence community members to echo the expressed sentiments and participate in value co-creation activities (Sorensen et al., 2017).

Nevertheless, there is scant knowledge about how B Corps communicates on social media (Mann et al., 2021). Enhancing the communication of certifications such as B Corps to the public can assist businesses in reaping more benefits from their socially responsible activities and can also aid in educating consumers and investors about these companies, ultimately securing support for B Corps (Lepkowska-White et al., 2022). Little is known concerning this emerging managerial model into the creative scenario (Nicholas & Sacco, 2017). Taking this gap into consideration, and in response to the increasing interest in sentiment analysis, the present study delves into BCorps social media communications. In detail, by using a qualitative research method, this research activity aims to answer the following research question: RQ: How do B-Corps exploit social media to communicate their environmental, social, and governance (ESG) values?

METHODOLOGY

In pursuing the RO, the present study adopts a qualitative approach. Specifically, the research activity is performed through a sentiment analysis, known as "a series of methods, techniques, and tools about detecting and extracting subjective information" (Mäntylä et al., 2018, p. 17) to analyze the positive, negative, and neutral opinion of people about specific brand or service (Gursoy et al., 2017). This study design limits the research setting to a single industry, the creative scenario, to analyze how organizations behave similarly and support identical influences, which allows an opportunity to switch from a focus provided by a single evidence source to a whole data set, thereby allowing more interesting insights to be obtained. Within this context, the authors selected the cases to apply the sentiment analysis from the B Lab dataset (www.bcorporation.net) using a skip interval method. In detail, the authors selected B-corps that operate in cultural settings by applying the filter "arts & entertainment". The sample consists of 46 B-corps operating worldwide. The authors will take advantage of content gathered through X (ex Twitter), a major social media platform highly used by sentiment analysis researchers (Zimbra et al., 2018). The chronological period to consider is set to the last year (June 2023-June 2024), to intercept consumers' perceptions.

EXPECTED RESULTS:

This study delves into the emerging B Corps literature. By identifying key areas of communication through hashtag analysis on social networks, the main communication topics related to purpose-oriented businesses in the creative sector are expected to emerge. In this vein, the research provides valuable insights into the communication of B Corps on the X social network. The research also offers a tool for monitoring and identifying current creative trends, which could be highly beneficial for policymakers, scholars, and practitioners in terms of strategic planning, social investment, and business practices.

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Public Procurement and Institutional Change: Reflective and Experimental Spaces in Tesoma Wellbeing Centre in Tampere, Finland

1 Nov
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The increasing complexity of societal challenges has highlighted the need for innovative approaches within public procurement. This study explores the role of public procurement in facilitating institutional change and fostering social innovation through the case study of the Tesoma Wellbeing Centre in Tampere, Finland. The project, initiated by the City of Tampere, employed a project alliance public-private partnership (PPP) model, traditionally used in the construction sector, to integrate social and health care services within a single facility. This approach aimed to address the multifaceted social problems in the Tesoma district, characterized by significant social challenges. The project alliance model facilitated a collaborative agreement among public and private entities and non-governmental organizations (NGOs), focusing on shared goals, risks, and rewards. The study adopts an institutional theory framework to investigate how public procurement can promote institutional change in cross-sectoral collaboration. Previous research has identified how actors facilitate institutional change by creating bounded spaces where they can experiment with new solutions, without coercive pressures from pre-existing institutional logics (Zietsma and Lawrence, 2010). Van Wijk et al. (2019, p. 895) propose that such "interactive spaces" are crucial in the creation of social innovation, as they "generate, promote, sustain, or erode" the interactional, emotional and reflexive processes among innovating actors. We investigate how the procurement process, using a PPP model, enabled the creation of 'reflective spaces' and 'experimental spaces' within the procurement process, allowing stakeholders to distance themselves from established institutional logics and experiment with new ones. Reflective spaces are bounded areas where novel ideas can be generated, while experimental spaces enable these novelties to be integrated into existing practices (Cartel et al., 2019; Zietsma and Lawrence, 2010).

Previous studies have highlighted that public procurement can facilitate innovation by promoting interaction and dialogue among different organizations, allowing them to share knowledge and align needs with potential solutions (Uyarra et al., 2017; Pihlajamaa & Merisalo, 2020; Rolfstam, 2009). For social innovation, cross-sectoral collaboration is considered particularly important. In this paper, we argue that procurement offices can have a pivotal role in institutional change by supporting the formation of new relations and solutions iteratively throughout and beyond the procurement process. Specifically, we will investigate how procurement practices can be designed to support the development of social innovation by purposefully establishing spaces which enable reflexivity, the formation of collective intentions, and reformation of relations between multiple actors. We will investigate such spaces theoretically using research on interactive spaces and illustrate their relevance in procurement practices using an empirical case in social and healthcare sector.

METHODOLOGY

The empirical study aimed to map out key events in the creation of the social innovation and identify how the public procurers facilitated the co-creation of the innovation, paying specific attention to the use of interactive spaces. The procurement process at Tesoma comprised several phases conducted over 2014-2019, followed by a launch of the welfare centre and adjusting its operations during the first contractual periods. We investigated both the procurement process and subsequent contractual periods as the social innovation process through which the wellbeing centre and its distinct institutional logic emerged, took shape and became routinised at the local level. The data collection started in 2019, one year into the implementation phase and lasted until 2022. Our empirical material comprises interviews and documents. We conducted 18 interviews at multiple levels (top management, operative management, ground-level employees) of key actors from the city, the private service provider, and the NGO involved in the preparation and implementation of the wellbeing centre, to identify their retrospective and real-time observations of the process. The interviews were recorded and transcribed, except for one where we relied on taking written notes. In addition, we collected ample document material (61 documents) of the project's preparation (contracts, city board minutes, market dialogue event presentations, citizen involvement project materials, performance indicator lists, presentations for stakeholders etc.) We had two primary aims for the interviews (cf. Langley & Meziani, 2020). First, we aimed to trace the events leading to the procurement of the center and details of its operations. We inquired about critical events, the role of different actors, main barriers and promoters of the project, techniques used to solve problems, justifications for the decisions made, and visible outcomes. The second aim was to capture interpretations held by the informants of the nature of the case and its value. This included their views on the objectives and guiding principles of the initiative, potential conflicts between traditional and the new approaches, and the impact of the project on individuals' perspectives and behaviors.

Our analysis aimed to construct a procedural narrative of the procurement and comprehend the role of interactive spaces. We started our analysis with data-driven coding (Saldaña, 2009) of the interview transcripts, resulting in 1397 unique codes that summarized the key content of the material. The codes were categorized with a multi-level hierarchical structure and was used as a basis for writing a 45-pages long case narrative, providing the research team a rigorous overview of the process and its key events. Following an abductive research approach (Dubois and Gadde, 2002; Timmermans and Tavory, 2012), we searched the literature for theoretical perspectives that could help us make sense of our observations. We settled on institutional theory and the concept of interactive spaces.. To capture the evolution of the project, we used temporal bracketing (Langley, 1999) to distinguish between distinct project phases: shaping the domain, planning the procurement, tendering process, development phase, and implementation phase..

A next step was to identify reflective and experimental spaces and their outcomes and relations in different phases. This analysis was conducted by mapping key events that involved interaction between multiple actors (i.e., single or occurring events such as meetings, workshops, seminars, discussion forums, as well as novel

service processes that involved experimental features). We understood these events as manifestations of interactive spaces if they served the functions of distancing the focal actors (procurement staff and other representatives of the city as well as firms and NGOs) from current ways of providing welfare services in order to create and anchor novel solutions to the welfare field. Events that routinely replicated current procurement practices and did not facilitate the development of innovative solutions were excluded. Following Bucher and Langley (2016a), we subsequently categorised the interactive events as reflective and experimental spaces.

EXPECTED RESULTS

The purchasers in the city had a significant role in facilitating the innovation throughout the process in several ways. They set the rules for a novel kind of collaboration, supported by the alliance contract model. They also recognised the importance of broadly engaging different actors to the process to challenge current practices and to co-create a novel collaborative organising model. In this task, interactive spaces played a significant role. In the first phases, these spaces predominantly served the function of distancing the decision-makers and service providers from current institutional logic by discussing the problems, practical requirements and alternative solutions with a broad range of actors. In latter phases, the spaces were organised for a limited number of actors—the management of the selected organisations—to create a new hybrid logic and organising model for the welfare centre. In the final phases, the number of participants were broadened again to anchor the novel logic and organising model to the field by implementing and experimenting with the new model in practice with the citizens and staff of the involved organisations. Accordingly, the emphasis in the interactive spaces transformed from reflective to experimental phases. What is distinct to this process is the number of interactive spaces employed, their design features that enabled distancing and anchoring work, as well as the decision to continue the development and its evaluation after the welfare centre was implemented.

The Tesoma Wellbeing Centre demonstrated the effectiveness of integrating diverse services under one roof, supported by a blended institutional logic that balanced public, private, and NGO perspectives. The centre provided a wide range of services, including a health clinic, maternity clinic, dental clinic, youth centre, library, café, and counselling and information desk. The collaborative model improved service accessibility, affordability, and quality, addressing the complex social problems in the Tesoma district.

Key elements in the creation of the Tesoma Wellbeing Centre involved recognizing the need for a new type of collaboration model to respond to the area's complex needs. The extensive resources invested throughout the procurement process engaged diverse stakeholders to identify needs and co-create solutions. The process was characterized by continuous activities that built trust and helped different parties develop and commit to a new institutional logic for the wellbeing centre. Setting a 10-year contract period allowed for testing and further development of the service and alliance models based on actual needs and challenges.

The framing of the project as a test-bed for novelties helped protect the de-

velopment process from routinized institutional norms and beliefs. Smaller-scale interactive spaces served as concrete settings for a participative approach to procurement. These spaces differed from typical procurement processes in stakeholder engagement breadth, innovative methods such as simulations, and time invested in co-development, mutual learning, and trust-building. The alliance model, previously applied in construction projects, served as a tangible device for concretizing the requirements for an integrated hybrid logic.

In sum, the involved actors were able to distance themselves from their prevailing institutional logic, commit to a joint logic, and anchor this logic to the field in the local context of the Tesoma district in Tampere.

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Integrating Sustainability Priorities into US Incentive Practices

1 Nov
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OBJECTIVES

This paper (or extended abstract) will examine how continued recruitment by US states of energy and resource-intensive facilities, such as data centers, interacts with state and regional economic development, climate, energy, and natural resource strategies.

US state and local governments provide extensive tax breaks and other incentives to attract multi-billion dollar data centers and resource-intensive manufacturing operations to their communities. This type of business recruitment is generally considered to be successful economic development, but more communities are asking if it makes sense to continue to incentivize these facilities. Data centers, for example, use enormous amounts of energy and water and take up millions of square feet of space.

How do business recruitment practices align with other state and regional economic, planning, and climate resiliency objectives? How can sustainability priorities be better integrated into state economic development business recruitment work, specifically the policies and governance guiding tax incentive use?

METHODOLOGY

Articulating and actively connecting sustainability priorities as detailed in community-based planning and climate strategies with state economic development policies and governance practices holds promise as a means to influence state business recruitment behavior.

The recently concluded Policy Academy on Aligning State and Regional Economic Development Strategies and Actions, funded by the US Economic Development Administration, enabled state and local leaders to collaborate and create co-investment strategies to improve economic performance while also developing and executing the best policies for their citizens. The Academy helped six states through a facilitated process to identify gaps and overlaps between their economic development strategic plans and those of communities in their states. As a result of this 9-month exercise, state leaders more fully recognized the priorities among their local communities and have begun to adapt their programs to help meet those priorities (for example, in housing and rural development).

Work on Reflecting Community Priorities in Economic Development Practices also addressed how governments can adapt their economic development efforts to be more responsive to community goals. Findings and recommendations centered around rethinking community engagement processes and emphasizing co-creation, taking a different approach to program design, and creating better assessment metrics with community priorities in mind.

The missing piece in this work has been moving these concepts, which are taking hold at leadership levels, into the day-to-day use of incentives. Offering incentives to support business attraction remains a high-profile element of most state and local economic development organizations. Incentives are typically created by legislative statute, and they are intended to support economic development priorities and help communities, not just be a giveaway to businesses. However, since they are based in statute, they are slow to change, and economic development managers are cautious in changing how they use the incentives. As a result, incentive policies and practices often become out of step with evolving community and economic priorities.

This work will bring these three strands together to consider how community sustainability priorities that are articulated in state and locally generated climate, planning, and economic development strategies can be brought to bear on long-standing incentive policies and practices.

This paper will examine and code adopted economic development, climate, energy, natural resource and regional planning strategies in two US states (Georgia and Oregon), drawing on the SLEDS Database as well as our own research. The first step will summarize elements within these strategies that are relevant to business recruitment of resource-intensive facilities.

The next step will be to review how tax or other economic development incentives in these states are used to recruit businesses. This work will adapt the methodology used for the Strategic Assessment of Incentives prepared for the state of Oregon. We will analyze a set of major incentive programs used for business recruitment. To identify connections between incentive programs and sustainability priorities, we will examine statutes, program guidelines and data on actual program usage and outcomes. We will then map each incentive's structure and intent to the identified sustainability priorities in the first step. To the extent possible, we will also identify incentive program metrics that can connect incentive outcomes to the strategies and priorities.

The final step will be to summarize findings and pinpoint pathways for influencing state incentive policies and practices via planning and community engagement, program design, and metrics connected with local economic, planning, and climate resiliency strategies.

EXPECTED RESULTS

The expected result is identification of pathways for influencing incentive governance and policy to inform business recruitment efforts so they better align with state and local sustainability (climate, resource, energy) objectives, thereby bringing community sustainability values and priorities into the conversation about incentive use.

Innovating Infrastructure Planning: The Role of Building Information Modeling (BIM) in Sustainable Socio-Technical Systems

1 Nov
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Mendel University

OBJECTIVES

The construction industry is a fundamental pillar of the economic structure of modern societies and plays a crucial role in the economic development of nations. This sector contributes significantly to value creation and employment and is an important driver of innovation and technological progress. The continuous development and implementation of new technologies within the construction industry, especially BIM, profoundly impacts how construction projects are planned, executed, and managed (Marques et al., 2017).

The introduction of BIM technologies is transforming traditional construction processes by providing comprehensive digital planning and management tools that deliver efficiency gains, cost savings, and a significant reduction in construction times and resource consumption. Studies have shown that using BIM, especially in building construction and large infrastructure projects, offers considerable economic benefits and can increase productivity by up to 20% (Eadie et al., 2013; Volk et al., 2014). Furthermore, BIM is increasingly recognised as a critical factor in promoting sustainability in construction projects. Through precise simulations and analyses, BIM enables a more efficient use of materials and energy, significantly reducing environmental impact (Azhar, 2012).

This thesis aims to identify the economic effects of introducing BIM, especially in engineering firms specialising in infrastructure planning. This includes examining the costs, savings, and changes in work processes caused by the implementation of BIM. In addition, management strategies will be identified that effectively support the implementation of BIM in infrastructure planning. Based on the findings from this study, recommendations for action will be developed to enable engineering firms to optimally utilise the advantages of BIM. Particular attention will be paid to adapting organisational structures, training employees, and upgrading technology.

METHODOLOGY

The methodology of this Paper is divided into several sections. In addition to an extensive literature review, 19 qualitative expert interviews were conducted and analysed using qualitative content analysis. The category system is based on the qualitative content analysis of the expert interviews. In the next step, the results of the qualitative research are verified and expanded through quantitative research. The quantitative data is then analysed using the t-test for independent samples and correlation analysis. In the third step, the results are analysed using data from completed practical projects. In the projects, the BIM planning method is compared with conventionally planned projects from the infrastructure sector. The projects

are compared using the paired t-test. In order to explore the effects of BIM on infrastructure planning more comprehensively, an in-depth analysis of the environmental, social, and governance (ESG) areas will be carried out, as an effect on these areas was identified in the expert interviews. In addition, a qualitative literature review on ESG topics will be conducted to supplement the content of the expert interviews. This approach aims to create a comprehensive scientific study that sheds light on various aspects of BIM in infrastructure planning (Rexhaj, 2024b).

EXPECTED RESULTS:

The driving factors for implementing the BIM method in engineering firms focusing on infrastructure and the added value identified retrospectively are presented descriptively below. The driving factors can be regarded as motives for working with or introducing BIM. The added values describe the resulting benefits after the full implementation of BIM in the company. The topics of driving factors and added value were addressed via separate key questions. However, the answers to both questions overlap so much that they are not only presented together for better readability. Rather, it is also important that what was initially anticipated as a driving factor is added value in retrospect (Rexhaj, 2023). Overall, around 50% of respondents see added value in planning quality. For a majority of respondents, regardless of group, visualisation through BIM is an advantage in infrastructure planning. Client acceptance is seen as a critical factor. Transparency due to traceability is also mentioned as an added value after implementation. All of the managers surveyed emphasised the efficiency of the BIM method in infrastructure planning - especially in serial planning. Improved communication is also seen as added value by the majority of respondents. The advantages in the execution of construction work lie primarily in the reduction of the construction companies' potential for additional work. Most respondents see added value in clash detection, which is more precise and automated with BIM than conventional planning. Respondents also cite early involvement in digitalisation as a strategic goal as a further driving factor (Rexhaj, 2023). The experts were asked about the biggest obstacles and challenges in implementing BIM in infrastructure planning (Rexhaj, 2023). There is a lack of literature and guidelines for orientation. Required information, interfaces, terminology, and the necessary LoD and LoI are often not sufficiently clarified when introducing BIM. There is still difficulty in establishing different specifications and requirements that differ greatly between individual projects. Some planners describe the collision check during the introduction of BIM in the company as problematic. Another challenge was the transfer of the planned models to the construction companies. Project managers and engineers described the complexity as a further challenge when introducing BIM. An additional hurdle is the general time and cost pressure in projects. Conventional planning is still used for short-term planning. The software expansion and the commissioning of BIM experts in the engineering offices led to higher costs. In some cases, it is not possible to read CMT or LandXML data into inspection programmes without errors, and in road planning, it is sometimes difficult to read IFC files. In order to determine the internal consistency of the various topics - obstacles, added value, competition, investment costs, operating costs, productivity, and time

management - Cronbach's alpha was used as the consistency coefficient. Reliability analysis yielded satisfactory results for all scales. The Kaiser-Meyer-Olkin (KMO) test and the Bartlett test for sphericity were used to check the suitability of the data for the factor analysis. The KMO test yielded a value of .688, indicating moderate suitability. Bartlett's sphericity test showed that the items' correlation matrix is suitable for factor analysis. The exploratory factor analysis led to identifying two factors corresponding to the theoretical division into investment and operating costs. The clear allocation of the items to the two factors confirms the assumption that the cost structure in the context of BIM in infrastructure is two-dimensional (Rexhaj et al., 2024). The normal distribution of the data was checked using the Kolmogorov-Smirnov and Shapiro-Wilk tests. The Mann-Whitney U test was used for all data in addition to the parametric tests. A significant difference was found between consultants and planners in the perception of investment costs through BIM. Significant differences in the perception of time management and obstacles were also found between consultants and planners (Rexhaj et al., 2024). The results of this study confirm significant correlations between various aspects of BIM in infrastructure planning. There is a significant correlation between the added value resulting from BIM and the improvements in time management. The link between improvements in time management through BIM and reduced operating costs is also confirmed. The increased productivity through BIM is linked to a perceived improvement in competition. The improvements in time management through BIM correlate with increases in productivity. The perceived added value is related to the improvement in productivity (Rexhaj et al., 2024). The results of this paper contribute to the current literature on the productivity of engineering firms through the implementation of BIM. Expert interviews and quantitative data collection found that there are still challenges in integrating BIM into existing workflows and that investment in technology and training is required (Rexhaj et al., 2024; Rexhaj, 2023). BIM contributes to improving productivity across the construction industry and can be used as a lean process to reduce waste and improve project quality. Engineering offices in infrastructure planning initially have high investment costs. The differences and details in the individual areas, such as the executing construction company, the engineering and architecture firms, and the other parties involved in the project, are not analysed (Rexhaj et al., 2024; Rexhaj, 2023). The study found that there are different views between consultants and planners regarding the use of BIM in infrastructure planning. The perceptions of consultants and planners differ in terms of challenges, investment costs, and time management when applying the BIM method in infrastructure planning (Rexhaj et al., 2024). The study primarily considers the user-related view of BIM. The adoption of BIM has revolutionized insights and decision-making capabilities throughout the lifecycle. The emergence of Internet-of-Things (IoT) applications and their integration with BIM models have enabled the emergence of the concept of the digital twin. This represents a significant advance over BIM. However, the state of research in the field of digital twins is still at an early stage and requires a deeper understanding of ongoing and future research (Deng et al., 2021; Tang et al., 2019).

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Networks for innovation and a public service organization example from healthcare

1 Nov
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OBJECTIVES

Our research introduces to relevant updates to the existing frameworks for studying innovation developed by networks, defined as multi-actor collaborations. It primarily extends the models proposed by Windrum and Garcia-Goñi (Windrum & García-Goñi, 2008a), Gallouj and Weinstein (Gallouj & Weinstein, 1997a), and Saviotti–Metcalfe (Saviotti & Metcalfe, 1984) on services innovation, while building upon the mapping developed by Desmarchelier and colleagues (Desmarchelier et al., 2018a, 2018c). Specifically, the new framework introduces key sets of characteristics of networks (social dynamics, actors' involvement, and governance modes) and evaluates their effects in the design and development of innovations in any scenario, including situations of extreme uncertainty such as crises.

METHODOLOGY

In this conceptual paper, we outline a conceptual framework that integrates a comprehensive set of indicators relating to the changes in services when they are developed by networks in every situation. We draw on the characteristics approach of Lancaster (1966) and in the Service Innovation Studies (Djellal et al., 2013b; Gallouj et al., 2013a; Gallouj & Savona, 2009; Gallouj & Weinstein, 1997a). We argue that networks merge specific technical, organizational, and product characteristics with other non-technical characteristics, such as multi-actor interactions and their evolutionary trajectory (A. V Lopes & Farias, 2022; Pyka & Windrum, 2001; Windrum et al., 2016; Windrum & García-Goñi, 2008a). In essence, this paper offers a framework that conceptualizes networks as formations of stakeholders (actors), operating in social contexts, potentially in crisis, and governed by technical and non-technical approaches. These networks have effects in normal and crisis situations, ranging from the design to the execution of local, national, and multinational policies and innovations (Bland et al., 2010; Desmarchelier et al., 2018a, 2020a; Gallouj, 2002).

EXPECTED RESULTS

Our framework has incorporated an extended set of characteristics, including social, actors, and governance vectors, conceptualizing their technical and non-technical effects on innovations. We present the model in an operational format that decision makers can utilize in conventional scenarios and under uncertainty. This seeks to contribute to the development of a unifying framework of network-based innovations, more specifically an applicable neo-Schumpeterian framework of innovations through networks—dealing with organizational, product, market (or ecosystem), process and input innovations (Drejer, 2004; Metcalfe, 1998; Windrum & García-Goñi, 2008a).

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Politics of affect in the EU Missions policy discourse

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OBJECTIVES

Building upon the acknowledged impact of affect and identity as important dimensions in critical policy studies, this paper aims to explore the politics of affect within the EU Missions (Wanzenböck et al., 2020) policy discourse. More specifically, it seeks to answer the questions of how does affect operate within the EU Missions policy context, and in what ways is it strategically used to shape perceptions of EU Missions policy discourse? The analysis builds on a body of literature that highlights the interconnected nature of affect, signification and discourse (Ahmed, 2004b, 2004c; Blackman and Venn 2010; Wetherell 2013). The operationalisation of affect takes place through language. Indeed, Ahmed (2004a) emphasises the emotionality of texts, which is instrumental in understanding how texts generate emotions through figurative language. Therefore, affectivity is analysed in this paper through the identification of textual emotionally charged, sticky elements (Ahmed, 2004b, 2004c), which mediate and transmit affect.

METHODOLOGY

The methodology adopted for the analysis involves a phenomenological reading of the emotionality of texts as described by Ahmed (2004a). This begins with a close reading of textual signs in official policy documents related to the five EU Missions of: adaptation to climate change, cancer, restore our ocean and waters by 2039, 100 climate-neutral and smart cities by 2030, and a soil deal for Europe. The first step involves identifying affective textual tropes repeated in these materials. The next phase focuses on identifying common affective rhetorical tropes within the broader EU policy discourse as echoed in these texts. The analysis aims to understand the connectedness and interaction of these tropes, i.e. the use of figurative language and literary and rhetorical devices, which are employed to produce feelings and impressions. The affective dimension of these texts serves as a tool designed to move and impact subjects on a non-cognitive level while also eliciting cognitive responses. This methodological approach is useful for understanding how affect aligns individuals and collectives, participating in the formation of collective identities within the EU Missions framework.

EXPECTED RESULTS

The analysis is expected to reveal that affect plays a key role in the EU Missions policy discourse by creating a sense of collective mobilisation of different stakeholders. Affect not only engages individuals but also aligns them with collective EU identities expressed in Missions, underscoring their cross-sectorial nature. The emotive and affective elements within the policy discourse nurture a sense of belonging

and identity that is articulated through the expressed urgency of Missions. These expected findings will illuminate the mechanisms through which affect shapes identification with EU Missions, and contributes to shared normative understanding within communities and referent groups.

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Bridging anticipation and strategic planning: case of forward-looking reform in a Finnish university of applied sciences

1 Nov
14:15
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OBJECTIVES:

As awareness of the importance of foresight grows, organisations are generating more future-oriented information. Yet, comprehension of foresight's impact frequently falls short. A broad base of futures thinking skills, or futures literacy, is commonly proposed to enhance the impact of foresight. This study concentrates on a pivotal element of transitioning to a more effective harnessing of organisational foresight capabilities: the structural tension between the bottom-up approach and the entrenched top-down structures and expectations.

Study responses to the following research questions: How to enable strategic direction in an organisation in dialogue between bottom-up and top-down approaches? What are the enablers and obstacles of introducing a new operational model for strategy formation?

In organisational foresight, the key challenge is balancing the need for a unified future direction with the ideal of a futures-oriented culture, which is built on the organisation-wide capability for futures thinking and participation. The top management is responsible for creating a clear strategic direction, often leading to top-down visions. Although a robust futures-oriented culture may enable agility and engage all staff in value-based activities, finding and maintaining a shared direction can be difficult. This tension has significant implications for organisational foresight. In scenario work, alternative futures often too early turn into a locked-in strategic plan, thus sacrificing the ability to maintain diversity in futures preparedness. Foresight may remain as mere external information with no substantial impact if it does not properly engage with the organisation's internal assumptions, expectations, and visions of the future.

To investigate the research questions, we conducted a case study at a Finnish University of Applied Sciences that utilised bottom-up futures work as a means for pedagogical reform. The entire staff, along with a broad spectrum of students, alumni, and other stakeholders, engaged in futures workshops. These workshops merged fundamental futures thinking exercises ("foresight for emergence") with strategic planning ("foresight for the future"). We discuss the process from the perspective of the organisational enablers and challenges and conclude by modeling the key features of the process for future research on organisational anticipation.

Theoretically paper is rooted in the following discussions:

1. Strategic foresight to generate understanding of the organisational capabilities to achieve a more comprehensive organisational stance towards futures (Schreiber 2019) and enhanced capacity to perceive change, to interpret and

respond to change, influence other actors, and to learn (Rohrbeck & Schwarz 2013).

2. Organisational futures literacy approached as a dynamic capability of an organisation (e.g., Kurki 2020) and to generate understanding of the barriers of change including organisational culture, lack of experience, mental models, measurability, and clarity on investment (Mortensen, Larsen & Kruse 2021).

3. Expansive learning approaching organisations as activity systems in which the object of learning is not fixed, but changes and expands as the learning process unfolds (e.g., Engeström & Sannino 2010), leading to a relatively permanent change in the way we think and act.

METHODOLOGY

The research methodology employed is a case study centered on a Finnish University of Applied Sciences, specifically the South-Eastern Finland University of Applied Sciences (XAMK). This institution specialises in responsible well-being, technology, and creative industries, employing over 900 professionals and serving more than 11,500 students.

XAMK undertook a significant organisational reform project known as UusiX. The goal was to create a university that is more agile, flexible, and prepared for the future, capable of adapting to societal shifts, and to enhance the focus on student needs within strategic planning. This strategic reform, conducted for the first time through a bottom-up approach, was deeply rooted in futures work. The Futures Frequency method, a participatory and scenario-based tool, was utilised to engage staff, students, alumni, and other stakeholders in jointly envisioning the future of learning at XAMK. The outcomes of this initiative informed the development of XAMK's curriculum, learning environments, resources, and teaching methods.

The data for this study were gathered from thematic interviews with the main process owners (five interviewees) and from self-evaluations provided by participants of the futures workshops (330 responses before and 208 responses after the workshops).

EXPECTED RESULTS

The positive outcomes of the reform project include establishing a common vision and language for the future of learning, the development of innovative and cross-disciplinary courses and learning environments, and the improvement of participants' futures thinking capabilities. It fostered new networks among the participants, enhanced organisational collaboration, and strengthened the overall foresight capability. However, the project faced challenges in coordinating and communicating various activities, aligning strategic and operational levels, and overcoming cultural inertia due to a hierarchical organisational structure.

Our study concludes that identifying a strategic direction via a bottom-up approach is inherently an expansive and dynamic learning process. Emergence, chance, and serendipity cannot be planned, and while traditional (top-down) organisational

processes aim to reduce unpredictability, bottom-up approaches require tolerance of uncertainty. Therefore, developing capabilities for organisational futures thinking requires a comprehensive learning process across the organisation. Identifying key stakeholders and organisational champions who will act as catalysts for change is crucial. Leadership must genuinely engage in this process. Ultimately, success requires a shared vision to which everyone is committed.

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Behind the scenes of service design engineering training: A process-centric analysis

1 Nov
14:15
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OBJECTIVES

The popularization of design thinking within companies and administrations has highlighted the value of a user-centric approach to transform society. However, the application of this expertise to address socio-technical transitions has just begun. In particular, our previous work (Abramovici and alii, 2023; 2022) has shown the limits of mobilizing citizen participation in the design of urban projects. Education has a major role to play in training experts in design to empowering individuals and communities to actively participate in problem-solving and decision-making processes in urban projects.

In France, training in design is provided partly by schools of Applied Arts, partly by schools of engineers and planners. A reform aimed at integrating the training offered by Applied Arts schools into the LMD system led the authors of this article actively participated in the reflection on the pedagogical stakes of the teaching of design.

It is in this context that the authors have chosen to analyze ten years of pedagogical practices to help highlight good practices on the design of service design pedagogical sequences.

This article has two objectives: On the one hand, it emphasizes the importance of documenting teaching sequences throughout their design and mobilization process to be able to draw some good practices from them. As we will show, such work must be based on elements of formalization, and we will present two frameworks of analysis mobilized to facilitate the restitution and analysis of pedagogical sequences: the one proposed by Hillen (Hillen, 2014) and the one proposed by Abramovici et alii (2024; 2018). In a second time, it focuses on showing the main stages of a service design training sequence, making a significant contribution to the available knowledge on the engineering of such sequences.

METHODOLOGY

Service design education is an evolving field, which relies on innovative teaching methods and tools to train students in the skills needed to imagine, design, develop relevant and useful service prototypes on an order from real or academic customers.

We based our research on case study approach in a logic of exploratory qualitative studies. First, we established a model to describe the different forms of

crowdsourcing mobilized to teach design of services to our students. This article offers an analysis focused on the design process of a service design course, highlighting the different key steps and challenges encountered.

1. Deconstructing beliefs

One of the first challenges in teaching service design is to deconstruct the limiting beliefs that students may have about their own creative abilities. Indeed, many students do not consider themselves creative, which can be a hindrance to their participation and engagement in learning activities. To address this problem, the authors propose several strategies, including the use of creative profile questionnaires and the implementation of fun and stimulating activities that allow students to discover their talents and creative potential. As soon as they feel able to "create", their achievements become projects in which they are emotionally invested. It is then time to approach the field observation phase. As part of the service design, the observation of the existing situation is essential. The service design courses that the authors offer is constantly going back and forth between creation, prototyping, and returning to the field of research for testing. The method is based on the observation of places in different situations, inspired by G Perec in the Tentative of exhaustion of a Parisian Place (Perec, 1982; Abramovici, Mercier 2023). The authors have developed a method for decoding participant's descriptions highlighting the real, emotional and sensory factors of observation (Abramovici, Mercier 2023).

2. Articulate projects for student autonomy empowerment

Projects are a central part of service design education, as they allow students to put into practice the concepts, methods and tools discovered in class. The projects are "coached" by the teachers throughout the process so that they remain "appetizing" and productive for the students. The rhythm of the alternation between creation, prototyping and the field takes on its full scope here. The authors propose a phased approach that starts with simple, guided projects and then evolves into more complex and self-contained projects. They also highlight the importance of diverse creative profiles within project teams, to foster collaboration and the exchange of ideas (Paris and alii, 2019)

3. Evaluate and value the skills acquired

Assessing the skills acquired is another important challenge in teaching service design. This is because it is difficult to objectively measure creativity and interpersonal skills, which are essential elements of service design. On the other hand, the fact of being able to graph, by making the participants self-evaluate at the beginning and at the ending of the session, the skills acquired during the course. The key element that we were missing was the lexicon associated with their grid. This work of defining skills is what made it possible to make the link between the teaching of Innovation and the self-evaluation. The practice of designing service involves a reflexivity practice (Schön, 1987) and bring to a personal lexicon. Indeed, without this lexicon, the list of creative skills may, depending on the individual, seem

"broad" or "obvious". It is their definition that gives support to reflective work and offers the possibility of linking achievements, feelings and skills. At the end of the service design course, the authors insist on the need to "recognize" the students' achievements and "doing" capacity. Symbolic recognition may take the form of a physical "Reward" for each of the participants. The article proposes several tools and devices to assess the skills acquired by students, including oral presentations, feedback on experiences and self-assessments.

EXPECTED RESULTS

Towards a typical course of a service design course? This article tries to produce a conceptual framework for the formalization and supervision of crowdsourcing projects mobilized during service design teaching, While the authors acknowledge that each service design seminar is unique and adapts to the specific needs of students and clients, they also identify a few commonalities that can serve as a basis for a typical workflow.

This typical process generally includes an initial sequence of introduction to the key concepts of service design, followed by a sequence of discovery of design tools and methods. Then, students work on a concrete project, often in collaboration with a real client. Finally, the project is presented and evaluated, and students receive feedback on their skills and achievements based on a skills grid and an associated lexicon.

Teaching service design is a complex and challenging field that requires deep thinking about teaching methods and tools. This article offers an analysis focused on the design process of a service design course, highlighting the different key steps and challenges encountered.

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The impact of Creative-Cultural Activities on workers' performance

1 Nov
14:15
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OBJECTIVES

The role of Creative-Cultural Activities - CCAs (such as museums, performing arts, etc.) for the well-being and health (both physical and mental) of individuals is part of a global debate. In 2019, the World Health Organization clearly stated its value for the first time with the largest report ever produced on the topic [1]. Then, the COVID-19 pandemic highlighted the fragilities of every "system" (i.e., organization and person), confirming the crucial role of CCAs in promoting the empowerment of people and communities, stimulating resilience, and helping preserve and improve mental health [2].

This has generated a growing amount of attention on these topics from decision- and policy- makers, with growing impulses also from the research side [3]. In this vein, the EU Work Plan for Culture 2023–2026 stresses the importance of strengthening participation in CCAs and includes them in health policies, especially regarding mental health. In fact, the participation of individuals in CCAs can generate positive social impacts that may spill over into positive economic impacts through, for example, the reduction of health costs for public spending and the development of new services and professions [4; 5; 6]. Despite this, it is worth noting the worrying decline in European population participation in CCAs [7].

Furthermore, awareness of CCA's beneficial effects is necessary not only at the policymaker level but also at the organizational level. In other words, the effects of the ongoing crises and the transformations in the labor market on the well-being of workers (in terms of fears, anxieties, and discomforts) indicate the need for an active role of companies in ensuring inclusive environments, culture, and organizational climate. This can also be done through CCAs, which can contribute to motivation and relationships and combat burnout, positively impacting productivity and performance [8].

Based on the above, expanding our knowledge on how CCAs can beneficially impact the mental well-being of workers and their performance seems to deserve further investigation. This is precisely the aim of this research.

Literature review

In recent decades, studies on the importance of CCAs have grown exponentially, also addressing their impacts on (physical and/or mental) well-being [11; 12] and performance [8]. At the same time, it is worth noting that other elements, such as work engagement and recovery experiences, may play a role in the above-mentioned relationships [13; 14].

To date, however, no study seems to have combined all these aspects in an integrated manner – nor investigated the relationships between them – to provide

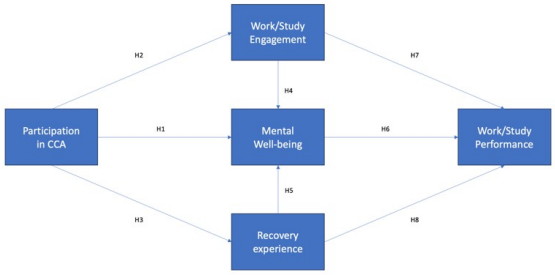

Figure 5: Proposed conceptual model.

a more comprehensive overview of how CCAs can contribute to obtaining better performance through i) mental well-being, ii) work engagement, and iii) recovery experiences. Thus, this research provides a unique theoretical framework based on eight hypotheses (see Figure 1) combining all the above-mentioned constructs: participation in CCAs, mental well-being, work engagement, recovery experiences, and work performance.

Engaging in CCAs can significantly enhance mental well-being by providing a therapeutic outlet for self-expression and stress relief [15; 16]. Participation in activities such as art, music, or writing allows individuals to channel emotions, reduce anxiety, and foster a sense of accomplishment [1; 17; 18]. Creative endeavors often serve as mindfulness, promoting relaxation and overall mental resilience [19; 20].

H1: Participating in CCAs has a positive impact on mental well-being.

Regarding work engagement, involvement in CCAs can be a powerful catalyst for improved focus and productivity. These activities stimulate cognitive abilities, encourage innovative thinking, and enhance problem-solving skills [21]. Integrating creative pursuits into daily routines can prevent burnout, reignite passion for tasks, and create a positive work-life balance [22].

H2: Participating in CCAs has a positive impact on work engagement.

For recovery experiences, CCAs play a crucial role in healing and rehabilitation. Whether recovering from physical or mental health challenges, participating in artistic and cultural pursuits fosters a sense of agency and empowerment [13].

H3: Participating in CCAs has a positive impact on recovery experiences.

Active work engagement is instrumental in promoting positive mental well-being [23]. It provides a sense of purpose, accomplishment, and structure, contributing to self-esteem and overall life satisfaction [24]. Meaningful engagement in professional pursuits fosters a sense of identity, social connection, and mastery, crucial elements for mental well-being [25; 26].

H4: Work/Study engagement has a positive impact on mental well-being.

Recovery experiences play a vital role in mental well-being by offering a pathway to healing and resilience [27]. Engaging in activities that promote recovery, whether from physical or mental challenges, fosters a sense of control, empowerment, and hope. These experiences contribute to rebuilding confidence, self-esteem, and a positive outlook, essential for overall mental well-being. The recovery process not only addresses specific issues but also strengthens an individual's capacity to navigate life's challenges, leading to a more robust and balanced mental state.

H5: Recovery experiences have a positive impact on mental well-being.

An interdependent relationship exists between mental well-being, work engagement, and recovery experiences, collectively shaping work performance. In fact, a positive mental state serves as a cornerstone for optimal performance, fostering concentration, creativity, and resilience. When individuals experience mental well-being, they are more likely to approach tasks with clarity, problem-solving acumen, and sustained focus [28].

H6: Mental well-being has a positive impact on work performance.

Also, work engagement acts as a catalyst for heightened performance. Engaged individuals connect strongly to their tasks, deriving a sense of purpose and satisfaction [29]. This engagement increases motivation, improved concentration, and a willingness to invest effort in achieving goals, enhancing overall performance [30].

H7: Work engagement has a positive impact on work performance.

Furthermore, recovery experiences also play a pivotal role in maintaining sustainable work performance, allowing for the restoration of energy levels, and preventing burnout and chronic fatigue [31]. In other words, engaging in recovery experiences contributes to stress reduction and enables individuals to approach work with renewed vigor [32].

H8: Recovery experiences have a positive impact on work performance.

METHODOLOGY

An online questionnaire has been developed and will be administered. Participants will be contacted via the Authors' personal networks, Twitter®, and Facebook®. Participants can be any type of workers (employee, self-employed, entrepreneur, full-time, part-time).

The questionnaire, built after ad hoc pilot tests and expert consultations, is structured into the following six main sections:

1. **Demographic information**: Includes details such as gender, age, educational level, etc.

2. **Participation in CCAs (independent variables)**: According to [13], we will distinguish between passive and active participation. 'Passive' participation refers to attending creative and cultural events as an audience or spectator (e.g., listening to music, watching theatre, movies, or dance performances, and visiting art exhibitions), while 'active' participation involves art-making or creative expression (e.g., writing, musical composition, producing visual arts, acting, and dancing). The frequency of both types of activities was measured by the question: "How many times - in the last 12 months - have you participated as an audience/spectator in the following activities?"; responses were given on a Likert scale from 1 ('never') to 6 ('daily') [13].

3. **Recovery experience (dependent variable)**: Measured by the Recovery Experience Questionnaire [33; 34], which consists of a 16-item self-reported scale evaluating four experiences: i) psychological detachment, ii) relaxation, iii) mastery, and iv) control. Participants responded to items with respect to

their off-job time using a Likert scale from 1 (strongly agree) to 5 (strongly disagree).

4. **Work engagement (dependent variable)**: Assessed by the Utrecht Work Engagement Scale (UWES) [35], which includes a 17-item self-reported scale with three subscales measuring i) vigour, ii) dedication, and iii) absorption. Items are rated on a seven-point scale from 0 ('never') to 6 ('almost every day/always'). For an overall score, subscale scores are averaged.

5. **Mental well-being (dependent variable)**: Measured by the Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS) with a license for non-commercial use, consisting of 14 items rated on a five-point scale from 0 ('none of the time') to 5 ('all of the time').

6. **Work performance (dependent variable)**: Assessed by the Maslach Burnout Inventory [37], consisting of 22 items focusing on emotional exhaustion, depersonalization, and personal/professional realization.

Data will be analyzed using analysis of variance (ANOVA), covariance (ANCOVA), and Chi-square tests. In addition, Spearman correlations will be calculated for the study variables, whilst the SPSS program will perform statistical analyses.

EXPECTED RESULTS

This research is an ongoing one; thus, the results are still not available but we have already collected 305 responses to the questionnaire. However, based on the hypotheses and methodology delineated, the expected results aim to provide comprehensive insights into the potential benefits of participation in CCAs for individual well-being and performance in work contexts. In particular, the results will provide interesting insight according to the following elements:

- **The Impact of CCAs on Mental Well-being**: Providing evidence on how participating in CCAs positively affects mental well-being, considering stress relief, self-expression, and overall emotional resilience.

- **The Influence of CCAs on Work Engagement**: Providing evidence on how engagement in CCAs acts as a catalyst for improved focus, productivity, and the prevention of burnout, contributing to a positive work-life balance.

- **The Role of CCAs in Recovery Experiences**: Providing evidence on the contribution of CCAs to healing and rehabilitation, particularly in recovering from mental health challenges, examining empowerment and agency.

- **The Relationship Between Work Engagement and Mental Well-being**: Providing evidence on how work engagement positively influences mental well-being, considering factors such as a sense of purpose, accomplishment, and overall life satisfaction.

- **The Impact of Recovery Experiences on Mental Well-being**: Providing evidence on how engaging in recovery experiences contributes to mental well-being by offering pathways to healing, resilience, and a more balanced mental state.

- **The Dynamics of Mental Well-being, Work Engagement, and Recovery Experiences**: Providing evidence on the interdependence between these elements and how they collectively shape work performance.

These findings will be useful to inform policymakers, practitioners, and organizations about the importance of promoting CCAs to support individual and societal welfare.

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Takka

Behavioral changes resulting from artistic participative processes: Assessing the quality of participation through a toolkit co-constructed in Stronger Peripheries project

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OBJECTIVES:

Participatory processes in art have been growing and diversifying broadly in recent years and have been subject to considerable debates (Bourriaud, 1998; Bishop, 2012; Butler, 2015; Matarazzo, 2019; Bonet et al, 2018; Bonet and Negrier, 2018; Dupin-Meynard and Négrier, 2020). However, cultural institutions have been confronted with the challenge of assessing and improving the quality of those participatory processes and to reflect more broadly on their potential, their difficulties and lessons that can be drawn for their action and for inspiring policy making. More specifically, it will be also important to explore the behavioural impacts of participatory art and creative participative processes and the ways cultural agents, cultural audiences and communities face the new challenges these bring in terms of innovation, social cohesion, physical and psychological well-being, education, environment, individual and social identities, among many other aspects that frame social and individual comportments.

The co-construction of a toolkit to assess participation quality was included as part of the Stronger Peripheries project, and was process coordinated by the research team which delivers this presentation.

"Stronger Peripheries: a Southern Coalition" is a large-scale cooperation project co-funded by the Creative Europe Programme of the European Union, which is being developed, between 2020-2024, through an informal network that brings together cultural organisations and research units from ten European countries in southern and eastern Europe. It assumes itself as a space for dialogue, collaboration and joint learning, questioning and discussing the notions of "south" and "peripheries" through various collaborative artistic strategies. It is a project that involves fourteen partners (eleven cultural organizations or networks and three universities, in addition to a fourth research unit, indirectly associated with the project) from ten countries in Southern Europe and the Balkans. These have very diverse profiles, including cooperation and cultural programming networks in the territories, theatres and cultural venues, festivals, spaces for artistic creation and universities. Being a project that combines the components of artistic creation and research, it aims, in its matrix, to question the concepts of "south" and "peripheries" (assumed more as cultural concepts than purely geographical), seeing culture and artistic practices as ways to promote the negotiation of collective identities and create dynamics of emancipation and opportunities for empowerment of communities that question the dynamics of power in the cultural field and dichotomies between north and south, or between center(s) and periphery(s).

The artistic creation program (carried out from "Tandems" that cross the various partners – and their communities – in the process of territorially anchored artistic

creation) is developed under 6 transversal topics of reflection and debate, which reflect social and political challenges prevalent in the "peripheral south": "Work and Happiness", "Connecting Dots", "Daily Bread", "Having a Voice", "Bridging the Gap" and "Right to the Future". These are themes that allow, on the one hand, a mediation strategy in the dialogue with local communities, being interpreted and materialized locally through the relationship between artists, participants and audiences, and on the other hand, they are key aspects for the more academic and scientific discussion (and public debate with the artistic communities in the various countries involved) carried out throughout the project.

In the scope of this project, a toolkit to assess the quality of participation was developed, in a co-construction process with the involvement of both "artistic" and "research" partners in its development.

In other recent text (Costa, Lopes, Dupin-Meynard and Perestrelo, 2024) we had the opportunity to present the process undertaken to develop this toolkit and the results achieved with it. That is, on the one hand, to present the toolkit that will be available for people's use beyond the scope of this project (by both the 11 cultural organizations and networks involved in the project and by other cultural agents in general); and on the other hand, to reflect on the specific results coming out of the application of this toolkit to the activities within the project itself

Drawing upon that work, in this presentation we aim to explore specifically the behavioural impacts of cultural participative processes, through the analysis of the results of the application of the toolkit to this project's activities at the lens of the potential impacts it had in the behaviours of the diverse stakeholders involved.

METHODOLOGY:

The toolkit includes a set of grids to collect and systematize information that is gathered through interviews, focus groups and direct observation during the development of the cultural production (from research and creative residencies to final presentations), with the artists, the communities and the cultural institutions involved. In the basis of the different grids for collecting this information is a set of four analytical dimensions (and several subdimensions) regarding the impacts expected from this participatory process for:

- The participants of the community(ies) involved
- The cultural institutions (and their relations with audiences)
- The artists and the creative processes
- The cultural policies

The toolkit has been applied from mid 2022 to spring 2024, in the several tandems. In this paper we analyse the perceived impacts expressed by the different project stakeholders (institution partners, artists, participants in hosting communities) for these 4 dimensions, extracting the relevant aspects regarding their behavioural change that can be inferred by the answers that were registered in the sever all grids and systematized in the several project assessment frames. To do this, we

analyse the Project Assessment Frameworks for each Tandem, to outline the impacts of these processes in the four domains considered (the artists, the cultural institutions, the participant communities, the public policies).

EXPECTED RESULTS

Reading the results from these multiple angles brings a complementary global perspective, which helps to shed a light on the state of the art of participative practices, in all their diversity. We grasp the specific components of the 4 dimensions that imply behavioural change and systematize general challenges and conclusions on this.

The paper is organized as follows. In a first moment the objectives and the methodology of co-construction of the toolkit are panoramically explained, as well as the frame in which this process occurred: the stronger peripheries project. Secondly, a brief presentation of the toolkit itself and its components is made as well as the way it was operationalized in the scope of project Stronger Peripheries. After that, an analysis of the results on the quality of participatory processes brought by its application within this project are putted forward, through the lens of the "behavioural change" induced in each of the four dimensions considered. A concluding note gives notice of some challenges for the exploration of behavioural aspects in culture/creative processes in future applications of this toolkit in other contexts.

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1 Nov
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Takka

Capabilities of RTOs in multi-faceted innovation

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OBJECTIVES

Current sustainability challenges pose pressure for socio-technical system to transform and build new capabilities to innovate. Also, the traditional technology actors like research organisations need to diversify their innovation activity from pure technological to wider societal understanding to contribute socio-technical transitions. We approach multi-faceted innovation from the perspective of capability, which have received a strong position in several streams of research, such as in strategic management (e.g. Amit & Schoemaker 1993; Eisenhardt & Martin 2000) and studies of innovation (e.g. Henderson & Clark 1990; Weerawardena & Mavondo 2011). These steams highlight organisational issues and learning matters as important and necessary for the development of innovation capability. Albeit the rich literature on capabilities some have criticized that the construct is too abstract. To address some of this criticism, for example Eggers and Kaplan (2103) introduced the behavioural side of the construct, by concentrating on how capabilities form while the traditional view concentrates on how capabilities lead to differentiated performance. The capability to innovate is a key to organisation remaining competitive that has led to scholars and managers to understand how organisations renew themselves in response to changes in the environment or the strategic need to be innovative.

Innovation capabilities have been vastly explored in firms (e.g. Olsson et al. 2010; Platfaut et al. 2015), and in some extent in universities (e.g. Numprasertchai et al. 2024), and often innovation capability research focuses on inter-organisational networks (e.g. Olsson et al. 2010). However, one of the central R&D&I actors, namely Research and Technology Organisation (RTO) has been less explored. RTOs are an interesting actor given their multifaceted research and innovation focus compared to firms, which can often be smaller innovation units with focused resources.

METHODOLOGY

This paper is the first to investigate how multi-faceted innovation is manifested in an RTO. We base our analysis on a survey of an organisational innovation culture which was administered in March-April in 2024 at VTT Technical Research Centre of Finland. Response rate was 19% (459 responses from total of 2355 employees).

EXPECTED RESULTS

The results show that VTT's innovation activity is versatile, and although technological innovation is emphasised, other forms of innovation are also prevalent. For example, 37% of respondents focus on service innovation, and 30% on social and 28 % on organisational innovation. However, employees engage mostly in one type of innovation, e.g., on technological innovation but not organisational innovation, that

suggest that individuals' innovation capabilities rely on their education and work profile rather than versatile competences on different innovation domains.

According to the results, multi-faceted innovation capabilities are built on internal and external collaboration which is one of the organisational strengths by several indicators of the survey. Even though interdisciplinary collaboration is seen extremely important for innovating, combining of different knowledge is evaluated difficult. In combining knowledge, the different working styles are not seen problematic given that only 33% of respondents say different styles to prevent collaboration, but 48% of respondents evaluate differing styles of work beneficial. However, the organisational structures can prevent innovation capabilities to accumulate and institutionalise. In our survey, 44% of respondents indicate that organisational structures prevent interdisciplinary collaboration.

This study is research in progress, and it will proceed to explore data further to understand how different innovation forms (i.e. technological, organisational, service and social) affect formation of multi-faceted innovation capability.

Expected managerial implication relate to improved managerial understanding of multifaceted innovation capability, namely how to organise internal knowledge exchange, collaboration and learning, in a changing environment of an RTO.

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Anticipatory governance for building more future-aware industrial renewal and sustainable societies

1 Nov
14:15
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OBJECTIVES

Our objective is to propose a framework for future-oriented leadership and governance in building more sustainable local communities, with the help of collaborative and humble governance model. We will present a case of service development for industrial renewal and regional development, and the utilisation of anticipatory and future-oriented approaches in co-creating future visions in medium-sized cities, facing the twin challenge (Kivimaa et al 2021) of transition and triple or quadruple (Cavallini et al. 2016) challenge of sustainable development in a complex environment, faced with the pressures and necessities of industrial renewal, regional development, and bottom-up endogenous innovation. Our key research question is: can the anticipatory and humble governance approach help us in replacing a growth-oriented leadership and management structures for urban development in a local context with more renewal-oriented approaches, and if so, what kind of anticipatory governance services and management practice is required?

One of our objectives is to explore the possibility of utilising future foresight and anticipation as a means of broadening the agenda; of shifting focus from a more technocratically motivated and strictly growth-oriented regional development agenda to a more endogenous and renewal-oriented one, better in tune with the sustainability transition, and potentially also better at incorporating scenario development activities and service design thinking as a means of shifting from future-proof strategies to services at the disposal of such strategies, working towards a (commonly articulated) desirable future.

METHODOLOGY

We propose a framework of anticipatory governance, where a system of governing complex processes within a spatial context relies on foresight (including "future radar" as a specific method) and 'futuring' (a more general approach to building capacities for futures-awareness; Cetron et al. 2005) to decrease risk, manage uncertainty and disruption, as well as develop effective methods to manage ecosystems and networks, when faced with the complexities of regional development and renewal.

One of the key methods used for this work has been FUTURE RADAR, which is a strategic foresight methodology developed by VTT (Vtt 2024). The main features of Future Radar include Identifying Growth Opportunities: Future Radar uses a wide range of data sources to create a visual radar view of future opportunities. This includes identifying emerging technologies and business models ; Supporting Strategic Planning, (e.g. Future Radar can be utilised to support strategic planning,

as well as product and service development) ; Clarifying Customer Insights (with the help of 'Future Customer', focussing on better understanding future customer behaviour and turning those insights into business decisions and growth ; as well as Futures Design (combining business and design thinking to create innovative solutions for future challenges). Overall, the objective of Future Radar methodology is to helps organisations anticipate trends, adapt to change, and make informed decisions in an ever-evolving policy landscape.

Another key method is anticipatory governance design, where future orientation is integrated into the entire policy cycle, ranging from planning to implementing and promoting a more future-alert public administration and policy, utilising the whole range and diversity of methods of futures work and foresight, involving network management and the means and methods associated with innovative public management (Lähteenmäki-Smith et al. 2020). Incorporated into this approach is also "humble governance", with its core elements such as trust (as opposed to purposeful manipulation of distrust), long-term perspective (as opposed to reactive and populistic short-termism), phenomenon-based policy-making (as opposed to sector-siloed policy-making) and constant collective and dialogue-based learning (as opposed to intellectual obtuseness and reliance on technical expertise) (Annala et al. 2021).

Our presentation will propose a management framework for anticipatory governance in medium-sized cities, faced in particular with the centralising and exogenously determined tendencies of regional and urban development and innovation, while also entertaining the possibility of counter-currents of decentralisation and endogenous development.

EXPECTED RESULTS

This possibility of counter-currents and shifts for more anticipatory governance in local and regional settings requires a determined and goal-oriented action, collective sense-making and leadership for defining shared visions of the future, and service portfolio that is capable of supporting such change. The governance elements addressed in our paper include the need for collaborative and participatory processes and structural support (in the form of systems) for exploring, envisioning, direction setting, developing strategy and experimentation for a region. The results will provide a framework to be utilised in similar cases of medium-sized urban centres, where anticipatory governance can provide a purposefully developed organisational capacity to meet the challenges of today and tomorrow, when faced with challenges of centralisation, co-creation, and industrial renewal, leading to capacity of more pro-active decisions, agile actions and strategic choices, but only if the governance structures are altered accordingly.

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Bridging the Gap between Employers and Employees with Disabilities in Japan: Insights from Dual Perspective Interviews

1 Nov
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OBJECTIVES

A growing global awareness of inclusion is leading to increased employment of the minority such as people with disabilities, and enhanced support for them through policies and initiatives all over the world. This is also aligned with one of the Sustainable Development Goals (SDGs) - "Goal 10: Reduce Inequality". Apart from general social trends, research also indicates that inclusive workplaces, which leverage diverse perspectives and foster open communication, significantly enhance a company's innovation capabilities, resulting in more frequent and higher-quality outcomes [1]. Employees with disabilities, in particular, offer unique insights that drive improvements in products, services, and customer service delivery [2]. Consequently, fostering inclusion and maintaining a holistic ecosystem that benefits both companies and minority groups is receiving heightened attention, as it not only promotes equality but also boosts organizational innovation and performance.

In Japan, however, significant challenges remain in achieving "Goal 10: Reduce Inequality", as indicated by the Sustainable Development Report [3]. For instance, the statutory employment rate of people with disabilities is set at 2.5% in 2024, significantly lower compared to other countries [4]. Despite policy changes taking place over the past decade, there has been insufficient progress in increasing the employment rate for people with disabilities [5]. Several surveys have investigated the reasons behind this stagnation, revealing that a significant majority of companies feel that they face considerable challenges in employing people with disabilities [6]. These challenges include identifying appropriate job roles, matching tasks with the skills and abilities of disabled employees, and understanding the impact on existing staff. Additionally, companies report difficulties in communication and human relations, and workplace equipment [7]. Although these surveys highlight the problems, they often have critical limitations by focusing on the problems companies face rather than exploring the underlying causes. Furthermore, these surveys predominantly reflect the opinions of companies, lacking insights from disabled individuals themselves, which may result in incomplete or biased findings.

More consideration is needed in analyzing issues affecting disabled employees, as societal preconceptions and affirmative actions often do not align with their actual needs and preferences in the workplace. As Dr. Nakamura, founder of the social welfare organization "Taiyo no Ie" (Japan Sun Industry, JSI), emphasized with the motto "No Charity, but a Chance!", providing meaningful opportunities rather than mere protection is crucial for the well-being and integration of people with disabilities in society [8]. This approach underscores the importance of understanding and addressing the real challenges and aspirations of disabled individuals to create a truly inclusive and supportive work environment.

Therefore, this study aims to investigate whether the considerations made by companies for their disabled employees align with the actual needs and preferences of these employees. Interviewing both employers and disabled employees is crucial to gain a comprehensive understanding of the current landscape. While employers can provide insights into the challenges they face and the measures they implement, only disabled employees can accurately convey their experiences, needs, and aspirations. This dual perspective is essential to uncover any discrepancies between company policies and the real-world experiences of disabled employees. By addressing these gaps, the research seeks to provide actionable insights that can help foster a truly inclusive and supportive workplace, ultimately promoting equality and enhancing organizational innovation and performance.

METHODOLOGY

The study will be conducted in collaboration with Japan Sun Industry (JSI), a leading organization in creating employment opportunities for people with disabilities, established in 1965. Interviews will take place in Beppu, Oita, Japan, around mid-September 2024, involving a sample size of approximately 20-30 participants. The target respondents include employers or managers from companies that employ people with disabilities, employees with recognized disabilities, and employees without recognized disabilities who work alongside them.

To ensure a balanced and representative sample, a combination of Snowball Sampling and Stratified Sampling will be implemented. The interviews will focus on three main areas: the effectiveness of job accommodations and career development opportunities for disabled employees, the integration of disabled employees into team dynamics and their overall well-being, and the impact of existing policies and feedback mechanisms on workplace satisfaction.

EXPECTED RESULTS

The study is expected to reveal a detailed understanding of the existing gaps in inclusive employment practices within Japanese companies. By capturing the dual perspectives of employers and employees with disabilities, the research will uncover the root causes of employment challenges from a relatively subjective perspective, which have been inadequately addressed by previous surveys. These findings will lead to actionable recommendations for aligning employer provisions with employee needs, fostering a more inclusive and supportive work environment. Additionally, this research will contribute significantly to the broader discourse on creating sustainable and inclusive workplace ecosystems, providing a foundation for future studies, including the application of game theory to analyze and optimize strategies in complex employment scenarios.

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Territorial cooperation in the service of destigmatization: the case of a third place dedicated to victims of incest

1 Nov
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Poli

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OBJECTIVES

Incest is a social subject that is still taboo even if it now benefits from a certain media coverage and better consideration by public authorities. If victims are encouraged to speak, their care after speaking proves difficult, both due to the lack of infrastructure and the difficult coordination between multiple and heterogeneous actors. The care of victims of incest requires the intervention of the justice system but also of health and medico-social establishments, in addition to social care since the family most of the time no longer represents support.

Like all taboo subjects, prevention and raising awareness among the general public are difficult. However, they are essential to enable the social and even professional integration of victims of incest.

Third places are places conducive to the emergence of a common cause and legitimacy to act (Grenier et al., 2020). They are thus understood as spaces "where temporary proximities are built (Torre, 2019) and where specific relational assets are created" (Suire, Vicente, 2015, p. 17). They are physical locales and normative contexts conducive to (or explicitly designed for) social interaction and sociality (Williams and Hipp, 2019). Even if in their most common form of coworking spaces, this social interaction is intended for individuals who, for some, enjoy significant social capital, they can take advantage of this capacity in the service of individuals who are more deprived as evidenced by the emergence of third places with a clear social aim (Téhel et al., 2023; Veeroja et al., 2024).

Furthermore, their territorial roots allow them to be at the heart of unprecedented territorial cooperation by bringing together heterogeneous actors, both public and private. These unique cooperations make it possible to develop a specific service for the user.

This research aims to understand how a third place manages to promote territorial cooperation on a taboo subject by bringing together different actors in the territory, including actors not directly concerned by the problem of incest, then to evaluate the effect of this cooperation on the care of victims of incest.

METHODOLOGY

The research is based on a case study carried out in a third place dedicated to the care of victims of incest in France. This third place combines training activities, victim monitoring and activities aimed at the general public for awareness purposes. To do this, it has spaces that allow for reception, training and a restaurant. The survey method combines non-participant observation and interviews with multiple stakeholders over a period from November 2022 to June 2024. In addition to two in-depth interviews with the founder of the place, we attended an open day, the

inauguration of the restaurant and a day of presentation of the territory's partners. On each occasion we were able to interview different stakeholders: employees, local residents, elected officials, representatives of social and medico-social structures and other local partners. We also collected secondary data, in particular from the website and social networks.

The interviews and documents were subject to open coding.

EXPECTED RESULTS

Our preliminary results first show the essential role of the founder of the place in transposing her personal network into the first partners of the place and then in gradually enlisting new partners. This gradual expansion of the network owes a lot to the governance of the third place, a cooperative which conducts in-depth reflection on the best way to integrate stakeholders. Decision-making methods are regularly discussed between partners in order to adapt to different changes in the scale of the project.

In addition to governance, the third place deploys a subtle communication strategy which makes it possible, without hiding the purpose of the place, to attract people not concerned by consensual activities: sensory workshops, catering activities, catering, concerts. In addition to their essential aspect in ensuring the economic model of the place, these activities are opportunities to raise awareness among the general public and ensure the creation of social bonds with victims of incest who are never identified as such.

This mix of democratic governance and adapted communication makes it possible to create new cooperations which go beyond the usual territorial cooperations in the medico-social sector by integrating actors whose usual activity is far from social or medico-social.

This research contributes to the literature on third places and territorial cooperation by shedding light on the use of these spaces to address sensitive social issues.

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Personal Health vs. Collective Safety: How COVID-19 Reshaped Servicescape Behavior

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OBJECTIVES

The global pandemic caused by the SARS-CoV-2 virus, commonly referred to as the novel coronavirus or COVID-19, has profoundly altered the way in which we live, work and interact with the world around us. Indeed, the pandemic has led to significant alterations and reductions in behaviors and interactions between individuals. Public and service spaces are no exception, with observed decreases in their usage.

Although the immediate threat posed by the recent pandemic seems to be fading, the long-term psychological effects and heightened awareness of the risks of infection persist and continue to influence the use of servicescapes.

It can be observed that consumers have increasingly adopted online shopping (Ma, 2023; Li, 2023) and have placed a greater emphasis on hygiene aspects in the physical world (Bhattacharyya, 2021). Consequently, it becomes imperative for service companies to gain a better understanding of the psychological changes induced by the COVID-19 pandemic in the context of the post-pandemic transition phase and the abrupt shifts that it has brought about. This will enable service providers to define appropriate management strategies and exploit the relational and social network potential of servicescapes.

We posit that the psychological effects of the pandemic, notably the fear of contracting infections, have a direct impact on the utilization or avoidance of service spaces. Furthermore, we hypothesize that these effects are mediated by personal and interpersonal anxiety related to illness in general. Therefore, we propose a model integrating individual factors influenced by the COVID-19 pandemic, namely perceptual and psychological factors. These factors are anticipated to influence service space appropriation or avoidance behaviors and, consequently, to inform appropriate management strategies. Understanding these dynamics is critical for adopting service environments to meet the evolving expectations and concerns of consumers, ensuring that businesses can continue to operate effectively in the changing landscape.

METHODOLOGY

Data were collected via an online survey, which was administered on a voluntary basis in the canton of Fribourg, Switzerland. The sample consisted of 425 participants.

To test our hypotheses, multiple regression models were used. Mediation analyses were performed using the bootstrap method with 5000 replicate samples to estimate confidence intervals for indirect effects. This procedure was used to check the significance of the mediators included in the analyses.

EXPECTED RESULTS

Our results demonstrate a direct correlation between fear of infection and avoidance of public places, indicating that the more the COVID-19 pandemic contributed to fear of infection, the greater the avoidance behaviors observed in crowded places such as public transport, queues and other public spaces.

These findings are in alignment with prior studies that have shown that individuals who perceive greater pandemic-related risks are more likely to engage in behaviors aimed at reducing exposure (e.g., Leppin & Aro, 2009; Bish & Michie, 2010). Our research demonstrates that these behaviors persist even after the pandemic has ended. The results of the mediation analysis demonstrate that health anxiety plays a partial mediating role in the avoidance behavior. More specifically, concerns about infection indirectly affect avoidance through personal health anxiety. This mediation highlights a crucial psychological mechanism in which worries about personal illness amplify avoidance behaviors. This finding is consistent with Protection Motivation Theory, which suggests that an individual's appraisal of a threat and their appraisal of a coping strategy determine the extent to which they engage in protective behaviors (Rogers, 1975).

In contrast, anxiety about the health of others has no significant mediating effect on the relationship between fear of infection and avoidance behaviors. The non-significant indirect effect indicates that, while people may be concerned about the health of others, this concern does not contribute significantly to avoidance of public spaces. This distinction suggests that effective interventions would be more beneficial if they were to focus more on personal health concerns than on generalized concerns for the well-being of others in order to reduce avoidance behaviors.

The global health emergency of the coronavirus (COVID-19) has had profound and long-lasting impacts on the psychological well-being of individuals, manifesting as a range of psychiatric illnesses including post-traumatic stress disorder (PTSD), depression, anxiety disorders, and behavioral issues (Kumari, 2020). Our findings align with this perspective, revealing how these psychological responses, including personal health anxieties, influence the avoidance of public spaces. This study contributes to a growing body of literature on behavioral responses to the global pandemic of 2020. Previous research has indicated that pandemics elicit strong emotional responses, including fear and anxiety, which significantly alter public behavior (Balkhi, 2020; Parlapani, et al., 2020). Our findings contribute to this literature by demonstrating the differential impact of personal and interpersonal health anxieties on public avoidance behavior. In practical terms, this information can inform the strategies of companies providing public spaces, as well as public health strategies.

From an operational standpoint, the aforementioned information can serve as an input for the strategic planning of businesses that provide public spaces, as well as for the formulation of public health policies. By focusing interventions on alleviating personal health concerns, it would be possible to more effectively reduce avoidance behaviors and encourage a return to the normal use of public spaces. This could be achieved through the dissemination of information by public health authorities that is both clear and re-assuring in relation to the actual risks of infection and the efficacy of personal protection measures.

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Empowering citizens and marginalized communities for a sustainable society; leveraging the need for collaborative platforms and Education & Training.

1 Nov
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OBJECTIVES:

This study examines the influence of empowering marginalized communities of society by facilitating with multiple collaborative technological platforms that involve stakeholders' opinion to address the needs of society. The goal of current study is to ascertain through extant literature, how entrepreneurial mindset, aptitude, and aspirations among female transitional entrepreneurs are impacted by collaborative platforms and entrepreneurship education and training (Hartmann, 2022). This paper's main objectives are to highlight the effects of collaborative platforms as well as education and training on marginalized communities by emphasizing the synergy concept. entrepreneurs, strategies to operate in the business world and to compile some of the sporadic research on the crucial subject of female transitional entrepreneurship (Bruton, 2015). This study complements literature by focusing specifically on transitional women. In underprivileged communities, women are subject to social pressure, an uncourteous environment, disregard in the decision-making process(Mumtaz et al., 2023; Sharma et al., 2012). Focusing on the economic potential of women and maintaining the importance of entrepreneurship are the keys to equitable and sustainable industrial progress in emerging nations.(Mumtaz et al., 2023).

METHODOLOGY

According to previously published research from scopus and web of science, marginalized communities have become more crucial in recent years in fostering the expansion and advancement of the national economy, and women entrepreneurs should receive a great deal of education and training (Pidduck, 2021) (Lucas, 2023) (Javadian, 2012). This study is centred on a review of a large body of literature that suggests that marginalized communities are one of the key factors influencing the nation's industrial growth and that women entrepreneurs can improve their technical and knowledgeable capacities through specialised entrepreneurial education and training (EET) by providing them the information, abilities, and perspective they need to seize opportunities and overcome obstacles at every phase of their entrepreneurial journey. (Spender, 2017). This narrative review is carried out by compiling, evaluating, and summarising journal articles from scopus and web of science on marginalized communities, collaborative platforms for sustainable socity and female transitional entrepreneurship (Morris, 2022) (Patzelt, 2014) (Moghaddam K. T., 2017).

The review highlights how important it is for marginalized communities to receive education and training in order to enable them to launch their business by developing innovative ideas and expressing the vision statement in addition to running, and

expanding their own companies via risk management and financial management at each phase business lifecycle simultaneously focusing in relationship building and reputation management (Stam, 2011).

EXPECTED RESULTS:

Preliminary results of this study showed that marginalized communities are empowered by providing them collaborative platforms as well as education and training because it gives them first, the opportunity to benefit from technological advancement and infuse it into their business projects, and then the motivational support they need, namely self-assurance to follow their company ideas and execute them accordingly (Xu, "Jump to platform faster? Gender, institutional change, and preentrant entrepreneurial attempt",, 2023).

The public administration in marginalized communities should work diligently to increase and expedite women's economic engagement. Expected results can describe whether there is a significant association between empowering marginalized communities and social sustainability, indicating a relationship between empowerment of marginalized communities and economic success. Despite the contribution that marginalized communities make to the economy and job opportunities, society frequently downplays and undervalues the importance of marginalized groups (Roomi & Harrison, 2010).

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Vulnerability as a catalyst for entrepreneurship and innovation

1 Nov
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OBJECTIVES

Vulnerability is a polysemous concept. For the last few years, it describes a " negative situation in relation to an entire social group or society' (Mazurek, 2020). Vulnerability is often limited to monetary (Dercon, 2006) and health aspects. In a study of environmental risks, Beccera (2012) found twenty-five different definitions of vulnerability. When applied to the human sciences, the notion covers categories of populations as diverse as single-parent families, the unemployed at the end of their entitlement, overworked executives, and people with disabilities... The feeling of powerlessness, the mismatch in relationships, fragility and loneliness are commonly mentioned by employees in the context of their work. Entrepreneurs are also often alone in their decision-making. Volunteers can find themselves over-committed and morally unable to reduce their involvement... According to Martha Albertson Fineman (2011), vulnerability is universal and inherent to the human condition, rather than limited to specific groups or moments of crisis. So even the most autonomous individuals are vulnerable to some degree. Vulnerability also has collective consequences, in a company or any organization, it can generate 'damage to the continuity of the organization's activities' (Foureault, Palard, 2022).

The transformation of our economy and social acceleration (technical acceleration, acceleration of social change and acceleration of the pace of life) Rosa, 2010 contribute to the development of these vulnerabilities. These vulnerabilities, whether individual or collective, can lead some actors to take action to overcome them. Our thesis is that these vulnerabilities can become vectors of change, and lead certain individuals or groups to undertake or innovate.

We are particularly interested in service activities. More than 75% of VA and employment are linked to services in the majority of developed countries. (OECD, https://data.oecd.org/fr/natincome/valeur-ajoutee-par-activite.htm).

What is the nature of these vulnerabilities? To what extent can a society of service help to limit or, on the contrary, generate vulnerability? What kind of innovations do these vulnerabilities lead to (service innovation, social innovation, new business model, etc.)? What role does collaborative engagement have in the search for solutions? Vulnerability raises a whole series of questions to which economists have done relatively little work to date.

We propose an original approach to vulnerability based on the study of capabilities. Capability consists of "the possibility for individuals to make choices among goods that they consider to be estimable and to actually attain them" (A. Sen, 2001). In this book, the author points out that inequalities between individuals cannot be assessed solely in terms of their resource endowments, but also in terms

of their ability to convert them into real freedoms. The notion of 'capabilities' suggests that poverty should be considered in more than just monetary terms, and that it should be thought of in terms of freedom of action and the ability to act. According to Soulet (2014), 'vulnerability highlights a lack of resources or a lack of framework conditions affecting the individual's ability to cope with a critical context, as well as the ability to seize opportunities or use supports to overcome this ordeal in order to maintain an existence on one's own'. From this perspective, we start from the observation that a good intention is not enough to carry out a good action, since unpredictable circumstances, linked to chance, constantly affect our choices, our actions and the results of our actions (Nussbaum, 1986).

To identify the vulnerabilities in our case studies, we will use Martha Nussbaum's (2011) analytical grid, which builds on A. Sen's work by identifying the ten fundamental human capabilities. We will then look at how vulnerabilities in our service society drive individuals and groups to develop entrepreneurship and innovation. These vulnerabilities and the solutions adopted will be studied at different scales (micro, meso and macro).

METHODOLOGY

This research is based on the analysis of several study fields associated with different types of vulnerability. Our researchers' team have conducted qualitative interviews with various organizations in terms of status, company size, activities and stage of development. Their common objective is a focus on social and/or environmental responsibility.

We can make a distinction between three types of field: the first one reports on the difficulties encountered by actors in the transformation towards new models associated with services, the second one shows how actors associate which each other in the development of social innovations, and the third one focuses on vulnerabilities and their consequences at company level.

We used Nussbaum's (2011) grid to identify the capabilities targeted by each actor and then analyzed and interpreted them.

EXPECTED RESULTS:

This work proposes a study of the concept of vulnerability. It reviews existing definitions of this concept and offers a typology of vulnerability profiles through the capabilities approach.

This approach to vulnerabilities is dynamic. It highlights how individual vulnerability can transform into collective vulnerability and have a positive or negative impact on an organization. Furthermore, vulnerabilities and their consequences are studied at multiple levels (micro/meso/macro scale).

The second contribution of this work is to show how these vulnerabilities are overcome, leading to creativity, either in the form of entrepreneurship or innovation. Entrepreneurial actions have both individual and collective dimensions. Various types of innovation are highlighted, from incremental to radical approaches.

These entrepreneurial processes and innovation approaches raise questions about internal support within a company (creating an enabling environment) or external

support from other structures. This leads to discussions on the concept of compassion, the consequences of these processes for the company (e.g., employer branding), and the extent of these vulnerabilities in a service society. Lastly, the entrepreneur must constantly reconcile an idealistic and a pragmatic approach, in particular between militancy and professionalism. The pursuit of happiness for an individual or a community is not based solely on knowledge of the good, but on the concrete experience of contingent events. The ethical aim of the entrepreneur is fragile insofar as it is not based solely on the contemplation of the good, but also on the active search for external goods, which must take into account beliefs and appearances.

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Developing a Servicescapes Framework for the Interverse: Promoting Value Co-Creation Across Real and Virtual Worlds

1 Nov
16:00
Lumituuli

Bach Q. Ho, Kotaro Osawa, Kentaro Watanabe and Takashi Okuma
AIST

OBJECTIVES

Value co-creation consists of surpassing the real world and intermixing with virtual worlds through technologcal development. Virtual avatars are increasingly used for service exchanges (Ishiguro 2021). Sensing technology enables the circulation of information between real and virtual worlds regarding the human and surrounding environments. We can replicate location information or real-world actions in virtual worlds in real time and vice versa (Fukuhara et al. 2014). When the real and virtual worlds are intermixed, this is called an interverse (Cabinet Office, Government of Japan 2023). What services should be designed when value is co-created across real and virtual worlds? The present study tackles this future-proof question from the perspective of servicescapes.

Servicescapes refer to environmental stimuli for service experiences and value co-creation (Bitner 1992). Service researchers have identified that servicescapes are designed because they are planned experiential environments as a key design goal to improve service experience (Hall 2008). Bitner initially considered ambient conditions and spatial layout as well as signs, symbols, and artifacts to be the main elements of servicescapes. Service researchers have extended the theoretical framework in line with changes in the surrounding environment of services (Rosenbaum and Massiah 2011). Designing servicescapes has always been a central challenge of service management.

Service research has gradually turned its attention to human experience, rather than customer satisfaction or economic benefits, as a service outcome (Fisk et al. 2020). Elevating human experience through services means enhances actors' well-being. In addition, technological developments are extending the human experience into a fusion of the real and virtual worlds, which transcends in-person interaction limited in a real world (Watanabe and Ho 2023). That is, an interverse should be understood as an environment rooted in huma life, not only an environment for peripheral services, and this premise is the basis for designing servicescapes for interverses.

Although many studies have extended the concept of servicescapes to include cyberscapes (Williams and Dargel 2004), virtual servicescapes (Vilnai-Yavets and Rafaeli 2006), e-servicescapes (Hopkins et al. 2009), performancescapes (Tumbat and Belk 2013), and experienscapes (Pizam and Tasci 2018), the previous literature has focused mainly on servicescapes of virtual worlds and those in worlds where merged real and virtual worlds were ignored. The present study introduces the concept of "interverse" to better understand value co-creation across real and virtual worlds and clarify which servicescapes should be designed for interverses. A term similar to interverse is metaverse. Metaverse refers to 3D virtual worlds in which

avatars represent users who engage in social and economic exchanges (Ritterbusch and Teichmann 2023). While metaverse focuses on exchanges within virtual worlds, interverse focuses on exchanges between real and virtual worlds; it also includes possible worlds (Van Looy 2005) for designing servicescapes that merge real and virtual worlds. In other words, interverse is a concept covering value co-creation across real and virtual worlds.

METHODOLOGY

We offer an in-depth literature review on interverse topics from the perspective of services marketing and metaverse technology. This advances a theoretical framework for servicescapes. Typical metaverse technology consists of augmented reality and virtual reality systems. This literature review on cutting-edge technology helps in understanding interverse services' potential. Moreover, the viewpoint of services marketing enables discussion of metaverse technology from the perspective of human experience and value co-creation rather than technological functions and development.

In addition, we introduce cases of innovative interverse services as a context for discussing interverse servicescapes. The example of education services reveals how students learn autonomously from digital contents by augmenting their sensing capabilities. In addition, teachers can provide a virtual world reflecting changes in real-time and -world information so that students can play freely in the virtual world while learning its contents. Another example is healthcare services. It provides insights of service exchanges from augmented value co-creation. Virtual restoration of bodily sensation encourages patients to participate in medical practice. Furthermore, complementing emotional expression with virtual technology can reduce emotional exhaustion for healthcare professionals.

EXPECTED RESULTS

We differentiate the interverse from similar concepts such as metaverse and introduce a theoretical framework for interverse servicescapes. Three features must be considered: First, an interverse will enhance human experience by human augmentation technology (HAT). HAT refers to human-machine cooperative technologies that proactively improve actors' capabilities to enhance service experience beyond what is realized by their original capabilities (Watanabe and Ho 2024). In an interverse, technology supports real world actors in augmenting their capabilities for interacting with other actors in virtual worlds and vice versa. Consequently, interverse servicescapes must consider how to adapt HAT to the fusion of real and virtual worlds' environment. It is essential to design a system that not only involves the virtual worlds, but also allows actors to traverse the real and virtual worlds in a way that integrates with everyday lives. Second, an interverse forces actors' perceptions to traverse back and forth between real and virtual worlds. Therefore, interverse servicescapes must overcome the perception gap between real and virtual worlds. Gaps in perceptions may increase the risk of value co-destruction. Third, a mechanism to circulate value and resources between real and virtual worlds is

needed. Value co-creation does not end when services focus on human experience as a service outcome. The value created in one world must become a resource for subsequent value co-creation in the other world. Finally, our framework indicates future research directions, such as the ethical issues involved in designing interverse servicescapes.

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Enhancing Public Participation in Public Service Design with DemTech: Insights from a Field Project on Digital Co-creation

1 Nov
16:00
Lumituuli

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OBJECTIVES

We present preliminary results from a field project that examines the use of three different digital deliberative democracy technology (DemTech) platforms to support civic participation in public service development. The field test is implemented within the Ministry of Finance's programme to promote life event-based digitalization (Ministry of Finance, VN/33803/2023). The overarching goal of the field project is to generate insights that will assist public administration in developing more user-friendly and efficient tools for citizen involvement in the development of public digital services. Therefore, the study maps the opportunities and risks and identifies conditions for scaling DemTech-based citizen and stakeholder participation in service co-creation. Three factors underline the need for developing practical knowledge on the use of digital deliberative platforms.

First, public service development in Finland aims to create digital, human-centered services that holistically account for the different life situations and needs of citizens (Ministry of Finance, VN/33803/2023). The programme emphasizes listening to and involving both citizens and key stakeholders in service development, much in line with extant literature on service co-creation (Rodriguez Müller et al. 2021). However, public administrations lack effective institutionalized practices and processes for facilitating co-creation (OECD 2021). In addition, Finns would like to participate more in decision-making than they currently do, preferring easy-to-use, anonymous, and digital solutions to do so (Jämsén et al. 2022). The demtech platforms present one possible option to answer both the preferences of the citizens and the goals of the public service developers.

Second, the increasing availability and functionality of AI-boosted DemTech bring new practical opportunities to strengthen civic participation in the development of public services (Fischli and Muldoon 2024). Currently, platforms such as YourPriorites, Decidim, and Pol.is are used by public administrative bodies globally to support deliberative democracy, allowing citizens and public actors to engage in a constructive exchange of views. These platforms can augment more traditional means for civic involvement as they can increase direct interaction among citizens and stakeholders, lower the threshold for participation, and process and visualize large volumes of comments, perspectives, and opinions efficiently. However, there is insufficient knowledge and experience of their application and the conditions for their use in public administrations (e.g., Savaget et al 2019). Third, while novel DemTech can empower new forms of political participation (König & Wenzelburger 2020), such practices struggle with the lack of integration into decision-making institutions and

structures (Bastick 2017; Poblet 2019). Traditional institutional problems persist, including a lack of civic engagement know-how, risk-aversion, and cultures of expert-driven, siloed decision-making (Drobotowicz et al 2023). Such cultures hinder the access of civil society to public sector decision-making and service development.

METHODOLOGY

To practically test the platforms and their impact, this field project will facilitate a real-world service co-creation process of the Life-event based service package called "Ease of managing the affairs of a deceased relative" (Ministry of Finance 2024). The service package is still in its early development stages, allowing participants to influence decision-making.

The field project facilitates online deliberation between citizens, NGOs, public service providers, and developers on three different DemTech platforms applied to a 3-phase participatory co-creation process. In addition to giving participants a free hand in suggesting ideas and commenting on others' proposals, we ask participants what the respective service package should ideally be, and aim to map participants' wishes, preferences, needs, and suggestions. Following the OECD (2022) guidelines for civic engagement, the participatory co-creation process consists of 3 phases:

1. **Consultative phase**: We will use an online survey and the Pol.is platform to collect different ideas, wishes, needs, and preferences regarding e-service use and the service package at hand from citizens and key stakeholders. This phase also includes the opportunity to make suggestions on desirable features or improvements to the service package. The Pol.is platform will collect natural language data, enable participants to vote on each other's proposals, and map areas of agreement and disagreement. The data collected will inform the next phase, where the emerging main themes will be discussed.

2. **Deliberative phase**: Intended to deepen the discussion and participants' and facilitators' understanding of themes that emerged from the previous phase. In this phase, citizens and stakeholders discuss, deliberate, and vote upon the themes and proposals using the platforms Consider.it and Voxiberate. This results in a mapping of the most important proposals for the desirable features of the service package.

3. **Recommendation-creating phase**: Participants engage in an online face-to-face workshop in Microsoft Teams to discuss outcomes from previous phases and create and refine recommendations for service developers about the desired features of the service package, or how it should be developed.

The study will critically evaluate the use of these platforms in terms of their success in overcoming typical challenges of co-creation and citizen engagement (e.g., Steen et al. 2018). We will send a short online survey about the participatory experience itself to participants immediately after participating on the platforms. This data will be used to facilitate 3 face-to-face workshops to discuss the participatory experience, its opportunities, and challenges, and to seek solutions for improving it. These workshops will be for 1. citizen participants 2. key stakeholders, and 3.

policymakers and service developers. The final workshop will address conditions for scaling and institutionalizing civic participation in public service development.

EXPECTED RESULTS

The study provides empirical data on the pros and cons of using digital tools for participation compared to evidence of more traditional means of participation. It also maps the preconditions for scaling digital participatory processes within the public sector. Additionally, it provides citizen and stakeholder proposals and perspectives to the design of the Life-event based service package called "Ease of managing the affairs of a deceased relative". The study concludes with a set of operational recommendations for using DemTech in service development.

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1 Nov
16:00
Lumituuli

Resilience in Process Management as a Basis for Value Co-Creation in Healthcare Services

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OBJECTIVES

Despite overwhelming claims in favour of process management as a means to manage organisations with a focus on value creation, there is an increasing number of opposing views that argue that process models of organisations might be counterproductive. A highly cited work by Benner and Tushman (2003) put emphasis on the problem of process management to handle variation (Palmberg, 2009). While manufacturing industries - being the origin of most views of process management - have experienced difficulties of applying the process view in R%D and development activities where creativity and iterative thinking is important, the problem is even more prominent in service production activities (Vargo and Lusch, 2008; Grönroos and Voima, 2013). This is particularly evident in the public sector where many processes are co-produced by patients, beneficiaries and citizens (Radnor et al., 2012; Alford, 2016; Batalden et al., 2016). A key feature of the public co-production perspective is the co-creating aspects where the service provider interacts with its beneficiaries. The beneficiary introduces variation through his/her competence, level of engagement, interests (Frei, 2006) and sometimes even reluctance to participate (Berry et al., 2007). At the outset of many healthcare processes there is also high levels of uncertainty about the individual's health problem and which methods and treatments to use (Bohmer, 2009). In other words, variation is a vital aspect of many healthcare processes.

The debate of whether process management could be realized in public services has been discussed extensively (Radnor et al., 2012). Should process management approaches be abandoned in contexts where there is complexity due to customer-introduced variation, as in the case of many public services? On the other hand, a pure co-production approach does not help so much in providing structure in what methods and approaches service providers may use to organize their work. Thus, aspects from process management might still be a viable way forward but to function in a healthcare service context some critical questions on variation need to be answered. The questions are: What is the role of variation in terms of complexity of the task within a process and the methods used for completing the task? How can variation be handled in process management? To capture these aspects, the concept of resilience in the context of process management will be explored in this paper.

The term resilience - or the ability to perform in a resilient manner – was originally defined in the field of resilience engineering as the intrinsic ability of a system to adjust its functioning prior to, during, or following changes and disturbances, so that it can sustain required operations under both expected and unexpected conditions (Procter and Radnor, 2017). Both process management and resilience are ontologically based on a systems-view and have important similarities but also complementary differences and surprisingly there has been very few previous efforts to

place them side-by-side. Thus, the aim of this paper is to describe characteristics of resilience theory and process management, theoretically analyse their key similarities and differences followed by an empirically driven analysis of two cases that provide empirical considerations from a healthcare service context. Finally, we discuss how knowledge assembled in resilience theory could inform process management, thus aiming to investigate what process models work for whom in which service context.

METHODOLOGY

A multiple case study approach was selected due to its ability to capture complex phenomena in context (Yin, 2017). The unit of analysis in the present study was established processes in two organizations. The sampling strategy was purposively and theory based (Miles and Huberman, 1994) in order to elaborate and examine resilience aspects in organized processes with different sources of variation. The following cases were selected:

- A Dementia care process, which is characterised by a goal-oriented approach where the problem is given (to do dementia care) but the methods and results depend on a range of variables and varies from individual to individual.
- A primary care process, characterised by the need to be able to handle a wide range of problems, using many different methods with a lot of uncertainties of the results. Thus, being a creative process.

Data was collected from both cases through interviews, focus groups, and document analysis. The analytical procedure of the present work follows Miles and Huberman's (1994) interactive synthesis. This is a model for conducting multiple case analysis with focus on thematic analysis departing from a synthesis of each individual case. We selected this approach as it also moves the thematic analysis into further general condensation and interpretative generalisation of the data.

EXPECTED RESULTS

There are many arguments why resilience theory may strengthen process management. One argument, and an important distinction between the two is that while process management focuses on the efficiency of flows through process improvements, resilience pay attention to the balance between efficiency and thoroughness within a self-improving system. Thus, a major difference is the role of the ability to regulate and develop despite disturbances, threats and variations. This self-organizing feature is important to acknowledge and to bring into process management models, suggesting an approach to process management that can handle variation and embed process improvement in the system.

We suggest that process brittleness is manifested in processes where there is a mismatch between the task to be performed and the way that the task is organized. The example of the "The doctor's office medical model", as discussed in the case of Southcentral Foundation, suggest that it is highly inadequate to have a process model where the idea is to meet the medical doctor as a starting point for the process, independently if you are stressed, have alcohol problems, a social situation

that does not work, experience an existential crisis, or have a blister. The processes must simply anticipate and meet the variety of needs, otherwise they will be brittle.

Further, we suggest that a mechanism contributing to process brittleness is the gap between process-as-done (the way that a process is organized) and process-as-imagined (paraphrasing work-as-done and work-as-imagined). The number of examples where people have been exposed to inadequate process management models is abundant. A key to avoid process brittleness is to pay attention to uncertainty and threats. Do we have variation in the type of problems/needs that the process is supposed to handle? Are there variations and uncertainties in the methods that should be used to solve the problems? Broadly there are processes that are characterised by low uncertainty and those exhibiting high uncertainty. Through the empirical material we will identify several tactics that were employed to cope with variations in a healthcare service context, capable of enhancing value creation and sustainability of the services.

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1 Nov
16:00pm
Lumituuli

Transition through co–creation in social and healthcare services?

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OBJECTIVES:

To solve the world's biggest problems, strategies and solutions need to fit the characters of modern societies of unpredictable and rapid change. The public sector can help to solve these challenges by following the ideas of New Public Governance (NPG) paradigm, which emphasizes relationships and partnerships in complex societies and co-creation as the way of providing services.

These issues are examined in the context of social and healthcare services in Finland, where e.g. aging population and digitalization of society have challenged systems' sustainability. Social and healthcare is also a good example of a field where the services are intangible and inherently co-created, the current system is very complex and path dependent, and there is a need for a fundamental change based on the ideas of NPG (Jaspers & Steen, 2019, McMullin & Needham, 2018; Nederhand & van Meerkerk, 2017, 2018).

However, realizing co-creation is challenging, especially if the goal is to generate innovations that transform the system structure. Research on public services has tried to understand why the paradigm of NPG has not yet become a dominant paradigm and has not delivered the outcomes that were anticipated (McMullin & Needham, 2018), even though the demand for a new kind of governance is clear. Research has focused mostly on describing user involvement in service production and doing research on the facilitators and barriers towards co-creation (Go Jefferies et al. 2019, Jo and Nabatchi 2019). The lack of time and sustainable funding are examples of why NPG has not been a successful model (Fleming & Osborne, 2019, Torfing et al., 2019, Vanleene et al., 2015) in addition to strong role of professionals (Alvesson, 2004, Löwendahl et al., 2001) and fear of making mistakes and thus minimizing innovative solutions (Osborne et al., 2020). Furthermore, the advantages of using users' experience and knowledge are recognized (Park 2020), but the impacts of co-created services are not sufficiently demonstrated (Fleming and Osborne (2019).

This study proposes that previous literature has not been able to offer a framework to study or promote systemic change in the use of co-creation. There is a need to better understand how systemic changes occur in a complex system. To respond to this gap, this study uses literature on systemic change from transition studies (Geels, 2004, 2020, Köhler et al., 2019) to understand the complex nature of change and ways to promote it. Empirically, it examines three case studies of co-creating services and promoting changes in social and healthcare system.

METHODOLOGY

The data for the study has been collected in three different research projects between 2014 – 2017. The first case focuses on the issue of experimental development

of social services by integrating professionals and users through digital platforms. One of the problems discovered from this study was the lack of learning structures in the organization causing problems in creating new services and having wider impacts on society. The second case grasped this notion and studied how to promote change in organizations through learning. Another notion that was made in the first case was the discontinuity of public policies preventing the successful co-creation of services. The third case aimed to provide means to tackle this issue of discontinuity by developing a vision pathway for the future and providing policymakers a tool to estimate the impacts of policy actions.

Snowball sampling was utilized in the search for the interviewees in the first case ending up to 5 interviews with local managers, professionals and state representatives. In addition, three focus-group interviews (18 participants) with local professionals were carried out. The data also included supplementary material, mainly strategy documents. In the second case, 25 interviews of health care experts were utilized continuing with 2 workshops with 19 participants. In the third case, a stakeholder analysis was conducted to identify the actors most relevant to the purpose of the study. Altogether, 23 interviews were carried out with users, service providers, societal actors, and purchasers/refiners. In addition, health economic decision modeling was used, where the data collection and analysis followed quantitative data collection and analysis.

The data from the case studies were analyzed using a content analysis (Patton 2002). In the first case, the analysis and interpretation of the data were conducted in a dialog between theory and empirical findings. For analyzing the research results for the case two and three, a qualitative data analysis software programs (QSR NVivo, Atlas.ti.) were used. The analysis and interpretation of the data from the three different cases were conducted in a dialog between literature from co-creating services in social and healthcare and empirical findings.

EXPECTED RESULTS:

Findings indicate that Finnish social and healthcare system can be reformed by co-creating services, but this requires systemic changes. These changes have been identified from the previous literature and empirical studies have confirmed these notions and added new insights. The study has categorized systemic changes in new way into the themes of 1) changes in professional culture, roles, and leadership, 2) enhancing the use of technological tools, 3) creating opportunities for co-production and co-creation and 4) developing new tools to evaluate public services and scaling up innovations. Under these themes, the study has also provided concrete actions that are needed to promote change. Based in the findings, the study also highlights the users as a source of change.

As policy implications, the study highlights the need to promote learning and abilities of professional on how to co-create with users, initiate long-term policy actions, and understand change as a constellation of different changes in the system. It also suggests that social and healthcare services could be understood and promoted by the use of transition studies where it can provide useful tools to create long-term policies from a nationwide perspective, promoting double-loop learning

(e.g. changing perceptions of the system) and supporting policymakers to evaluate the impacts of change.

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1 Nov
16:00
Lumituuli

Co-Creation in Public Services for Bicycle Mobility in the City of São Paulo, Brazil

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University of São Paulo

OBJECTIVES

The urban mobility crisis in Brazil, caused by a dependence on private cars, mainly harms the low-income population that uses public transport. In São Paulo, this condition reveals differences in accessibility between and within population groups, where unsustainable private transport improves individual travel, but exacerbates inequality for the remainder of the population (Saraiva & Barros, 2022). The challenges for sustainable urban mobility are influenced by a lack of coordination and resources, which restricts sustainable urban transport. However, the participation of civil society and the addition of local factors may enable sustainable transitions, in which actors can exploit windows of opportunity, especially when climate policies are integrated with other political agendas (Pinhate et al., 2020).

The Brazilian federal law 12,587/2012 introduced the National Urban Mobility Policy to improve the accessibility and mobility of people and cargo in cities, emphasizing the optimization and integration of transport modes as a means of improving urban circulation and quality of life for city residents (Brazil, 2012). The bicycle is emerging as a fundamental element for sustainable development and a solution to the urban mobility crisis (Castañon and Ribeiro, 2021). Despite the increase in infrastructure and bicycle travel in São Paulo in recent years, the use of this mode still faces major challenges, such as the lack of incentives and safety for cyclists, and the precariousness and inadequacy of existing structures (Metro, 2019; CET, 2020; Cyclicity, 2022).

Social innovation, therefore, is considered a public innovation that aims to improve quality of life, promote social justice and respect the environment (Desmarchelier et al., 2021). The concept of social innovation includes co-creation, which involves citizens in the conception and design of their public services. This approach is considered essential as it promotes collaboration and integration of knowledge and resources from different sources, resulting in significant long-term benefits to society (Kumari et al., 2019). Innovation specifically in public services allows the introduction of new ideas for problem-solving and the improvement of these services, whether it be in accessibility, quality, or even in both (Enz, 2012; Gallouj et al., 2015; Kon, 2018). Co-creation is able to integrate the processes of social innovation and innovation in services through the involvement of citizens within the conception and implementation of solutions (Windrum et al. 2016).

Services that integrate active mobility with public transport depend on the conditions of the physical and regulatory environment for pedestrians and cyclists. In the megacities of developing countries, such as in São Paulo, sustainable urban expansion requires a two-pronged approach that includes infrastructure and public services. Understanding the relationships between people, land use, distribution of

activities and accessibility is crucial to achieving a sustainable and equitable city (Cruz & Paulino, 2022). With the context addressed, the objective of this work consists in analyzing the regulatory framework on bicycle mobility in the city of São Paulo from the perspective of the social innovation concept, in order to identify possibilities and incentives for co-creation in initiatives that seek to improve the public services that provide for this mode of transport.

METHODOLOGY

As its method, this study analyzes the relationship between innovation in public services with a focus on active mobility by bicycle in eight regulatory documents of the municipality of São Paulo: the [1] Strategic Master Plan of the Municipality of São Paulo, 2014; [2] São Paulo Mobility Plan, 2015; [3] Integra-Bike São Paulo Program 2016; [4] São Paulo Municipal Urban Mobility Plan Decree, 2016;[5] Pedestrian Statute, 2017; [6] São Paulo Municipal Cycle System, 2018; [7] Cycleway Plan of the Municipality of São Paulo, 2019-2028 and [8] the intermediate Review of the Strategic Master Plan of the Municipality of São Paulo, 2023. Based on a search for 42 keywords which had been previously selected in the seven documents, the frequency of these keywords was found for each text; thus, the searches and initial content analysis (Krippendorff, 2019) were carried out in the context of the information within the selected documents.

EXPECTED RESULTS

Services based on the integration of active mobility with public transport depend on the conditions both of the walking environment for pedestrians and of the movement of cyclists, which may both be better understood based on an approach to innovation in public services which includes the occurrence of co-creation.

Observing the current regulatory framework, it is noted that São Paulo's Urban Mobility Plan, although it has not undergone changes over the last ten years, seeks to contribute in several ways to promoting bicycle mobility in the city, but does not distinguish itself, within the research carried out, as a determining element for the process of co-creating public services in bicycle mobility. The Cycleway Plan, complementary to the Mobility Plan, represents a step in the right direction to promote cycling as an important part of urban and sustainable development policies, as it may be considered a powerful tool for promoting health, respect for the environment and social inclusion in large urban centers such as São Paulo. Nevertheless, an emphasis on innovation in services and co-creation, despite their importance, does not predominate in the texts of the documents analyzed.

Considering the scope and recent update of the São Paulo Master Plan in 2023, it is noted that this piece of legislation has begun to indicate possibilities for co-creation and innovation processes in public services. However, these elements are not yet directly linked to urban mobility and social innovation, especially in the context of cycling. The results displayed that, although the term co-creation appeared twice in only a single text, importantly, the recent inclusion of this text in the regulatory framework of São Paulo may indicate the current recognition of this topic on the

policy agenda regarding public spaces for urban mobility by bicycle. Furthermore, with a focus on social innovation and co-creation, there is a requirement to understand this topic more fully in order to analyze solutions that meet the needs posed by users of bicycle mobility services, especially when seeking a fairer society, with access to equitable mobility, safety in traffic, and environmental quality.

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1 Nov
4:00pm
Lumituuli

Service design and learning in the context of sustainable innovations

Mervi Rajahonka [1] and Kaija Villman[2]
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OBJECTIVES:

The significance of the service sector in the economy is getting bigger all the time. Beyond 70 percent of the employees in the OECD countries are service sector workers (Buckley & Majumdar, 2018). Consequently, major growth avenues for companies can be found in the services (Pajarinen et al., 2012), taking into consideration also the expanding servitisation of manufacturing industries (Baines et al., 2009).

At the same time, the business environment changes rapidly. Complex global challenges, such as climate change and wars, along with digitalization lead to changes in customer needs, business networks, and competition. This significantly increases the complexity of business. In the complex and changing environment, service companies need to constantly develop their services and innovate totally new services. Current societal and environmental challenges, while novel digital, green, and socially responsible innovations are desperately needed and demanded by the customers, ensure that very few service companies can avoid considering all three dimensions of sustainability – economic, social, and environmental – in their service development.

Design thinking along with service design methods are current rather widely used in service companies' innovation processes. Both of these emphasise co-development of services with customers, which is claimed to be highly important specifically for service companies (Galvagno & Dalli, 2014). However, it is not enough that a company adopts ideas from outside, but it must also realize the relevance of these ideas for the company.

Moreover, simply using design thinking or service design methods mechanically does not necessarily lead to good outcomes. Rather, a service innovation and development process can be understood as a continuous and innovative learning and design process, requiring transformative or double-loop learning, and questioning one's assumptions and company's existing practices. If this learning process is superficial, customer understanding will remain shallow, and services developed will not be satisfactory. (Rajahonka & Villman, 2024.)

In this research, our objective is to conduct a literature review to find out if and how design thinking, service design and learning approaches have been applied in the context of wicked problems and sustainable service innovations. Based on the literature review, we aim at constructing a framework relying in the theories of sustainable innovation, learning, design thinking and service design. The usage of the framework is illustrated with business cases from the sustainability domain.

METHODOLOGY

We conduct a literature review to study if and how design thinking, service design and learning approaches have been used in the research literature on wicked problems and sustainable service innovations. Based on our literature review, we build a framework and illustrate the use of it with case examples retrieved from the sustainability domain. We discuss our findings, and provide recommendations.

EXPECTED RESULTS:

The expected research results show that developing innovative and sustainable service solutions requires the innovator to learn and question one's assumptions and company's existing practices. Using of service design methods thoroughly and appropriately does not always lead to learnings or assure good outcomes, because without learnings, service design can remain only at the level of methods and tools. There are several fuzzy points related to the service design process where leaps of learning are needed to guarantee good results. To be successful, an innovator needs customer empathy received in the ideation phase of the service design process, transformative learnings gained through testing new solutions with customers, as well as application of the learnings into realisation of new services while considering company's strategy and resources. These assure reaching an adequate level of customer understanding and delivering valuable and socially and environmentally sustainable services for the customer to use, but at the same time feasibility and economic sustainability of the services for the company. However, learning and testing calls an innovator for problem-solving ability, courage, and acceptance of uncertainty.

A service innovation and development process for sustainable services is a continuous and innovative learning and design process: it requires continuous learning and development of competences. Novel digital, green, and socially responsible innovations require learning at all levels. Learning at an individual employee level is not enough, but also organisational learning at a company level is required. However, sufficient customer insights at the whole company level are apparently rather challenging to reach.

As recommendations we can propose that companies should try to create an open, inclusive and trust-building organisational culture based on dialogue, as this kind of culture creates an environment promoting all employees' learning through rapid experiments with customers and innovation and accelerating organizational learning. This kind of culture is beneficial also to the society, as a society consisting of people and companies capable of transformative learning and sustainable innovation, constitutes a resilient society.

Our research represents a modest step towards deeper understanding on how sustainable innovations can be reinforced with design thinking, service design and learning approaches. In the future, as the world becomes more complex with accelerating changes, growing global challenges and emergence of new technologies, we need more research on learning and sustainable innovation, and if and how these can be enhanced with the help of design thinking and service design.

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Examining RRI process of interverse services: Focusing on an ELSI response of business operators

1 Nov
16:00
Takka

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National Institute of Advanced Industrial Science and Technology

OBJECTIVES:

Interverse is a general term for technological concepts that aim to return value to us in the real world by connecting the metaverse to the real world; for example, virtual offices and metaverse environments are used for work training in the real world.

To achieve better services and create sustainable solutions through Interverse, the Responsible Research & Innovation (RRI) processes need to be introduced as early as possible in the efforts to implement such new technological concepts by addressing Ethical, Legal, Social Issues (ELSI) and being preventive in all processes, from development to demonstration and implementation.

We are managing a project to propose and realize a new technological concept called "Interverse." The National Institute of Advanced Industrial Science and Technology (AIST), to which the presenters belong, is Japan's national R&D organization. It seeks to develop technologies, implement them socially, promote high-quality technological concepts to other businesses, and create an innovation ecosystem.

Our team comprises service researchers and science communicator and is responsible for the implementation of the RRI processes for Interverse. The project has just begun and we are currently in the early stages of developing a plan to proceed with the RRI of this technological concept.

We first address that the use of Interverse is rapidly moving into the market implementation and demonstration phase (rather than synthetic biology, for example). One of the impeding factors regarding RRI in prior research was the academic capitalism faced by researchers (Glerup and Horst 2017). Research that illuminates these challenges of researchers to legitimate research processes by exploring the logic inherent in academia has gained attention in the form of "laboratory studies." However, Interverse technology is not proposed in the first place as something that only researchers are responsible for its development and implementation, and a broader perspective is anticipated to describe the difficulties. Researchers need to extend their consideration of the RRI process by carefully observing the diverse worldviews of firms, paying attention to individual technologies.

Thus, the following research questions were formulated: What are the reasons behind Interverse services engagement or lack of it in RRI? By interviewing companies based on this research question and conceptualizing an RRI process based on the result, it will become possible to create better services from the ESLI perspective, under the new technical concept of Interverse.

To realize the shared RRI across boundaries between research institutions and operators, this study will first identify the ELSI faced by operators. The next objective is to construct a logic model (story line) that is appropriate for businesses and representative users to address the issues in the near-Interverse areas, such as metaverse and XR.

METHODOLOGY

We conducted semi-structured interviews. Some of the interviews were conducted in person and some online. The interview items were as follows: (1) regarding the interviewee's Interverse-related product; (2) regarding the interviewee's experience in anticipating issues when creating/using the product; (3) regarding impressive examples of implementation; (4) regarding the reasons for successful or unsuccessful problem resolution.

We selected 11 interviewees related to metaverse and XR technology, a concept similar to Interverse. They are involved in these areas as content operators, platform operators, web media operators, and individual and corporate users. We conducted these interviews from March to April, 2024. These interview data will be coded and qualitatively analyzed using MAXQDA, a software for qualitative analysis, to develop a story line on operators' response to ELSI issues.

EXPECTED RESULTS

First, a set of ELSI issues that business operators may face will be identified. While this is not the main objective of this survey, it is useful to know the specific issues known to operators. In addition, the issues identified are expected to be easily understood by operators. For the purpose of this survey, it is important to categorize the ELSI identified in previous studies into those that are easily understood and those that are not.

The next step is to extract the logic model (story line) based on each operator's response to the ELSI. Pre-analysis of the interview data shows that business operators may adaptively respond to the issues by accompanying the users of their products. For example, they may engage in training services (even though they are content providers) to help users become proficient in the use of the technology.

By justifying users' failure as a learning resource, users are encouraged to use the Interverse product or service until they become proficient with it. This also enables the providers to take a responsible attitude toward users' problems and implement a process of solving them together.

Similarly, the logic model (story line) is also extracted when the business operators do not respond to issues. The results of the pre-analysis suggest the possibility of extracting patterns in which operators underestimate ELSI problems. One such pattern is the identification of existing problems.

For example, while operating a platform-based metaverse, even if operators recognize that only homogeneous information reaches users (called "filter bubble") through some kind of algorithm, they may refuse to work on this issue on the grounds that fragmentation exists in the real world as well. Such a mindset could hinder the responsible R&D process by neglecting the difference from the case of fragmentation and filter bubbles in the real world. Better ethical decisions can be made with the support of an adequate organization and a mechanism.

Finally, we will summarize our analysis and provide our conclusions. We believe that this study will contribute to the development process of high-quality services linked to the new concept of Interverse under responsible management, shared not only with researchers but also with industries.

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1 Nov
16:00
Takka

Disrupt or Be Disrupted: Steering Sustainable Future AI with Socio-Ethical Co-Creation

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OBJECTIVES

In increasingly complex working environments, the use of AI-assisted technologies is becoming more and more common. Especially when a large amount of information needs to be considered for decision, such as in care planning and documentation in hospitals, AI-assisted solutions can provide decision support, relieve nursing staff and improve the quality of care (Aiken et al., 2012; bvitg, 2017). However, development and implementation of such technologies often encounter resistance and fears among employees, not only regarding the technology itself but also its impact on socio-ethical aspects, such as individual working conditions, work processes and the quality and reputation of care in society. But how to develop future-proof solutions that are not only technically efficient but also ethically sound and societally beneficial? The primary objective of this research as part of the BMBF-funded project iPAB (funding code 16SV9064) is to tackle such challenges by addressing a proactive approach with a strong emphasis on socio-ethical considerations and co-creation. A special approach will be proposed that is both sustainable and ethically sound, emphasizing on creating resilient systems through collaborative efforts. Relevant action recommendations that are needed to be considered can be derived in order to develop resilient systems that are capable of adapting to changing conditions and demands, thereby sustaining high standards of care and operational efficiency.

METHODOLOGY

Utilizing a modified version of the generic acceptance-based approach HEART (Human-centered Evaluation of Acceptance and Risk Criteria for Technology; Schmitt-Rüth & Simon, 2022, 2020), the study adopted a dual-phase approach to capture and analyze the socio-ethical dimensions of AI adoption among nursing staff.

Phase 1 - Collection of Acceptance-Influencing Factors: The initial phase involved structured workshops with nursing professionals at two hospitals in North Bavaria (n=16). These sessions were geared towards identifying the spectrum of ethical, social, and legal concerns associated with the deployment of an AI-assisted system for care planning and documentation. To facilitate a comprehensive discussion, participants were introduced to four main socio-ethical themes which framed the discussion:

- **Safety/Security**: Discussions focused on ensuring harm-free operation and data protection, critical in maintaining trust and confidentiality in healthcare.

- **Autonomy**: This theme explored the impact of AI on professional independence and decision-making capabilities, emphasizing the need for systems that support rather than supplant human judgment.
- **Social Cohesion**: The dialogue here revolved around the integration of AI systems in a manner that promotes team collaboration and fairness within the workplace.
- **Sustainability**: Participants discussed the long-term impacts of AI on the healthcare system and its alignment with broader societal and environmental goals.

Phase 2 - Classification of Impact on Acceptance: The second phase of the workshops focused on prioritizing the issues raised based on their potential impact on the acceptance of the planned AI-assisted system for care planning and documentation. Participants used a three-tier classification system (high, medium, low impact) to rate each identified aspect. This exercise was pivotal in highlighting the most critical factors that could hinder or facilitate the successful integration of the AI solution. The workshops were supported by quantitative tools, including surveys and pre-workshop questionnaires that assessed demographic data and technology readiness among participants. This data was crucial for understanding the baseline technology acceptance and readiness levels among the nursing staff, which could influence their perceptions and interactions with the AI system. Data from the workshops were transcribed and analyzed using a combination of qualitative data analysis software (MAXQDA) and quantitative methods (SPSS). This mixed-methods approach enabled the triangulation of findings, ensuring a robust analysis of the diverse viewpoints expressed during the workshops.

EXPECTED RESULTS

Socio-Ethical Co-Creation: The results from the dual-phase workshops on AI implementation in healthcare settings unveiled a comprehensive understanding of the socio-ethical dynamics at play, focusing particularly on the potential impact on user acceptance. The insights gathered were organized into three categories based on the perceived risk to user acceptance:

- **High Impact Risks**: The most critical concerns fell into this category, including issues related to data privacy and security, potential job displacement due to AI automation, and fears of reduced human oversight in critical care decisions. These factors pose significant barriers to acceptance and underscore the need for stringent safeguards against data breaches and clear explanations of AI decision-making processes to foster trust.
- **Medium Impact Risks**: These concerns involved integration challenges with existing healthcare IT systems, potential increases in workload during AI transition phases, and significant demands for training and adaptation. While these risks are manageable, they require careful planning and support to ensure they do not impede smooth adoption.

- **Low Impact Risks**: Concerns with relatively minor implications for acceptance included resistance to change due to a lack of familiarity with technology, which could be mitigated through gradual integration and ongoing support.

Furthermore, qualitative analysis brought to light several themes, notably the potential for AI to enhance care quality by reducing administrative burdens and allowing more focused patient care by nursing staff. Nevertheless, there was a strong emphasis on the importance of human expertise, with calls for AI tools to support rather than replace human roles. The need for AI systems to be interpretable and accountable was a recurring theme, reinforcing the irreplaceable nature of the human element in healthcare. From these discussions, a set of user requirements for AI systems was able to be formulated, highlighting critical design considerations:

- **User-Centric Design**: AI systems must feature user-friendly interfaces that accommodate various levels of tech-savviness among healthcare workers.
- **Ethical Transparency**: It is essential to establish clear guidelines and protocols for AI operations to ensure ethical usage and decision-making.
- **Continual Learning and Adaptation**: AI systems should incorporate continuous learning mechanisms from real-world interactions and feedback to evolve and enhance functionality while maintaining patient safety.

In addition, statistical analysis highlighted that teams with greater prior technology integration and those with younger demographic profiles were more receptive to adopting AI technologies. This finding suggests the necessity of demographic and contextual considerations in crafting change management strategies. These insights and requirements are crucial for the development and implementation of AI-based support decision tools, ensuring that the technology serves as a beneficial tool rather than a disruptive force.

Action Recommendations: To achieve a holistic AI-supported future-proof solution that meets socio-ethical requirements, the following action recommendations need to be considered:

1. **Establishing a Socio-Ethical Comprehensive View**: Before implementing AI solutions, a comprehensive socio-ethical evaluation should be established as a foundational requirement. This involves understanding the implications of AI on societal values, safety, autonomy, and social cohesion within the healthcare sector.
2. **Leveraging Co-Creation Methods**: By employing co-creation methods to ensure that the development of AI solutions is inclusive and participatory. Engaging both stakeholders and AI technology developers in a collaborative process that aligns technological advancements with the real-world needs and expectations of end-users.
3. **Promoting Multi-Faceted Innovations**: Focusing on innovations that address multiple challenges simultaneously, such as streamlining care planning

and documentation to reduce the administrative burden on healthcare staff. This will improve operational efficiencies and allow professionals to devote more time to patient care.

4. **Focusing on User Acceptance**: Conducting quantitative and qualitative analyses of user acceptance to understand how demographic factors and existing technology usage influence receptiveness to AI solutions. Developing targeted change management strategies that consider these factors to facilitate smoother adoption and integration.

5. **Ensuring Systemic Understanding**: Prioritizing and managing the classification of acceptance risks into high, medium, and low categories, focusing on socio-ethical considerations to integrate AI solutions effectively into practices. This systemic understanding will guide the implementation process, ensuring it is both effective and sustainable.

By adhering to these recommendations, the integration of AI into special contexts can be conducted in a manner that is ethically sound, user-focused, and conducive to long-term success. Ongoing engagement with context professionals will be essential to refine these systems, ensuring they meet the special needs and adhere to ethical standards, thus supporting long-term sustainability and effectiveness in context services like healthcare.

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1 Nov
16:00pm
Takka

AI use at the office , workplaces to be re-invented?

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Université Gustave Eiffel

OBJECTIVES

The injection of the Return to Work (RTW) after the pandemic was not an option.The management of this return and the consequences of transformation of the workspaces because of the remote work has been described in the literature. It highlights the challenges encountered, and the potential impacts on organizational performance and employee well-being, reinforcing the need to attract and retain talents. The transformation of offices and services offered to employees is a strategic issue both to rationalize spaces, make them greener from an environmental point of view, and promote well-being and flexibility. This article continues our work based on the typologies of offices identified previously : 100

Are they really used? What roles can services play in meeting needs and improving the productivity and possibly well-being of employees? We are just at the beginning of entering a new paradigm, office work augmented by technology. More or less the experiment of the use of generative AI had begun massively in 2023, with the use of chatGPT . Many companies have already implemented generative AI internally. The integration of artificial intelligence with relational databases is transforming the way employees interact with the data and begin to transform their work. AI enables more efficient management, sophisticated predictive analytics, and faster decision-making. Businesses benefit from a better understanding of data, leading to improved productivity and innovation. However, this transformation requires new skills and adaptation of employees and of office infrastructure, that could even lead to the use of virtual reality (VR), wich could transform the workspaces.

News support services are emerging ,to highlight the reasons behind the push for a Return to office Work . The researcher is questioned by theIr potential impact on organizational performance and well-being.employees. Will those new services driven by companies constitute an advantage to hire and keep talents that will grow and kept in the augmented organization?

METHODOLOGY

The research question will try to identify the new services driven by AI in the four workplace models. already identified : 100% digital, full hybrid, agora, and factory . Through case studies , enquiries and focus groups we will analyze the reality of the use of AI , the Vision of AI from the Employee User Point of View.

With the AI, the manner of working is reconfiguration and will try to answer the question of the reconfiguration of the manner of working and workspaces organization. The methodology of this research is exploratory and is based on the mobilization of case studies of organizations, enquiries and focus groups

EXPECTED RESULTS:

With this research we aim to study the evolution of the working manners of employees through the use of generative AI. We also want to compare the state of well being of the employees and the impact on the offices working places. This work will also provide the most used AI service. It will show different case studies of companies which have already integrated those technologies, and aims to provide new recommendations for companies. It will probably open new fields of research .

1. Identification of recent innovations in offices (e.g., AI, mobilizing databases to build new services, collaborative spaces, virtual reality, ...), use and impact of these services.

2. Role of Generative AI and analysis of the adoption of generative AI in companies.

3. Contribution to the creation of new services and the improvement of existing services.

4. Evaluation of the frequency and effectiveness of the use of services by employees.

5. Measuring the impact of these services on general well-being and job satisfaction.

6. Evaluation of their impact on talent retention and business differentiation.

7. Recommendations for businesses: strategies for integration of generative AI into the workplace, services offered, to optimize office spaces, and suggestions for effective integration of generative AI into the workplace.

8. Approaches to maximize employee satisfaction and well-being in order to retain talent.

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Chatbots and Public Services: How Citizens Perceive Digital Interactions

1 Nov
16:00
Takka

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Objectives

The integration of new technologies in public administration includes the implementation of artificial intelligence technologies to enhance public services (PSs), which has a significant impact on citizens and organisations and reshapes social dynamics (Raisch & Krakowski, 2021; Wirtz et al., 2018).

This transformation is evident in the widespread adoption of AI-based applications in various public sectors. Chatbots, for example, are emerging as virtual assistants that are suitable at handling routine requests (Rapp et al., 2021).

These advances offer numerous opportunities that impact different areas of the public sector, improving information dissemination from public service organisations (PSOs) (Wirtz et al., 2019; McKinsey, 2022).

Building on service research studies, and in particular on Public Service Logic (PSL) studies that identify and analyse value creation in PSs, Osborne (2018) highlighted the need to consider technology when describing the value creation process, rather than focusing only on the interaction between users and PSOs. In this sense, providing, designing or improving PSs without knowing how they are perceived by users can undermine value co-creation (Trischler and Trischler, 2022).

However, in PSL no studies yet have examined how users of PSs perceive the implementation of new technologies. In the context of chatbot technology in the public sector, Maragno et. al (2022) were able to gather information about a specific public microstructure (customer service), but suggest that the findings should be verified in other service contexts.

This article aims to understand users' perceptions of the integration of chatbots in PSOs, adopting the PSL perspective (Osborne, 2018) to understand the value co-creation process among organisations, users, and third parties. Through a qualitative approach, using the method of netnographic analysis and content analysis informed by the Technology Acceptance Model (TAM) (Davis, 1989), the aim is to understand how chatbots are perceived in PSs. Therefore, this study aims to provide an in-depth understanding of users' perceptions of different chatbot applications (Goodrick, 2020) by comparing different cases in two public service sectors, such as public administration and healthcare.

This study is based on the analysis of the comments associated with posts published on the official PSOs pages on Facebook regarding the adoption of chatbot technology within the research units selected as sample in this study.

To sum up the research question is: What are public service users' perceptions of the integration of chatbots in PSs?

Methodology

To investigate users' perceptions of the integration of chatbots in public service provision by PSOs, the author adopted a qualitative methodological approach (Yin, 2013), widely recognised in the literature as suitable for analysing emerging phenomena such as the adoption of artificial intelligence in the public sector (De Sousa et al., 2019). The methodological path consists of data collection through netnographic analysis, as it is defined as a valid 'qualitative research method that adapts netnographic research techniques to study cultures and communities that emerge through computer-mediated communication' (Kozinets, 2002, p. 62). This method uses available online information to understand user experiences in an unobtrusive way (Mkono and Markwell, 2014). The focus is on a series of cases concerning the adoption and implementation of chatbots by public sector institutions in Italy.

In order to gain a deeper understanding of the different applications of chatbots (Goodrick, 2020), several PSOs from two contexts, public administration and healthcare, were selected to gain a comprehensive understanding of users' perceptions of the technological adoption of chatbots and limit the dependence on either single contexts or cases.

The choice of these two contexts is based on the widespread use of chatbots and their social relevance. Indeed, these PSOs have a significant impact on society and users, and therefore the use of chatbot in service provision delivery can have important consequences for the value creation process.

Technology Acceptance Model (TAM) informs the research process, a theoretical model developed by Davis in 1989 to analyse how technology is perceived in PSOs (Wirtz & Piehler, 2016). This approach is particularly useful for studying the specific context of PSOs (Piehler et al., 2016)

In particular, the approach of Tubaishat (2018) is adopted, which considers perceived usefulness and perceived ease of use "the principal determinants of users' intention to use ("acceptance") of any new technology or innovation".

Data Collection

During the data collection phase, an analysis was conducted on the Facebook home page of several PSOs, including government and healthcare. All posts from 2020 to 2023 that contained the words "chatbot" or "virtual assistant" in the content were examined. For posts containing these words, all user comments related to the implementation of the chatbot in the PSOs were downloaded and recorded. In total, 156 comments were collected from Facebook users discussing the implementation of a chatbot within the PSOs analysed.

Data analysis

Two different approaches at two different levels were used to analyse the data collected during the study. First, a manual categorisation of the users' comments on the implementation of the technology was carried out, based on the two basic aspects outlined by the TAM (ease of use and perceived usefulness in using the technology). At this stage, it was determined whether users found the technology easy or difficult

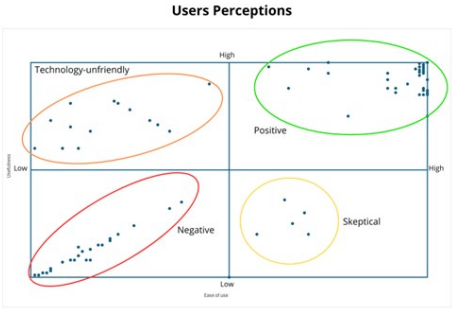

Figure 6: Proposed conceptual model.

to use and whether they found it useful or useless. 47 comments were excluded from the categorisation because they were not relevant. At the second level, a content analysis of the comments was carried out using the Sketch Engine software. The 'word list' function was used to identify the most common words in the comments. The most relevant words for understanding user perceptions were then examined using concordance and n-gram analysis. The aim was to gain an objective and deeper understanding of users' perceptions regarding the adoption of chatbots in public safety and organisations (PSOs).

Expected Results

Four categories of comments on Facebook posts emerged from the analysis (Fig 6): positive, negative, skeptical and technology-unfriendly. In the healthcare sector, the analysis reveals an overall positive perception in terms of usefulness and ease of use. Users appreciate the introduction of this technology, because they consider it useful and efficient within healthcare services. It's worth noting, however, that a segment of users are emerging as technology unfriendly, expressing uncertainty or lack of understanding about how chatbots work. In public administration, however, the comments reflect a predominantly negative perception, with users believing that it does not improve service and preferring personalised human interaction.

These findings have important theoretical and managerial implications.

From a theoretical perspective, they highlight the importance of considering user perceptions when approaching the digitisation of PSs (Trischler and Trischler, 2022) and they contribute to the ongoing debate on the infusion of digital technologies in public services, as per the call of Maragno et al. (2022), showing both the bright and dark side of digital technologies - i.e., chatbot - in such services.

Furthermore, the managerial implications suggest that they should prioritise clarity when communicating how technology should be used. This clarity can help further improve the adoption of digital innovations.

Finally, there is an urgent need to shift the attention from simply implementing new technologies to ensuring the quality of PSs. Rather than prioritising standalone technological advances, PSOs and policymakers should focus on improving service quality and ensure that digitisation efforts are aligned with the real needs and experiences of public sector users. Due to this digital literacy emerges as an issue worth investigation, since it hinders the adoption of new digital technologies

for several users, due to the gap they experience in using such novel tools.

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1 Nov
16:00
Takka

Acceptability of technology use for data collection in nursing care and healthcare services

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OBJECTIVES:

The Japanese population has been declining since peaking in 2008. However, the aging rate, which reached 28.9% in 2022, is expected to increase to approximately 40% by 2060, with the number of older people exceeding the current level (Cabinet Office 2022, National Institute of Population and Social Security Research 2023).

While there is a high demand for nursing care services for older people, there is a serious shortage of 650,000 care workers to provide these services by 2040, which is becoming a major social problem (Ministry of Health, Labour and Welfar 2023). Improving service productivity using new technologies such as robots, AI, and ICT may help solve this concern. However, the authors found that the acceptability of new technologies is a barrier to the technology's adoption into nursing care services through a previous survey conducted in Japan and Finland (Miwa 2021). On the other hand, reduction of care demand by extending healthy life expectancy and living independently and healthily in old age is also important. Healthcare services for older persons, such as exercise and diet management may also help to solve the concern.

Recently, new measurement systems such as wearable sensors and IoT devices have been developed, and we consider that monitoring and understanding the life and health status of older persons and even younger generations should become more important in the future, requiring the acceptable devices and services for users. Accordingly, this study aims to elucidate the relationship between the acceptability of new technologies for data collection and individual characteristics with a particular focus on monitoring services that are widely applied in nursing care and healthcare services used in daily life, and discuss barriers and facilitators of technology use in these services.

METHODOLOGY

An online survey was conducted in April 2024 to assess the acceptability of monitoring services and health care services among a sample of men and women aged 35 years or older. The survey consisted of 23 questions, asking about the acceptability of cameras and sensors for monitoring services, of information provision for healthcare services, and personal characteristics. The question regarding the monitoring service inquired about the acceptability of using cameras and sensors in various locations within homes and nursing care facilities, including living rooms, bedrooms, toilets, bathrooms, and hallways. The question regarding healthcare services inquired about the respondents' willingness to accept the provision of information, such as facial expressions, images of walking, step counts, and vital information for use in healthcare services. Questions regarding personal characteristics included

gender, age, household income, subjective health, educational background, caregiving experience, marital status, children, employment status, and experience using wearable sensors.

In accordance with ethical considerations, the survey was conducted based on internal regulations, in accordance with the determination of non-applicability by the Committee on Ergonomic Experiments of the National Institute of Advanced Industrial Science and Technology. The survey was contracted to an online survey company. Prior to commencing the survey, respondents were informed of the nature of the study via a screen-based briefing, and their consent was obtained electronically.

EXPECTED RESULTS:

The survey yielded valid responses from 2,000 respondents (1,000 men and 1,000 women). The respondents' ages ranged from 35 to 91 years, with a mean age of 59.1 years (SD 13.6 years).

The acceptability of the camera and sensor use in the monitoring service was investigated using a 5-point Likert scale (1: Strongly not acceptable, 2: Not acceptable, 3: Neutral, 4: Acceptable, 5: Strongly acceptable). The mean score decreased in the following order: hallway, living room, bedroom, bathroom, and toilet. At hallway and living room, the mean score exceeded 3.0, indicating a high level of acceptability of the cameras and sensors. Especially, more than 50 of respondents agreed the camera and sensor use in the hallway. On the other hand, more than 50% of respondents were unwilling to use cameras and sensors in bathrooms and toilets, indicating that the acceptability of using cameras and sensors in private spaces was low. The same trend was observed in homes and nursing care facilities. However, the acceptability was significantly higher in nursing care facilities than in homes (p ¡ 0.05, paired t-test). The authors considered that one of the factors increasing the acceptability of camera and sensor use was the public nature.

Acceptability of the provision of information on healthcare services was investigated using a 4-point Likert scale (1: Strongly not acceptable, 2: Not acceptable, 3: Acceptable, 4: Strongly acceptable). More than 50% of the respondents agreed to provide information on diet, number of steps taken, amount of activity, vital information such as pulse and blood pressure, and depth and quality of sleep. This indicates that they are highly acceptable for use in healthcare service. In contrast, the acceptability of information on facial expressions, location, images of walking and exercise, emotional states, and daily behavior was significantly lower than the other type of information (p ¡ 0.05, ANOVA). These findings suggest that the information which can be used to identify the service user is less likely to be accepted.

The subsequent phase of the study will examine the relationship between personal characteristics and acceptability using statistical techniques, such as logistic regression analysis. We assume that several factors such as age, household income, subjective health would be related to the acceptability of the camera and sensor use in nursing care and healthcare service according to the existing study (Miwa 2023). We will then elucidate the factors that facilitate or impede the introduction of new technologies in nursing care and healthcare services, and discuss how to introduce

new technologies according to the acceptability and how to increase acceptability. The findings of this study will contribute to the design of more acceptable data-driven nursing care and healthcare services.

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SDG Implementation: Introducing "The SDG Flywheel"

1 Nov
16:00
Poli

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OBJECTIVES

At the UNs High-level Political Forum on sustainable development (HLPF), at the end of 2023, progress of the Sustainable Development Goals (SDG) implementation at the half-time of the 2030 Agenda for Sustainable Development was reviewed. As a result of the finding that only 15 percent of the SDG targets are on track, bold and transformative actions was called for by the heads of state and governments. Applying science, technology, innovation, and data for transformative action is realized as game changer for scaling up actions to accelerate SDG progress. The resulting question of "how to support SDG implementation by applying science, technology, innovation and data?" is where our research starts. Based on SDG 17 "Partnerships" and a Service-Dominant Mindset, the research unfolds actor engagement to gradually intensify working together from solidarity over cooperation, collaboration up to value cocreation. "The SDG Flywheel" is introduced as a framework that treats value propositions related to the SDG implementation for improving human and planetary life. Four elements supporting and empowering one another are combined within "The SDG Flywheel" to accelerate, scale up and intensify from solidarity to value cocreation and SDG implementation: (I) SDG Goals, (II) Foundations, (III) Design Patterns and (IV) Design Artifacts.

METHODOLOGY

With reference to our research question of "how to support SDG implementation by applying science, technology, innovation and data?", we pursue two research objectives. We want to contribute both to the building of theory and to the creation of innovative solutions that have desired properties to improve social practices and real life while implementing the SDGs.

Our research design is the overall strategy, procedural plan and analytical approach chosen in order to integrate, in a coherent and logical way, the different components necessary for providing direction and ensuring that the research question will be thoroughly investigated according to both research objectives (De Vaus, 2001, Creswell and Creswell, 2017, Gioia and Pitre, 1990).

Design Science Research Methodology (DSRM) generates knowledge about innovative solutions to real world problems. We apply DSRM because it is essentially pragmatic in nature and characterized by the synergy between relevance for the real world and rigorous research (Hevner, 2007a, Peffers et al., 2008, Baskerville et al., 2018, Tuunanen et al., 2024). Design Science Research embodies three closely related cycles of activities (Hevner, 2007a). The rigor cycle provides the knowledge

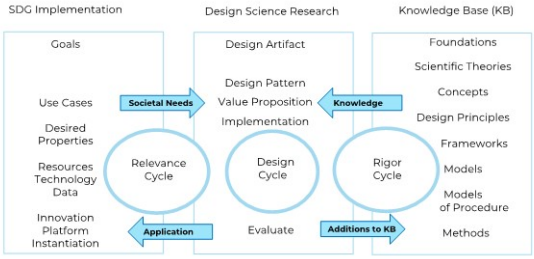

Figure 7: Design Science Research Cycles (Hevner, 2007b) adapted to SDG Implementation

base for rigorous research based on scientific theories, engineering methods, along with domain experiences, and knowledge generated in the application domain and expressed e.g. in design principles. The central design cycle supports a tighter loop of research activity for the construction and evaluation of value propositions with the desired properties implemented for example as design artifacts. The relevance cycle tests the artifact regarding suitability for fulfillment of the requirements of the research objectives expressed e.g. as instantiation of the elaborated design pattern or design artifact.

In our research we strive to use the interplay and mutual reinforcement of the elements of the three DSR cycles to design a framework with flywheel characteristics; this means that the elements of the framework support and reinforce each other to empower the implementation of the SDGs. Using service design principles and design patterns we intend to generalize our findings.

The structure of the research is oriented on the DSR process and its six activities which are presented in the following briefly (Hevner and Chatterjee, 2010, Wilson et al., 2013).

In activity (1), the research problem is identified and the value of a solution is justified. At the beginning we highlight the problem of lack of progress in implementing the SDGs for people and the planet. The value of SDGs as goals and solutions is illustrated, partnerships (cooperation, collaborations) and value co-creation are identified as recurring constants for the achievement of the objectives.

Activity (2) defines the objectives and design principles of a solution inferred from the problem definition and fueled from the knowledge base. Source and starting point are the composition of a comprehensive knowledge base of scientific theories, concepts, frameworks, models, logics up to the right mindset. Drawing on the knowledge base the objectives for improving SDG implementation as desired functionality and properties are defined and design principles for actor engagement and cocreative processes are elaborated. On the understanding that design is concerned with how things ought to be, we try to create design principles that can be used as part of value propositions and innovative solutions for the implementation of the SDGs again and again (Alexander, 1977, Simon, 1996, Hevner, 2007a). Subsequently, we elaborate design principles as part of the rigor cycle (Gregor et al., 2020, Wilson et al., 2013).

In activity (3) design patterns are deduced from the design principles and the

knowledge base. As part of the design cycle design patterns are created as blueprint or construction plan with the aim to generalize our findings as reusable solutions. The creation of design patterns involves determining the desired functionality, properties and architecture for the implementation of tangible design artifacts.

The properties of the design pattern as reusable solution to solve one or more aspects of the research question is demonstrated in activity (4). In activity (5) the design pattern and the design artifact as tangible representation of the design pattern are evaluated in terms of relevance for the implementation of the SDG.

Finally in activity (6) the interplay and empowerment of the three DSR cycles, the utility and novelty of the design pattern, the rigor of its design, and its effectiveness to researchers and other relevant audiences, are summarized and communicated.

EXPECTED RESULTS

Based on "The SDG Flywheel" framework introduced in this paper the contribution to the progress of SDG implementation is expected to be threefold.

Firstly, the mechanisms and design principles of value co-creation and the corresponding knowledge base and service-dominant mindset should be elaborated as foundation to drive actor engagement as requested in the SDG number 17 "Partnership" from primarily mental solidarity to value co-creation.

Secondly it is expected that design patterns, modular structures and service dominant architectures representing the design principles and core mechanisms of value co-creation are highly relevant for the design and implementation of value propositions in the context of SDGs and their implementation. Modular structures, e.g. in design artifacts like service platforms, are assumed to foster interaction and service exchange between human and non-human actor as well as rapid development and innovations for better social practices and progress in SDG implementation. Thirdly "The SDG Flywheel" as research agenda is expected to motivate service researchers to engage in research activities that continuously promote and develop the knowledge base and the design principles and patterns of co-creative, multifaceted solutions for SDG implementation. Science, technology and data should be applied for improving the rigor-, design- and relevance cycles and other transformative actions for scaling up and accelerate SDG progress. Summarized "The SDG Flywheel" combines four elements supporting and empowering one another to accelerate, scale up and intensify from solidarity to co-created value propositions fostering sustainable everyday actions and social practices for SDG implementation: (I) SDG Goals, (II) Foundations, (III) Design Patterns and (IV) Design Artifacts.

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Eco-Efficiency or Eco-Effectiveness of Services through digital Applications: A Framework for Decision Making in Service Engineering, Service Design and Service Development

1 Nov
16:00
Poli

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OBJECTIVES:

Service systems are becoming more complex, development cycles are getting shorter and digital solutions are playing an increasing role. The opportunities on the basis of digitalisation and smart services are on the rise. Smart services are characterised by digitalisation, individualisation, connectivity and the provision of services in an ecosystem (Husen & Abdel Razek 2021). They are connected, individualised and contextual. On average, organisations rate the impact of smart services as high. Better meeting customer demands and increasing competitiveness and sales are the most frequently cited reasons for offering smart services (Meiren et al. 2021). Digitisation (Maiser et al. 2022) is a multifaceted lever for accelerating, streamlining and, in some cases, replacing service processes. These technologies can be an enabler for the sustainability of product-service systems and services (Abdel Razek et al., 2023). For example, new technologies such as AR, VR, AI, big data and platforms serve as enablers for product-service systems (Stegelmeyer, 2022). The influence of digital solutions to service innovation can lead to an increase or decrease of sustainability. Service innovations should be analysed in order to assess their contribution to sustainability. In particular, digital solutions can play a significant role for the improvement of sustainability (Glauninger et al., 2024a). Froböse (2012) was able to show that eco-efficiency can be improved by a factor of 4-10 through the use of data-based services in combination with products. For this reason, the right choice of service for a specific product can significantly improve the sustainability of the resulting product-service system. In this way, data-based services are also becoming increasingly interesting for product development.

There are two different approaches to improving sustainability: Eco-efficiency and eco-effectiveness (Glauninger et al, 2024b). The area of social sustainability is not considered for both approaches.

The approaches are fundamentally different, but both can lead to improvements on sustainability. The scope of eco-efficiency is optimising, to reduce the negative impact to the environment or to increase the value of a service system (Glauninger et al., 2024a).

Eco-effectiveness on the other hand, focuses on circular economy, reusing and accordingly has the entire system in view with all its effects (Glauninger et al., 2024b). In the case of eco-efficiency, the main target is optimizing, therefore it is an appropriate approach for the improvement of sustainability of existing services (Ahrend, 2016). Eco-effectiveness takes a holistic view of the service. This contains all components of a service, for example, the sustainability of hardware components that are important for the service delivery. For this reason, the improvement of

eco-effectiveness generally leads to greater effort, as the effects of all levels would have to be considered if possible. Particular attention is paid to whether the added value of a service changes with the addition of a digital application. If the utility of a service changes as a result of the optimisation, this could be a hybrid solution. In the case of optimisation, it is generally assumed that fewer resources are used while the utility value remains the same. Investigating this influence is part of the paper.

The two approaches have to be handled different. In particular, the chosen approach leads to differences in the engineering, the development and the design of services. Depending on the procedure, what are the advantages? What are the possible disadvantages? In order to be able to identify them, it is necessary to take a closer look at the issue. The aim of this paper is the development of a framework that can be a support for the decision on the right procedure. In other words, the framework should support decision-making. In this way, decisions in the area of service engineering, design or development can be supported and made accountable. The focus is on improving sustainability through digital applications. Therefore, possible influences of other approaches to improve eco-efficiency or eco-effectiveness are not part of the framework.

This exploratory paper analyses the framework conditions, the requirements and the opportunities for the two approaches to improve the sustainability of services which are based on the utilization of digital applications.

METHODOLOGY

At first, the topic will be evaluated on the basis of a literature review. The literature covers the topics of service design, development and engineering, smart services and sustainability (eco-effectiveness and eco-efficiency). As a second step, a framework based on elaborated requirements will be created. The framework will be evaluated according to the suitability for service design, development and engineering.

EXPECTED RESULTS:

It is expected to provide insights into decision making regarding the appropriate approach to improve the sustainability (eco-efficiency and eco-effectiveness) of services through the implementation of digital solutions. In particular, the distinction between the two solutions (eco-efficiency and eco-effectiveness) and the differences in the framework can play a role for service design, service engineering and service development. In this way, decisions can be promoted and made comprehensible on the basis of an established procedure. The framework can contribute to the optimisation or creation of new service innovations. The paper is intended to show which of the approach is more suitable for specific use cases and how the impact of digital solutions can be assessed. The framework can be transferred to other approaches to improve the eco-efficiency or eco-effectiveness of services. The Framework could also help to improve all areas of sustainability, including social sustainability. In this way, the results can contribute to a more holistic view of how to improve the sustainability of services.

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Co-Designing a Commons-Based Strategy for Forest Management: Phase One, Identifying and Classifying the Forest Functions

1 Nov
16:00
Poli

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This study presents a novel approach to forest management in the Canton of Valais, Switzerland, where forests belong predominantly to the 'Burgergemeinden' (local commoners' organizations). These forests serve as vital common pool resources, crucial for ecological sustainability and historically managed in a local governance way. Facing increasing pressures from climate change and intensified local resource demands, this research employs a participatory, co-design methodology to develop a resilient forest management strategy. By aligning with Elinor Ostrom's principles of commons management, the project focuses in this first step on identifying and classifying forest functions critical to community and ecosystem needs. In the initial phase of developing the forest management strategy, the Living Lab methodology was employed to integrate local stakeholders to identify and classify forest functions. Sixteen functions were identified and ranked by importance, with timber production, energy wood supply, and protective functions emerging as the most critical. Additionally, these functions were assigned to the four categories defined by law, enabling the identification of the forest's environmental function as the most crucial.

Keywords: Forest management, Forest functions, Co-design, Common pool resources, stakeholder involvement

INTRODUCTION

Context: Historically, the forests of the Canton of Valais (Switzerland), crucial for the survival and development of local communities, have been managed as common pool ressources (CPR). These forests, belonging to 87% to the local commoners organisations called 'Burgergemeinden', provided essential resources such as protection from natural hazards, energy sources, raw material providers and even food sources (Canton du Valais, 2024; Gimmi et al., 2008; Stuber, 2021; Stuber Bürgi, 2012). This historical management approach positioned the forests as integral components of local governance and ecological sustainability (Fédération des Communes Bourgeoisiales Valaisannes, s. d.; Ruff, 2018; Sieber, 2005).

Nowadays, while those forests continue to be recognized as CPRs and they still belong to the Burgergemeinden, their management has not fully adapted to the increased pressures of modern demands and climate change (Verband der Walliser Burgergemeinden, 2024). The region is experiencing climate impacts that are twice as severe than the global average (NCCS, 2023). This is particularly evident during the hot and dry summers, which pose significant challenges to local tree species and lead to forest dieback (Leuch et al., 2020; NCCS, 2018, 2023). Additionally, the shift towards wood as a renewable energy source and therefore the rising demand in it in response to the Paris Agreement further exacerbates these pressures (DEWK, 2013; United Nations, 2022; WSL, 2015).

These emerging challenges necessitate a strategic rethinking of forest management practices (Lignum, s. d.; WSL, 2015). The objective is to adopt a management approach grounded in the principles of communal stewardship of CPR. This study adopts a participatory, co-design methodology to develop a management strategy that not only addresses the multifaceted ecological and economic pressures but also re-engages the local community in forest stewardship. The first step in this approach involves identifying and classifying the key functions of the forest as recognized by forest owners and local stakeholders. This crucial step ensures that all parties can identify with and take ownership of the outcomes, thereby enhancing the effectiveness and sustainability of the management strategy (Führer, 2000).

By realigning the management of forests in Valais with the foundational principles of common goods, this project seeks to forge a sustainable path forward that respects both the ecological integrity of the forests and the socio-economic realities of the local communities.

Problematic: The forests of the Canton of Valais are at a critical juncture. Historically managed by the 'Burgergemeinden' as common goods, these forests are now confronting unprecedented challenges due to modern pressures and climatic changes. The region currently lacks a comprehensive forest management strategy, preparing the forest for the future and assuring is crucial functions. The absence of such a strategy not only threatens the ecological health and sustainability of these forests but also undermines their ability to continue serving as vital CPR for the local communities. This study, being the first part of a broader project aiming to address this gap by developing a participatory, co-designed forest management strategy that aligns with Elinor Ostrom's principles for managing common pool resources, seeks to analyze the forest functions.

Research Questions: In order to develop a robust forest management strategy that addresses the present and future challenges of the Valais forests while considering the needs of the local population, it is imperative to first understand the functions that the forest currently performs and the perception of those by the stakeholder. This understanding will guide the strategic development and ensure that the management approach is both effective and sustainable. The following research questions have been defined for this first step:

What are the most important functions of the forest as identified by the local stakeholders? How can those functions be classified?

METHODOLOGY

The initial phase of identifying forest functions forms a key component of a broader initiative aimed at developing a robust methodology for formulating a forest management strategy that incorporates the dynamics of CPR. To establish a such, the Living Lab approach was adopted, where three test regions serve as real-world laboratories. This approach promotes user-centered innovation and co-design to enhance the integration of collectivity (Bergvall-Kareborn Stahlbrost, 2009; Dell'Era Landoni, 2014; Mastelic, 2019). Consequently, the first step in strategizing must align coherently with this approach.

Hence, it was decided to identify functions through co-design workshops, followed

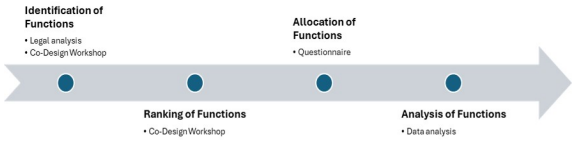

Figure 8: Applied methodology

by classification via questionnaires. This method facilitates an open innovation process that incorporates external ideas, particularly from diverse stakeholders involved in the co-design workshops (Chesbrough, 2003; Huizingh, 2011; von Hippel, 2001, 2005). Additionally, this approach enables the diversification of stakeholder knowledge, enhancement of skills, and fosters a collective path towards a shared goal (Ayuso et al., 2006; Gray et al., 2012; Jonas Roth, 2017). As Evans et al. (2017) have identified, it is crucial to integrate participants from the beginning to the end of the process, which is implemented from this initial phase. Living Labs amalgamate various user-centered co-creation methods to optimally fulfill their objectives (Evans et al., 2017).

Based on the Living Lab principle, the Quadruple Helix model or multi-stakeholder mobilization was applied. This signifies the involvement of representatives from public, private, corporate, governmental, and academic sectors, fostering a collaborative environment (Bergvall-Kareborn Stahlbrost, 2009; Mastelic, 2019; Nyström et al., 2014; Veeckman et al., 2013).

According to Article 1 of the federal forest law, forests fulfill a protective, welfare, and social function. Additionally, cantonal forest law under Article 1 extends these functions to include the environmental role of forests. Beyond these legally defined functions, forests provide numerous ecosystem services ranging from resource provision to regulation of precipitation and temperature (Brockerhoff et al., 2017; Führer, 2000; Millennium Ecosystem Assessment, 2015). However, the significance of these functions varies considerably depending on the context and local environment.

During the co-design workshops, participants initially identified the most important functions that, in their assessment, the local forests fulfil. The outcomes of this plenary session were subsequently ranked by importance. Following this, participants were asked to align the identified functions with those defined by law. This alignment aids in the development and justification of subsequent management actions. Furthermore, through this analysis, it was possible to ascertain which legally defined function is considered the most critical according to stakeholders.

RESULTS

Figure 9 visually summarizes stakeholders' perceptions of the multifunctional roles of forests, categorizing them into the legal categories economic, protection, environmental, and social functions. Key insights reveal a strong emphasis on the environmental functions. Simultaneously, the economic and social aspects of forests are highlighted through functions like Tourism and Biomass, which illustrate forests' broader impact on local economies and community well-being. This diverse array

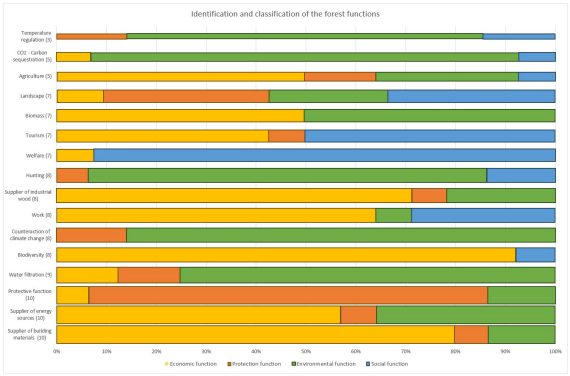

Figure 9: Classification of the identified functions according to their allocation to the legal functions. The width of the bars represents the identified importance, which is also noted in parentheses, where 10 indicates the most important function and 0 is iden

of functions underscores the need for balanced forest management strategies that integrate and prioritize these varied roles according to stakeholder values and legal frameworks.

The allocation has made it possible to see that stakeholders primarily assessed the environmental function as important, which is surprising. Prior to the discussions, the economic aspect of the forest was often emphasized.

CONCLUSIONS

This initial step of identifying the functions has enabled a more precise definition of what stakeholders consider to be the most important aspects of forest management. By mapping these to the legally defined functions, interventions and improvements can be justified through the obligation to fulfill these functions. Subsequently, stakeholders for each function can be identified. This ensures that the appropriate individuals are involved in all significant decisions.

The research clearly demonstrated that stakeholders were engaged and willing to participate in various workshops. With their expertise and perspectives, the most crucial functions of the local forest were identified, which will allow later on to identify benefits and drawbacks associated with these functions.

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Co-Designing a Commons-Based Strategy for Forest Management. Phase two - Stakeholder identification and integration as a key to succes

1 Nov
16:00
Poli

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In Valais (Switzerland), where 87% of forests are common-pool resources belonging to the "Burgergemeinden" (local commoners' organizations), traditional forest management practices are being challenged by modern regulatory frameworks, globalization, and environmental changes. This study introduces a novel co-design methodology within Living Lab environments across three test regions to address these challenges. Through the deployment of a Power-Interest Matrix, this research effectively maps the influence and interests of key stakeholders in forest management. The findings reveal significant variability in stakeholder influence across different forest functions, highlighting the need for adaptive management strategies that are responsive to complex socio-economic and ecological dynamics. This approach not only ensures the inclusion of diverse stakeholder perspectives but also aligns with collective management principles crucial for tackling the intensified effects of climate change observed in the region. The methodology's adaptability and the strategic insights it provides position it as a pivotal tool for future forest management planning, ensuring sustainability and resilience in the face of evolving global challenges.

Keywords: Stakeholder integration, Stakeholder classification, common pool ressource management

INTRODUCTION

Context: Approximately 87% of the forests in the canton of Valais (Switzerland) belong to the so called "Burgergemeinden," which are local commoners organisations, which makes the vast majority of the forests common pool ressources (CPR) (Dienststelle für Verkehr, Bau und Umwelt, 2014; Dienststelle für Wald und Landschaft, 2015; Ruff, 2018). These organizations, established before today's municipalities, were initially created to collectively manage important goods such as forests, water, and alpine pastures to ensure their sustainability over the long term (Dictionnaire Historique de la Suisse, 2015; Ruff Franziska, 2018). Today, however, the importance of forests has largely diminished in the eyes of the local population. Historically, forests were vital to local communities, serving multiple functions from providing energy and food sources to protecting against natural hazards (Haller, 2021; Landolt & Haller, 2015; Stuber & Bürgi, 2011). Globalization has made it easier and cheaper to import many of the raw materials that these local forests provide (Dienststelle für Verkehr, Bau und Umwelt, 2014). This development has led to a decline in the significance of forest management, and the forests are now on the verge of underutilization (WSL, 2020). However, we are at a critical juncture where it is increasingly important to prepare the forests for upcoming challenges. Despite their diminished perceived importance, without the forests and their services, the population, especially in mountain regions, could not survive. The biggest challenges the forest faces include climate change, which is impacting the region at twice the average global

rate, leading to drier and hotter summers and posing significant challenges for local forests (National Centre for Climate Services NCCS, 2018; NCCS, 2023).

At the national level, the principles of forest management have been established. Some cantons already have a forest management strategy, but this is not yet the case in the canton of Valais. The current cantonal law stipulates that forest owners must manage the forests, which complicates matters in Valais, as the forests, as previously mentioned, are largely CPR. Therefore, it is the role of the "Burgergemeinden" to develop a strategy for managing the forests in the coming years to optimally prepare them for forthcoming challenges. Due to their current low activity levels, a project supported by the Canton of Valais sought a solution to optimally support the "Burgergemeinden." The goal is to develop a methodology for drafting a forest management strategy that adheres to the principles of collective management of common-pool resources.

Problematic: The development of a forest management strategy necessitates the integration and collaboration of various stakeholders, a process that is particularly crucial in collective management settings (Reed, 2008). A thorough understanding of key stakeholders, their interests, and their influences is essential (Guolaugsson et al., 2020). Given the unique context of this project, as outlined in the introduction, it is vital to determine these elements in real-world situations. In a first step, the functions deemed important by the project partners were identified. The current challenge lies in pinpointing the key stakeholders within the local context and understanding their interests as well as their power in these functions. Recognizing those aspects is imperative to subsequently engaging the relevant parties crucially involved in the strategy.

Research Questions: This second phase of the project delves deeper into the stakeholder analysis. Building on the outcomes from the initial phase, this study aims to meticulously assess the stakeholders in relation to the 16 identified functions of the forest. The central research question of this part of the project is: What are the levels of power and interest of the ten most significant stakeholders concerning the identified functions?

METHODOLOGY

The methodology used for the whole project is the concept of Living Labs, with three designated test regions serving as real-world laboratories. This approach facilitates a user-centered and open innovation process and ensuring broad stakeholder engagement (Arnould et al., 2022; Bergvall-Kareborn & Stahlbrost, 2009; Dell'Era & Landoni, 2014). In these Living Labs, the methodologies are tested, feedback is solicited, and further refined, promoting a bottom-up approach and collective participation.

For the stakeholder analysis component, the Power-Interest Matrix methodology was employed to classify stakeholders effectively. This method enables a systematic assessment of stakeholders by categorizing them into four groups based on their power and interest levels which are (Alvial-Palavicino et al., 2011; Eden & Ackermann, 1998; Tsoutsos et al., 2009):

- **Minimum Effort**: Stakeholders with minimal interest and influence, posi-

tioned at the bottom left of the matrix, are considered non-critical and typically receive less focus.

- **Keep Informed**: Those with some interest but little influence are kept well-informed, as their support can be pivotal during critical voting scenarios.

- **Keep Satisfied**: Stakeholders with significant influence but lesser interest must be kept satisfied to prevent potential opposition to the project.

- **Key Stakeholders**: Positioned at the top right, these stakeholders possess both high interest and influence and are crucial for active project involvement.

For our project, the two axes of the matrix were defined as follows:

- **Stakeholder Power**: The capacity of stakeholders to exert influence towards achieving desired outcomes.

- **Interest**: The level of concern stakeholders have regarding the function.

This classification process is based on data collected through workshops, interviews, and focus groups. Engaging stakeholders early in the strategy development, integrating their expertise, and responding to their feedback are pivotal steps that highlight the importance of comprehensive stakeholder engagement in crafting effective environmental management strategies.

RESULTS

Participants in the workshops were requested to assess the interest and influence ("power") of ten pre-defined stakeholders across 16 identified functions. Subsequently, these assessments were visualized in a Power-Interest graph to delineate the key stakeholders for each function. In the previous step of the project (identification and classification of the functions), these functions were also categorized into four groups as defined by existing legislation. To present the most significant results, the average ratings of the identified stakeholders per function were plotted. This approach allows for the straightforward identification of key stakeholders, as well as those who should be kept informed or satisfied for each specific function.

It was observed that while some stakeholders, such as the "Burgergemeinden" and the local forestry service, consistently emerged as key stakeholders across all functions, the significance of other stakeholders varied considerably depending on the function. This variability underscores the dynamic interplay of stakeholder interests and influences in forest management strategies.

Figure 10 shows the stakeholder matrixes for the four categories.

S1 Burgergemeinden S2 Forest Division S3 Inhabitants S4 Department of Forests, Nature, and Landscape S5 Department of Economy, Tourism, and Innovation S6 Department of Energy and Hydroelectric Forces S7 Forest Valais S8 Lignum S9 Federal Office of Energy S10 Federal Office for the Environment

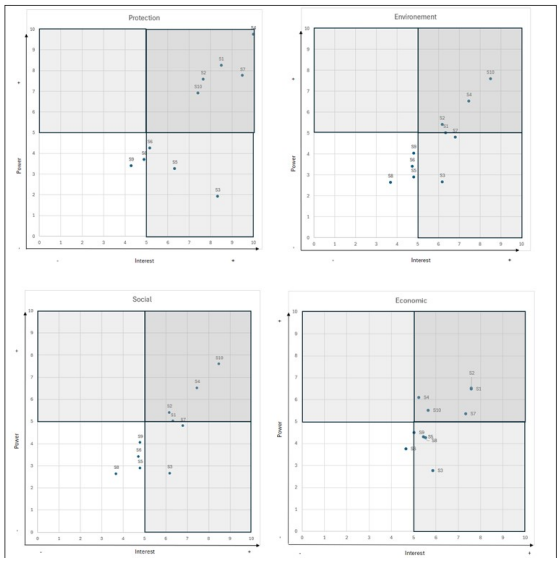

Figure 10: Figure 1: Power / Interest Matrix of the four functions

DISCUSSION

The application of the Power-Interest Matrix in this study has crucially highlighted the diverse levels of stakeholder influence and interest, providing a robust foundation for strategic forest management in Valais. Identifying key stakeholders such as the "Burgergemeinden" and the local forestry service as consistently crucial across all functions emphasizes the need for their active involvement in decision-making processes. However, the varying significance of other stakeholders across different forest functions underscores the complexity of forest management in this region. This variability necessitates adaptive management strategies that are responsive to the specific needs and dynamics of each forest function.

Furthermore, the Living Labs approach used in this project demonstrates the effectiveness of involving stakeholders directly in the research and strategy development process. This hands-on involvement not only enhances the relevance and applicability of the research outcomes but also ensures that the strategies developed are realistically implementable.

The findings also reflect the broader challenges faced in forest management, particularly in regions affected by rapid climate change and economic globalization. By focusing on a user-centered and open innovation process, this research contributes to the emerging body of knowledge on sustainable forest management that not only seeks to preserve ecological balance but also to enhance the economic viability of local communities.

CONCLUSIONS

This study developed a methodology for stakeholder integration in forest management, utilizing a co-design approach within the Living Labs framework. The use of the Power-Interest Matrix proved instrumental in identifying and categorizing stakeholders, thereby facilitating a more targeted and effective strategy develop-

ment process. Key stakeholders have been identified, and their roles and interests clarified, setting a strong foundation for the next steps in strategic planning and implementation.

Moving forward, the strategies Will be iteratively refined and adapted based on ongoing stakeholder feedback and changing environmental conditions. Further research should also explore the long-term impacts of these strategies on forest sustainability and community resilience.

Ultimately, this project not only advances the practical application of collective management principles in forest management but also provides a valuable model for other regions facing similar challenges, thereby contributing to global efforts in sustainable land use and conservation.

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Opportunities and barriers in development of business ecosystems around urban nature-based solutions in the two Finnish cities

1 Nov
16:00
Poli

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OBJECTIVES

Improving resilience in the urban built environment calls for fostering nature-based solutions (NBS) and adoption of e.g. green infrastructure with green facades or roofs, blue-green infrastructure or use of regenerative building materials such as wood. Typically, earlier research on NBS advocates using participatory approaches for co-designing, co-creation, and co-management to find solutions that aim to meet the needs of a wide range of stakeholders (Collier et al. 2023; Kabisch et al. 2016). Many barriers are likely to exist in mainstreaming the use of NBS (Duffaut et al. 2022). In addition, the phenomenon is extremely context specific and needs to be researched at local level in order to aid planning and strategizing in the context of local business ecosystems, and this type of sustainability-driven business literature is internationally very rare (van der Jagt et al. 2020; Viholainen et al. 2021). Hence, the objective of this paper is to bridge the gap in terms of understanding perceived barriers and opportunities for mainstreaming NBS in the business ecosystems of nature-based solutions (NBS).

METHODOLOGY

Two frontrunner coastal cities facing challenges in terms reconciling urban growth, biodiversity goals and the extreme events due to changing climate in Finland are selected for the study. The empirical study consists of data collected from 11 qualitative analysis of expert interviews and four focus groups organized within two expert workshops in the fall 2023.

EXPECTED RESULTS

Based on the results, the business ecosystem around NBS consists in both locations of four different type of actors: customers, actors in the building industry, city itself as a large-scale and siloed organization, and expert actors supporting development of nature-based solution. The engaged actors in both locations view NBS similarly to be very important part of the urban structure and therefore highly relevant for enhancing resilience in the face of changing climate and extreme weather events such as heat waves and flooding. The benefits that NBS are seen appear at multiple scale, ranging from the specific buildings to local neighbourhoods in supporting resident

health, well-being and connectedness to nature to the level of entire urban environment. Inherent environmental benefits from NBS are identified with enhancement of urban biodiversity and support for ecosystem service delivery, but also seen in delivering multiple other social and economic co-benefits associated with modern housing solutions. Perception of barriers are related to economic and financial management, governance and institutional barriers, immature valuation of NBS in the housing market, technical and infrastructure related barriers, and the fragmentation of the local NBS business ecosystem.

In conclusion, there is a shared consensus that nature-based solutions are the key for urban resilience, and they are seen as inherently part of the future of urban planning and construction in both case cities. To further increase the urban NBS, experimentation, piloting and alliance projects, plot handover competitions, sustainability driven zoning and other methods of land use planning and building regulation are suggested for bringing ecosystem actors together and reaching the shared goals toward better urban resilience.

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Potential service needs to support consumers' sustainable practices with plastic waste

1 Nov
16:00
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ABSTRACT

Sorting and recycling household plastic waste plays an important role in reducing the environmental impact and conserving resources. In recent years, consumer attitudes towards plastic recycling have undergone significant transformations, influenced by heightened environmental awareness, policy changes, and media coverage. This shift is reflected in the growing public concern about plastic waste, leading to an increased demand for sustainable practices and products. According to a report by the Ellen MacArthur Foundation (2020), there is growing consumer support for products made from recycled materials and for companies that prioritize sustainable practices.

Despite widespread awareness of the environmental benefits of recycling, many consumers fail to translate this knowledge into consistent recycling practices. Research indicates that while consumers often express strong pro-environmental attitudes, these attitudes do not always result in corresponding behaviors (Juvan & Dolnicar, 2014). One key factor contributing to the knowledge-behavior gap is the perceived inconvenience associated with recycling, with studies showing that consumers are more likely to recycle when it is easy and accessible. For instance, the presence of curbside recycling programs has been positively associated with higher recycling rates (Sidique, Lupi, & Joshi, 2010). Conversely, the absence of convenient recycling facilities can discourage consumers from engaging in recycling, despite their environmental awareness.

In this study, we aimed at finding consumer segments with differences in their capability, opportunity and motivation for plastic sorting and recycling in order to find a segment for whom new services could be useful to guide them towards higher recycling levels and hence, better reuse of plastics.

OBJECTIVES

The aim of the study was to increase the understanding of attitudes and values of Finnish consumers towards plastics sorting and recycling, and to use this information for service ideas.

METHODOLOGY

The COM-B model of behaviour (Michie and Van Stralen, 2011) was used for creating a survey study involving 1,000 Finnish consumers to examine behavioural variations. Additionally, questions regarding demographic data, attitudes and values, and dimensions for future consciousness (Ahvenharju et al. 2018) were included in the questionnaire. Four distinct behavioural factor clusters were identified through

K-means clustering of behavioural factors. Consumer profiles were created based on the data to evaluate posible service needs.

EXPECTED RESULTS

The results showed four distinct consumer segments with different profiles:

1. **Committed recyclers**: In this segment, plastic recycling practices are an automatic and integrated part of daily habits. 11% of the respondents belonged to this segment, consisting solely of older women.

2. **Moderately positive**: This segment shows good readiness and skills for plastic recycling. They feel remorse when they or others fail to recycle, have positive attitudes, and feel morally obligated to take care of plastic waste. 33% of the respondents belonged to this segment, consisting mainly of women of different ages.

3. **Low-commitment**: In this segment, a lack of skills and inconvenience hinder active plastic recycling. Although they understand the relevance of recycling, it does not motivate them enough to change their habits. 29% of the respondents belonged to this segment, with a large proportion of men of different ages.

4. **Restricted**: This segment lacks both capability and motivation for plastic recycling. They are not interested in environmental practices. 27% of the respondents belonged to this segment, with a large proportion of young men.

The most relevant segment from service viewpoint is the Low-commitment segment as in this segment the knowledge-behavior gap appears to be the largest. The segment is, however, very versatile with regard to e.g. the income levels, indicating that some respondents may be more willing to pay for services than others. The persons with highest income levels tended to live in single houses or small housing cooperatives. One possibility would be to offer service of collecting different waste types directly from their houses with minimal need to store the already sorted waste. However, services such as multi-compartment waste containers are rarely available for them in Finland (restriction for housing cooperatives of at least six households). In addition, for this group, waste sorting and recycling could be offered as a cleaning service.

Several respondents in this segment also had doubts of the efficiency of current services. Hence, increasing transparency and clear communication of the impacts of already existing services could increase the motivation to sort and recycle. The proportion of respondents with pessimistic views of the future was the largest in this segment (34%). The self-efficacy was low, and they didn't trust in individuals' capabilities to affect the future. The respondents were also more egoistic in this segment than in the others. Hence, services offering the possibility to monitor own success and possibly even compare with others could potentially increase their motivation.

While it is of utmost importance that recycling and circular economy becomes a common practice, some consumers need more support for changing their habits than

others. In many cases, awareness is not the issue, but changing the everyday habits, and this may be difficult to achieve without support. In this study, a consumer segment was found who would benefit of services making the sorting and recycling of plastic easier. At the same time, the services can be desirable and useful for other segments as well. Additional qualitative research would be needed to understand the enablers and barriers for behavior change in more detail, to test some service models in practice, as well as to collect more information on the willingness to pay for recycling services.

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1 Nov
10:45
Valsta

Digital transformation of national library services with AI

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OBJECTIVES

National libraries are starting to experiment with the adoption of AI (artificial intelligence) technologies to expand their digital transformation efforts. While there have been several waves of digital innovations in the past (Soto Setzke et al. 2023), such as augmented or virtual reality tools, eBook instead of physical lending (Cooke et al. 2022), or the adoption of social media to engage patrons, AI poses different risks and opportunities to transform the service delivery of libraries. In an exploratory interpretative research design, we conducted expert and case study interviews in 12 national libraries and analyzed how they are transforming their service delivery with the use of AI.

Libraries are seen as important public sector institutions to capture and preserve but also to distribute and thereby democratize information and knowledge for future generations (Sessa 2009). They promote (digital) literacy of their patrons and their own librarians and information specialists (Bradley 2016). However, their use of artificial intelligence has not been studied yet. Therefore, the purpose of the paper is to understand how libraries are adopting AI innovations in their services, what their main drivers but also barriers are in this process.

In the service design literature, the adoption of AI is focused on speed and effectiveness criteria to improve inventory search and selection or product delivery (Reis et al. 2020). In addition, in the service delivery process AI tools are predominantly seen as threatening human labor by replacing mechanical, analytical, intuitive, and even empathetic tasks (Huang & Rust 2018). However, the prediction is that humans will continue to provide intuitive and empathetic tasks, while AI can take on mechanical and analytical tasks in service provision. The so-called "human-in-the-loop" approach also recognizes that any algorithm or machine needs humans as co-producers of information, as an intermediary to review and adjust to the ethical standards, and most importantly to use its knowledge, experience and wisdom to fact check, provide guidance, and correct (Zanzotto 2019). In other words, maintain and contribute their unique knowledge and improve AI system's accuracy (Fügner et al. 2021).

We therefore set out to understand how those public institutions in charge of collection, preserving, and sharing a Nation's information and knowledge are using AI tools to complement and replace their traditional analog and digital services.

METHODOLOGY

The interpretative research design is based on a systematic literature review and Delphi study to identify the theory-practice gap of digital transformation efforts in

libraries (Page et al. 2021). This research gap was confirmed through interviews with library association representatives (Gioia et al. 2013). As a result, we identified the use of AI as one of the major digital transformation challenges that libraries are currently facing.

Through the expert interviews, we identified National Libraries as appropriate cases given their structural and financial advantages to invest in AI development in comparison to other library types. In this multiple embedded case study design, the case selection procedure was both methodology- and phenomenon-driven (Yin 2018). The sampling process is influenced by its ability to capture the characteristics of the phenomenon under study, and we also considered it important to combine a number of key methodological clarifications necessary to ensure that the selected cases have concrete manifestations in practice. The following national libraries were identified through expert interviews, using snowball and intensity sampling approaches: Belgium, Denmark, Estonia, Finland, France, Germany, Norway, Spain, Sweden, Netherlands, the UK. Plus, we added the US' Library of Congress because it was continuously mentioned in the case and expert interviews.

From the initial expert interviews, we extracted the case selection criteria. Using a shared interview guide – partially derived from the literature, partially inductively emergent from the expert interviews, we identified 12 National Libraries in Europe as our case studies (Kallio et al. 2016).

Each national library had at least one official AI project either under way or already developed. In each case, we aimed to conduct case interviews with the project leader, information or cataloguing experts, and users. For AI projects users are usually not the patrons, instead librarians themselves are the users of the new service.

Using a shared case illustration template, we identified the main themes that our interview partners mentioned and in an interpretative manner coded for the major dimensions and concepts in our dataset to synthesize the findings (Gioia 2021).

EXPECTED RESULTS

We expect that our results provide a general overview of the adoption drivers and challenges of AI in national libraries' services. Our interviewees see the benefits of the adoption of AI largely in the form of information equalizer or a way to democratize information and a way to augment human work conducted by librarians. Furthermore, it leads to an optimization of existing processes, increased accessibility and sustainability of National Libraries.

The interviewees also pointed out several limitations that are of structural and legal nature: the resources in libraries are limited to invest in skills and capacities and many are facing continued ethical challenges and dilemmas.

We identified that libraries adopt several different types of AI, including Natural Language Processing (NLP), Optical Character Recognition (OCR), or Handwritten Text Recognition (HTR). AI can be used to enhance library functions, internal process and service delivery, and in turn, libraries also shape the implementation and characteristics of AI tecnologies.

Besides the patterns that could be observed also in other domains, a value di-

mension emerged considering both the data that libraries have and the trusted role of these institutions as advocates for openness in creating innovations, democratization of access to all knowledge that is created in society, and their contributions in the technology's ethical and trustworthy development. We also find that AI projects in national libraries contribute to the AI literacy development of both patrons and staff as a societal contribution.

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1 Nov
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Libraries and public value: placemakers in an ecosystem perspective

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OBJECTIVES

Libraries have changed their services in the last decades and have evolved from being mere book lenders. Public libraries today provide innovative services that concentrate on aspects like participation, making & creating, learning, new outreach and partnerships. (Nicholson 2019) Thorhauge (2010) sees public libraries as a) providers of learning areas, meeting rooms and stages for artists, b) as operators of digital libraries with associated technical infrastructure and access to digital collections, and c) as partners and connectors between different people, organisations and groups in society. Particularly the latter role brings libraries close to an ecosystem perspective of their value creation. As public libraries are organisationally, administratively and physically part of urban environments, their ecosystem settings have at least partly a local or urban character. Born et al. (2018) see libraries as integral part of the knowledge infrastructure of cities.

In the context of this paper, ecosystems are meant as group of organisations that collaborate and combine their skills and assets into coherent user-facing service offerings thereby co-creating value that no single organisation would achieve (Moore 1993; Eisenhardt und Galunic 2000). Autio und Thomas 2014 argue that in contrast to other network constructs, innovation ecosystems cover both the supply and the use side while developing new value through innovation. Furthermore, in many such innovation ecosystems a hub organisation exists e.g., by providing access to a shared platform or controlling access to a network architecture. Walrave et al. 2018 places innovation ecosystems in the context of wider societal transformations and sees as the defining elements thereof in that the ecosystem organiser, i.e. the hub organisation or orchestrator, has a systemic goal in the form of an overarching narrative as basis for service offerings. In this respect, it is of interest that public libraries do place their services and strategies in the context of the UN sustainable development goals (SDGs), as manifest in the IFLA-UNESCO Public Library Manifesto[2] and in the Council of Europe recommendation on library legislation and policy in Europe[3].

In this paper we want to show first, how libraries as orchestrators of an ecosystem bring forward innovative services. In reshaping the (local) landscape of service design, delivery, and value (co-) creation they contribute to societal transformation through collaborative, multi-faceted service innovations aligned with the systemic perspective of the SDGs; and second, how by this they create public value.

[2]https://www.ifla.org/public-library-manifesto/, last accessed 11/06/24.
[3]https://search.coe.int/cm?i=0900001680aaced7, last accessed 11/06/24

METHODOLOGY

Our example at hand is the metropolitan area of Vienna with its public library network. We apply a layered case study method, exploring the level of the library with its strategies, governance structures and services on the one hand and exemplifying the level of a particular innovative service and collaborating local partner organisations. The Vienna Libraries are a metropolitan area library network. The Vienna libraries network consists of a main library and 37 branch libraries across the different Viennese districts. The branch libraries are of different size and specialisation, and organised as geographic sub-networks (North-East, South-West etc). Organisationally, the Vienna libraries are part of the Vienna municipal administration, and also funded by the Federal Ministry for Arts, Culture, the Civil Service and Sport.

The case study is based on official documents and archival data, a number of interviews and meetings with main actors in the library and of the innovation ecosystem, and participant observations of particular service offerings.

EXPECTED RESULTS

This paper contributes with an empirical case study to the debate on public value of libraries in line with (Benington 2011). Here, public organisations act in an environment that is constantly changing, characterised by a diverse population, shaped by civil society and governed through networks and partnerships. Libraries contribute to public value in several ways.

First, by being placemakers. This entails that they change the image and identity of local areas thereby contributing to local development. (Skot-Hansen et al. 2013) term this culture-led urban regeneration and argue that one of its first and foremost strategies is locating the public library in the form of an iconic landmark building in challenged public spaces, slowly changing the image of the place by providing services around social and economic issues and fully incorporating the needs of a diverse population.

Second, these comprehensive services are not offered in isolation but as an ecosystem, jointly with local NGOs and partner organisations reflecting diverse groups of local society. Indeed, the organisation and implementation of library programmes beyond the core services as in e.g., language cafes, intergenerational formats, or storytelling cafes, largely makes it necessary for libraries to coalesce with other actors in a local ecosystem and form alliances in order to be able to offer novel additional services. The main reasons for this are insourcing of competences on part of the libraries and better outreach to new users.

Third, most of the concrete service offerings in the library ecosystem are open to the general public, privileges are eliminated, and there is guaranteed personal freedom and freedom of speech. All these are necessary characteristics of a public sphere (Habermas; Fraser). Here, Johnston und Audunson 2019 argue that in dissolving social divisions along cultural and ethnic lines, between different groups of immigrants but also between immigrants and the locally grown society, various service offerings may add value to the public sphere.

Fourth, in providing variable and novel services prompted by local needs often in an impromptu manner, e.g. in times of crises (COVID-19, refugee wave), thereby

attempting to address user needs or co-creating with users and/or ecosystem partners, this has experimental character and may contribute to the debate around public libraries as living labs (Vilariño und Karatzas 2018).

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1 Nov
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The library as a space for public calue co-creation

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OBJECTIVES

Libraries are typically viewed as indoor public places designed to promote information, education and cultural activities by making books, periodicals, audio books and other media available to all citizens on the basis of equal access (IFLA-UNESCO, 2022). As such, public libraries support democracy, as they are open to all and enable citizens to participate in democratic dialogues and meet other people, potentially co-creating value with them (Moring & Schreiber, 2022). The library is also seen as a unique space (Jochumsen et al., 2012) because it is built on special principles of versatility: in libraries, there should be something for everybody, and people do not need to attend predefined cultural, educational or ceremonial agendas. Rather, libraries are providing increasing opportunities for individuals and groups to become active contributors to express their creativity and to improve individual and community lives.

However, due to the decreasing role of physical books and new societal challenges that libraries need to address (e.g., Gorham & Bertot, 2018) , new ways of thinking about the library, its services and its space have emerged in recent decades (Fuglsang & Hansen, 2023). As a consequence, some libraries have been redesigned to become public spaces for a wider set of cultural and social activities; in other cases, large public investments have been made to create novel library architectures that recast libraries as large spaces for multiple activities not limited to reading or borrowing books (ref). This implies that the public library is no longer limited to a specific library service, but is seen as generative of multiple services that create public value.

While the literature has treated these issues, we still lack systematic knowledge about how public libraries are innovative, and how the library as a space directs interactions between citizens, librarians and other societal actors towards co-creation of public value (Field & Tran, 2018; Fuglsang & Hansen, 2023; Hernández-Pérez et al., 2022). In the context of the public value literature, Hartley et al. (2017) argue that there is a lack of diverse and comparative research on public value creation. Furthermore, there is arguably a lack of empirical research that combines the construct of public value with the construct of public service innovation (but see e.g., Hartley et al., 2024). We argue that the public library is an illustrative context for exploring these links. Due to the multifaceted role of public space in these organisations, public library illustrates the role of a public space for public value creation and innovation.

This paper contributes to research on public value by exploring and conceptualising public libraries as generative contexts for service innovation relative to public value co-creation. The research question is: What are the different means through which public value is co-created in libraries spaces? We develop the paper from a notion of public value as a contested practice (Benington, 2015). By this we mean that 1) public value creation is different from value creation practices in the private

sector. Unlike value co-creation practices between providers and customers in the private sphere, public value refers to collective value for society, not value for individuals. 2) Following Benington (2015) public value encompasses what the public values, and what contributes to the public sphere (Benington, 2015). As what the public values and what adds value to the public sphere is not objective and can be contradictory and corrective of each other, public value creation is a contested practice. For example, large investments in central libraries can be argued to add value to the public sphere, but can also be seen as taking up too much space in the city, being ugly, or take investment away from small local community libraries that some may prefer. So public value is underdetermined yet it also needs to be explained and defended.

In particular, the paper discusses how space is organized and framed (Jochumsen et al., 2012; Williams, 2018; Elmborg, 2011) and the impact on space on public value co-creation which has not been done before. We develop a theoretical framework that breaks down library space into three dimensions - experimental space, curatorial space and custodial space - that emerge from the data, and we explore how these dimensions together are important for public value creation in libraries. These concepts (experimental space, curatorial space and custodial space) will be further explained in the paper.

METHOD

This study is a qualitative case study that explores cases illustrating the change in the use of library spaces for public value co-creation. To capture this phenomenon empirically, we explore innovative cases in their national context. The cases were chosen from two countries–Finland and Denmark–that have defined the co-creative/dialogical role of libraries in legislation, and thus facilitate broader change in this field. Purposeful sampling was applied to identify two representative cases where the concept of library and library space has been revised. Case study is a relevant approach when the aim is to explore and understand a phenomenon within its real-life context (Yin, 2014). The cases were selected through a thorough screening of European libraries and through interviews with stakeholders. The two cases can be seen as paradigmatic cases. Paradigmatic cases "highlight more general characteristics of the societies in question" (Flyvbjerg, 2006, p. 232). Both are based on high levels of public investment in the development of new library buildings and spaces, involving intensive planning over several decades.

On-site interviews were conducted with managers, staff and users in these libraries using a common case report and questionnaire. Observations were also made in the library spaces. Policy documents were collected at the level of the library, the municipality and the government. Two of the libraries opened in X and Y and have collaborated on general aspects of design and library strategy but have nevertheless developed quite differently. In addition, the x countries in question are both characterised by having a library law that obliges municipalities to provide citizens with access to library facilities.

Preliminary findings show that these libraries both emphasise space as an important aspect of the service. They also both emphasise that they are public institutions

and must provide social and public value. Both imply that how to do this is not pre-determined and is subject to discussion. So they are both emergent spaces. Finally, they both confirm the three elements of generative space: i.e., experimental space, curatorial space and custodial space, as will be developed in the paper.

EXPECTED RESULTS

We expect to contribute to research on innovation and public value creation by linking two streams of literature – on public value creation and public space – to explain how space is organised and innovated in public libraries to enable public value creation and what is the public value libraries generate. The tentative framework of space as experimental space, curatorial space and custodial space are developed to understand the spatial dimension of public value creation in libraries. Together, these concepts explain that public library space is both emergent (experimental, custodial) and planned (curatorial, experimental), and the framework suggest a way of dealing with public value creation as a contested practice, thus extending knowledge of public value creation as well as the framings of public value.

As the case study is based on two paradigmatic cases, it has some limitations: it focuses only on libraries characterised by high public investment strategies, starting from new types of library buildings built through processes of design and innovation. While these strategies may be paradigmatic, they are unlikely to be present to the same extent in all libraries. Moreover, they may be contested by local communities to the extent that they prevent investment in them.

Future research should explore both how spaces are organised in many different types of libraries in different contexts, and the importance of space for public value creation in different types of public organisations.

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Bibliometric Analysis of Innovation in Academic Libraries: A Study of the Period 2003-2023

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OBJECTIVES

The aim of this article is to analyze the evolution of innovation and collaboration in academic libraries over a 20-year period through a bibliometric analysis. The objective is to identify trends, patterns, and relationships that help understand the development of these concepts in the literature.

METHODOLOGY

The methodology consists of three stages. In the first stage, a search was conducted in Scopus to gather a set of articles addressing the research topics of interest, as described below. In the second stage, a bibliometric analysis was performed using the user-friendly platform Rstudio, Biblioshiny, which allowed for identifying the frequency of terms over time and the co-citation of countries in the literature on the topic. Finally, in the third stage, VOSviewer was used to generate co-occurrence maps among the prominent terms in the literature.

Stage 1

In a previous scient metric study applied to the literature on innovation in public libraries, it was discovered that the language used to identify innovations does not commonly match that used in other contexts. Additionally, five service areas were highlighted where public libraries typically innovate or collaborate (Windrum et al., 2023). Therefore, for this article, keywords related to collaboration and innovation were selected, including terms associated with these concepts. This search aimed to cover both established concepts in the literature and those proposed in the previous study, to continue the research and explore their applicability in academic libraries.

Thus, the search in Scopus, described in Table 1, used keywords to obtain articles about academic libraries, both university and research libraries. Terms associated with innovation, the main topic of the study, and collaboration, understood as co-creation and participatory development, were included. Additionally, the five relevant service categories in academic libraries were incorporated.

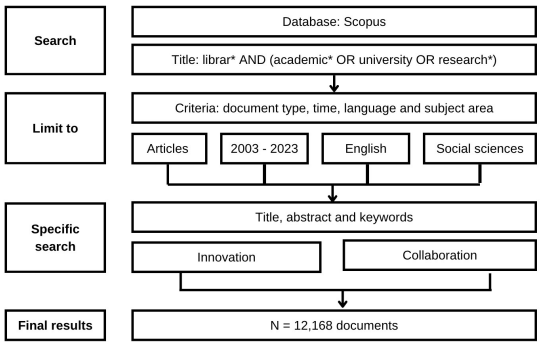

Figure 11: Search Criteria in Scopus. Source: Own elaboration.

Input	**Keywords**	**Location**
Academic library	Librar* academic* universit* research*	Title
Innovation	Innovat* OR transform* OR digital* OR technology OR AI OR new OR change*	Title, abstract, keywords
Collaboration	Collaborat* OR participat* OR cooperat* OR coproducti* OR cocreation OR co-operation	Title, abstract, keywords

Table 9: Keywords Used in the Scopus Search. Source: Own elaboration with data from Windrum (2023)

To focus and adjust the search to the research interests, four filters were applied: it was limited to a 20-year period (2003-2023), only articles were considered, restricted to documents in English, and only those in the social sciences area were included. The search resulted in 12,168 articles, which formed the database for the analysis. (see Illustration 11).

Stage 2

EXPECTED RESULTS: The expected results of the research include the identification of temporal trends in the literature on innovation and collaboration in academic libraries. It is anticipated that the bibliometric analysis will reveal how these themes have evolved over time, providing a historical perspective on their development and relevance.

Additionally, the frequency analysis of terms is expected to identify the most relevant and discussed concepts in the examined literature. This will allow for a deeper understanding of the predominant themes in the field of study, as well as the areas that have received greater attention from researchers.

Another key aspect of the research is the co-citation of countries in the literature. It is expected that the bibliometric analysis will reveal patterns of international collaboration and the geographical distribution of research on innovation and collaboration in academic libraries. This will provide important information about global

collaboration in this field and the geographical areas leading the research.

Finally, the use of visualization tools, such as VOSviewer, is expected to identify clusters of related terms and visualize the connections between innovation and collaboration in academic libraries. In summary, the research will provide a detailed and updated insight into the current state of the literature on innovation and collaboration in academic libraries, highlighting temporal trends, predominant themes, and connections between different aspects of research in this field.

EXPECTED RESULTS

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1 Nov
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Measuring and benchmarking library performance at the European level: Lessons from three ongoing experiments

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BACKGROUND

Libraries compared with other public service providers have been catching up with the establishment of key performance indicators , particularly including metrics for usage (e.g., number of loans, digital accesses) and quality of service (e.g., user satisfaction). Moreover, it is important to distinguish between simple usage statistics and true performance indicators that reflect strategic objectives. A major breakthrough was the release of the ISO 21248:2019 norm titled "Information and documentation – Quality assessment for national libraries", which provides 34 performance indicators for assessing the quality of national library services . The standard aims to cover the whole spectrum of national library tasks, from collection and bibliography to cultural events and educational services.

Another step forward was the ISO 2789:2022 norm titled "Information and documentation — International library statistics", which provides a framework for consistent data collection and reporting for libraries to demonstrate their value and impact through standardized metrics . This aims to ensure consistency and comparability of data across different libraries and countries, which is crucial for international reporting and for library managers to make informed decisions, and provides comprehensive guidelines for the collection and reporting of library statistics.

Key aspects of the ISO 2789:2022 standard include:

- **Standardized Metrics**: The norm defines various metrics for library outputs and outcomes, such as the number of loans, visits, and digital accesses. This helps in creating a uniform framework for evaluating library performance.
- **Data Collection and Reporting**: It specifies the rules for collecting and reporting data, ensuring that libraries follow best practices in data management. This includes guidelines on how to present statistics to stakeholders effectively.
- **Encouraging Good Practices**: By promoting good practices in the use of statistics, the norm helps libraries improve their services and demonstrate their value to the community.

In addition to the ISO norm, libraries have started using impact calculators to measure the broader effects of their services. These calculators assess various dimensions of library impact , such as:

- **Economic Impact**: e.g., calculating the return on investment (ROI) for library services, showing how much value libraries provide for every dollar spent.

- **Societal Impact**: e.g., measuring how libraries contribute to community well-being, education, and social cohesion.

- **Environmental Impact**: e.g., evaluating the environmental benefits of library services, such as reducing the need for physical materials through digital lending.

Such tools help libraries quantify their contributions and make a compelling case for continued support and funding.

The international state of the art in measuring innovation and emerging trends at the library level involves several tools, metrics and approaches designed to capture the multifaceted impact of libraries. For example:

- **The PLA's Benchmarking Tool of Library Metrics and Trends**: Launched by the American Public Library Association, this tool provides libraries with data visualizations to compare their inputs and outputs with peer and nationwide data. It includes interactive dashboards and custom report builders.

- **The IFLA Toolkit**: Refers to a range of resources developed by the International Federation of Library Associations and Institutions to support libraries in various aspects of their work, notably to advocate national and regional policymakers to ensure that libraries and access to information are included in their contribution to meeting the global 2030 Agenda goals.

- **The CARL Library Impact Framework**: An initiative by the Canadian Association of Research Libraries, which uses logic models to visualize the arc of influence of libraries' programs, resources, and services on research, teaching, and learning.

Finally, the Horizon Europe funded LibrarIN project tackles the issue of measuring and benchmarking the performance of European libraries by jointly considering three concurrent dimensions, which are quite likely to interfere with one another: the cost effectiveness of setting up calculators and other measurement and/or assessment tools for library activities and impacts; the need to guarantee comparability of adopted indicators, particularly at cross-country level; and the tight integration between library policies as defined at the national or supranational levels and the strategic and tactical orientation of individual library strategies – with their related measuring and benchmarking requirements.

OBJECTIVES

This paper will offer 3 case descriptions reflecting the results of ongoing work at the Lisbon Council, one of the partners of the LibrarIN project, and in a cooperative alliance between "Rete delle Reti" and the Library System of North-East Milan.

Case No. 1 - Library policy tracker

The Council of Europe, in collaboration with the European Bureau of Library, Information and Documentation Associations (EBLIDA), has developed comprehensive guidelines on library legislation and policy in Europe. These cover various aspects such as freedom of expression, access to information, digital transformation, and library governance. Particularly Recommendation CM/Rec(2023)3 of the Committee of Ministers to Member States, adopted on 5 April 2023 , reaffirms that libraries should contribute to common goals, identified within the framework of the United Nations 2030 Agenda for Sustainable Development, such as social inclusion, quality education, peace, justice and strong institutions. These goals are embedded in a set of principles that are relevant for national legislation and policy making. Starting from that set of principles, the Lisbon Council team has defined an indicators checklist, based on Y/N options, which will be fed into a web-based dashboard. Thanks to the Y/N nature of available options, there is no need of an initial data collection round to populate the dashboard. After a preliminary desk research, experts from the various EU countries are being mobilised to make the available information on the policy tracker both updated and accurate.

Case No. 2 - 'What works' database

While there is a certain degree of foresight knowledge embedded in the Council of Europe's policy guidelines and therefore in the related indicators featured in the web-based dashboard, which are anyway positioned at the country level, a more 'library-focused' approach aims to highlight examples of good practice gathered from the LibrarIN project's on field activities and the related research findings and community feedback. These examples of success stories, which can also be "chunks" of behavioural excellence, are being stored in a searchable web engine by the Lisbon Council team. Again as before, good practices will be validated by an advisory board created within and outside the project consortium. The database will also open up to comments from 'the crowd', in order to extend the evidence base and get feedback from the broad library community.

Case No. 3 – Library Expenditure Calculator

As mentioned in the Introduction, calculators measuring the economic impact of libraries on their respective environments do exist in the state of the art. However simple and effective these may be, they do not lend themselves to comparative exercises and the evaluation of library services at European level. The reason is that they lack those adjustments and equalisation mechanisms which allow for a more balanced assessment of library activities, also considering the disparities in library developments and the structural gaps from one country to another.

The Library Expenditure Calculator - devised by Rete delle Reti and developed by the Library System of Milan North-East - is, at the same time, a calculator and an indicator, since it adopts an algorithm based on indicators that are both endogenous and exogenous to the library world. Library expenditure per capita is adjusted to the number of inhabitants in a specific city / region / nation, and their

related GDPs.

The calculator is now being tested in multiple cities in France, Spain, Italy, Croatia and Slovenia. Within the LibrarIN project it may be explored as a potential model for similar indicators combining indicators specific to libraries and social indicators, such as those developed by the Social Scoreboard supporting the European Pillar of Social Rights.

METHODOLOGY

After presenting an extended state of the art analysis (see the Background of this abstract) we will review and assemble the internal evidence available at the authors' sites to document the status and directions of implementation. We will describe and discuss the distinguishing factors of each of the three case results, within and between each other and against the current and future policy scenarios.

EXPECTED RESULTS

Based on the presentation and early results of the three above cases, some lessons learned and policy recommendations will be elaborated. The main highlights will be addressing Eurostat and the EU national statistical institutions, recommending the provisions of additional efforts to develop new indicators and start more frequent and extensive library data collection exercise, which can better capture the full range of library activities and impacts, also in connection with the rapid advance of information and communication technologies.

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Author Index

RESER 2024, held in Espoo, Finland and hosted by VTT Technical Research Centre of Finland, brought together an international and interdisciplinary community of service researchers, practitioners, and policymakers. The central aim of this year's conference was to explore how service research can contribute to building sustainable, inclusive, and resilient societies—focusing particularly on the role of digital transformation, co-creation, and systems thinking in addressing complex societal challenges.

Under the conference theme "Co-creating Sustainable Solutions for Future-proof Societies," participants examined how multi-faceted innovations, both technological and service-based, can be integrated with new governance models and participatory practices to shape transformative change. Sessions highlighted the need for systemic approaches to sustainability transitions, involving collaboration across sectors, disciplines, and stakeholder groups.

A key area of discussion was the integration of digital technologies such as AI, digital twins, and data platforms into public services and urban infrastructures. These tools were not only evaluated for their technological capabilities but also critically examined through the lenses of ethics, inclusivity, and long-term social value. The conference also focused into sustainability in practice, showcasing innovations in energy, food systems, health care, and education that exemplify how services can support circular economies and more equitable futures.

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