ServDes.2020
Tensions
Paradoxes
Plurality

Conference
Proceedings

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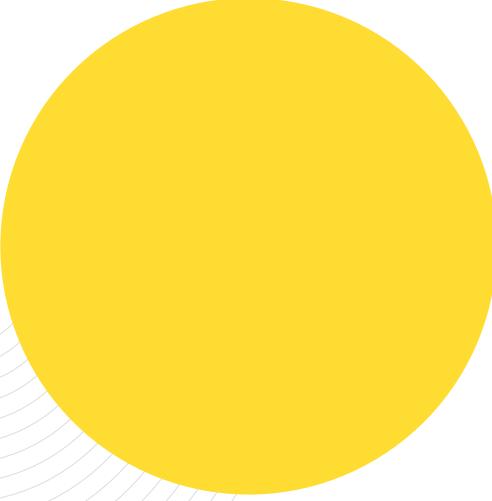
Womenjika.

ServDes.2020 conference is hosted by RMIT University, Melbourne, on the unceded lands of the Woi wurrung and Boon wurrung language groups of the eastern Kulin Nations. We respectfully acknowledge their Ancestors and Elders, past, present and emerging, and all Indigenous sovereigns who are participating in this conference.

We also acknowledge the Traditional Custodians and their Ancestors of the lands and waters across Australia and around the world where this conference was attended.

ServDes.2020
Tensions / Paradoxes / Plurality
2021 Conference Proceedings
Melbourne, Australia

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Welcome to ServDes.2020!

Service Design and Innovation conference (ServDes.) is the premier international research conference for exchanging knowledge within service design and service innovation studies aimed at both academics and industry practitioners.

As the field of service design matures, questions of the impact of its practices, including a robust evaluation of its methodological gaps, potentials, limitations and claims, become necessary. Hosted in Australia, with an emphasis on service design in the Asia-Pacific, this is the first time ServDes. series has been held outside of Europe and all online to enable participation from around the world. The local and global disruptions of COVID-19 has sharpened the need to focus and reflect on the tensions and paradoxes of undertaking service design in contexts of plurality – cultural, economic, historical and environmental – in ways that privilege difference and diversity.

In an increasingly globalised world, the Asia-Pacific region offers a stage for negotiating systems and service complexity. This is a region where 'design' is positioned as a key driver for improving the living standards of many, and where its human and environmental capital is pivotal to economies all around the world. It is also a region of paradox and tension – of massive divisions of wealth between developed and emerging economies, and where climate change is already displacing its peoples. Paradox and tension recognises ancient cultural practices and the effects of colonialisms still lived, alongside emerging globalised relations and new challenges.

ServDes.2020 conference organisers saw this as an opportunity to raise many questions regarding the geo-politics of how and where service design's dominant discourse has been framed to counterbalance its current Euro-centricity. The conference enabled ways to explore a series of provocations, for example, how might plurality of thought be ensured without simplification and tokenism? What could be 'hacked' structurally in the normative system of conferencing in ways that are at once, challenging, and inclusive? How might the values and virtues of democracy, so often pronounced through Service Design be contested by the conference?

We received 150 submissions from a diversity of practitioners and researchers from the Asia-Pacific region and beyond, which is reflected in the presentations. From this, **83** peer-reviewed papers and workshops offer a fantastic program. These acceptances reflects the diversity of the Asia-Pacific region (43.5%) to offer a unique and unprecedented program that has never been seen in ServDes. conference history.

10 Long papers: Europe 61%, US 26%, Asia 13%

39 Short papers: Europe 40%, Australia-Pacific 31%, Asia 18%, US 6%, Latin America 5%

20 Workshops: Australia 43%, Europe 41%, US 8%, Latin America 4%, Asia 4%

14 Student Forum presentations: Australia 61% , Europe 22%, US13%, Asia 4%

Alongside these peer-reviewed presentations and workshops, the ***Regional Panel Discussions*** were curated with the panellists to activate dialogues on shared themes of the conference while accommodating plurality of contrasting perspectives. Representatives from China, South Korea, Japan, Thailand, Singapore and New Zealand were invited to make visible particular ways 'service design' is practiced in relation to local contexts to highlight innovations and problematise assumed, universalised methods and precepts.

ServDes.2020 in Australia

Acknowledging Aboriginal and Torres Strait Islanders as the first peoples of Australia and recognising that they have never ceded sovereignty, is a solemn public declaration we undertake. It is a ritual that accompanies teaching, events, meetings, and of course, an important formal declaration when opening the ServDes.2020 conference. The formal **Welcome to Country**, offered by Traditional Custodians, is both generous and powerful. We are honoured to have the *Welcome* given by P'arbin-ata Carolyn Briggs AM, Boon Wurrung Elder. Womienjeka in Woi Wurrung language, is commonly interpreted as 'hello' but P'arbin-ata Briggs also explains that it is also a request to state one's purpose that asks, "Why are you here, what is your purpose?". In other words, the Welcome by a Traditional Custodian comes with obligations to obey the laws of Bundjil, Kulin's creator deity, to not harm the land (*biik biik*), waterways (*wurneet*) and children (*bubups*) of *Bundjil*. Our pursuit for sustainability is a way to keep our obligation not to harm the land and waterways of Kulin. Acknowledgement of Country, then becomes a reply and acceptance of the terms and laws to engage with Indigenous sovereignty (See West 2020, Short Paper in this proceeding p.66). The conference is also an opportune watershed for a re-education in Design so as not to displace the designing that has been continuous in Australia for more than 75,000 years. Day 1 Keynote on **Articulatory, Respectful Service Design** by Prof. Norman Sheehan, a Wiradjuri man, and Dr. Tristan Schultz, a Gamilaraay man, is a generous and inspiring dialogue that guides us on Indigenous designing that is significantly different in ontological, epistemological, relational and practiced ways.

In respecting the aliveness of Country that ServDes.2020 is hosted on and the various lands where attendees are gathering from, guests are invited to be in a respectful, relational way of being to reflect on and articulate the diverse contributions as patterns of relationships. **Patterning Place** by Dr Tristan Schultz is an online participatory activity to keep this consciousness alive throughout the conference. Lastly, the live performance by **Wiradjuri soprano Shauntai Batzke** will close the conference in a memorable and meaningful way.

Inclusion and Diversity

ServDes.2020 make *dhumbali* (promise/commitment) to *Bundjil* and acknowledges the welcome to all guests to aim and enable principles of accessibility, inclusion and diversity. With the kind support of ServDes.2020 sponsors, we are pleased to offer a series of mechanisms to enable participation from a broad a range of views, experiences and understandings critical to notions of service design practice and research. This includes a systematic approach to the accessibility of conference materials and by supporting author/delegates with specific needs to present their peer reviewed contributions where languages and financial limitations, might otherwise be a significant barrier to participation.

We have introduced a range of approaches to improve the accessibility of the conference and materials. The ServDes.2020 website was redeveloped by a formidably creative AMICI web design team with enhanced user-experience. Invaluable input from Vision Australia undertook generous in-kind review of the proposed site. While the current site may not have achieved all the required elements for accessibility accreditation, we have begun a learning journey that will inform future conferences.
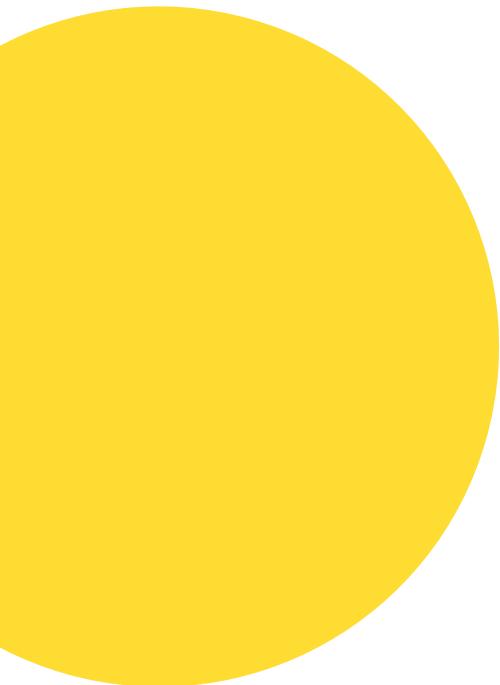
For the first time, ServDes.2020 conference proceedings have been formatted in reference to clear print guidelines to improve legibility for people with vision impairment. Through training offered by Vision Australia, the proceedings have been tagged for improved voice over reading using assistive technologies. This means the ServDes. Conference Proceedings departs from its legacy in style and formatting, but we hope this is a necessary, ethical step.

While acknowledging that more work needs to be done, ServDes.2020 team feel secure in this direction for designing inclusive conference experiences, and to see this as a starting point for continuous improvements towards greater accessibility. We specifically thank the Inclusivity Chairs, Tania Ivanka, Areli Avendano and Liam Fennessy for their leadership and guidance. We welcome your feedback on the outcome of these iterations and invite suggestions for further improvement for future conferences.

We also give heartfelt thanks to all the Chairs, volunteers, students and sponsors who persevered collaborating with us during the turbulent 2020 pandemic year.

Womenjika and welcome to ServDes.2020!

Yoko Akama and Liam Fennessy
ServDes.2020 Conference General Chair

We give heartfelt thanks

We would like to recognize the efforts of all the people who contributed to making this conference possible: Authors, Chairs, Committee members, students, volunteers, sponsors and all the participants, wherever you are!

Sponsors

With the kind support of ServDes.2020 sponsors, we have been able to offer a series of mechanisms to enable as broad a range of points of view, experiences and participation. This includes accessibility, translation and editorial assistance; workshops for authors and reviewers new to conference processes; and a range of assistance for English language, financial limitations and people with disability to enable participation.

Main partners: University of Technology Sydney, AMICI

Inclusion Support: Vision Australia, Adobe, Monash University

In-kind Support: Keep Cup, Swinburne University of Technology, Masters of Design Futures RMIT University, Service Design Melbourne

RMIT University, School of Design

The development of the ServDes.2020 conference experience has been the result of studios taught across RMIT University Communication Design programs. Students have designed the branding, website, eating and learning experiences, and have been guided by principles of inclusion, sustainability and respect for Kulin Nations. Many of these propositions had to be abandoned due to COVID-19 disruptions but the website and this conference proceedings shows previews of the thinking and ideation for the conference experience. Many of their explorations are featured on *Behind the scenes* on the ServDes.2020 website (https://www.servdes2020.org/behind_the_scenes)

ServDes.2020 is hosted by the School of Design, RMIT University, Melbourne, Australia. RMIT is a global university of technology, design and enterprise, and will host the ServDes.2020 conference. Nearing its 150th year RMIT is one of Australia's original tertiary and technical institutions. It enjoys an international reputation for excellence in professional and vocational education, applied research, and engagement with the needs of industry and communities. RMIT is also a world leader in Art and Design; Architecture; Education; Engineering; Development; Computer Science and Information Systems; Business and Management; and Communication and Media Studies. It was recently ranked 1st in Australia and 11th in the world for Art and Design (QS World University Rankings by Subject 2019).

We give heartfelt thanks

We give heartfelt thanks

Regional Panels

ServDes.2020 is hosted in the Asia-Pacific for the first time. The following panel discussions reflects the voices, concerns, approaches and opportunities for what 'service design' means in this region.

Aotearoa New Zealand

Rangatirangatanga mō te Oranga – Innovation in systems and service change for equitable cultural spaces

Desna Whaanga-Schollum, Rongomaiwahine, Ngāti Kahungunu, Ngāti Pāhauwera (Ngā Aho); Angie Tangaere, Ngāti Porou (The Southern Initiative); Dr Penny Hagen (Auckland Codesign-Lab)

Bringing together different knowledge systems and services grown out of cultural drivers, the Aotearoa New Zealand panel will share and reflect ways in which Māori communities play a role or lead in governance, design, development, implementation, and evaluation of design that addresses cultural inequity.

As Māori and non-Māori practitioners working to shape the potential of services as enablers of whānau (family) wellbeing, we will discuss some of the tensions that emerge in seeking to build capacity for holistic policy and service system responses, grounded in place and culture. We emphasise, in particular, the potential and challenges of realizing services and responses led by cultural equity as imagined under Te Tiriti o Waitangi and the potential for whānau to whānau or peer to peer services focused on building community capability and social capital, leading to self-determined community responses. And, what are the implications for the government as an "enabling" partner in this reconfiguration of community strengths and aspirations?

South Korea

The Hitchhiker's Guide to Service Design: tensions and paradoxes along the maturation of service industry in South Korea

Kyung Mi Lee (Cyphics), Nada Oh (Tangino Group), Ban Young-Hwan and Kim Sung-Woo (Kookmin University), Eun Yu (Seoul National University of Science and Technology), Joon Sang Baek (Yonsei University).

In South Korea, the growth of service design industry driven by the government has resulted in the oversupply of designers, reduced prices for their works, downgraded design qualities, and consequently a scepticism towards service design. There are also tensions between 'service' and 'servitude' when customer satisfaction is over-emphasised, causing undue stress and emotional labour for staff. In the discussion, the Korean panellists will introduce the paradoxes and tensions observed along with the maturation of service industry in South Kore. The panelists, experts in service design research, will share their own experiences of addressing them and invite the audience into a discussion.

Thailand

Improvising Design, the Thai way

Dr Khemmiga Teerapong (Bangkok University), Fern Suthasina Chaolertseree (MATSH), Prut Chutika Udomsinn (Founder of Good Factory), Jett Pisate Virangkabutra.

Services are gaining attention as an enabler of economic development in Thailand. While the term 'service design' may not be as widely known or used in industry, the western term 'Design Thinking' has gained huge popularity in Thailand. What are the drivers and how has that changed the landscape of innovation and design? The panelists bring diverse experiences and points of views on design and creativity in Thailand from academic and practitioner's perspective in private and public sectors. This panel will touch on inception and implementation of service design and the role government policy and digital disruption in driving design and innovation in the country both in public and private sectors. This panel will also explore the paradoxes

of design and creativity in Thailand and how it is it different and how tradition has shaped Thailand's our design and creative cultures. How is Thai way of service design/design thinking different from western way? What can the world learn from Thailand or Thai's ways of Thinking?

China

The Tao of service design in facing pluralities in China

A/Prof. Gao Bo (Tongji University), A/Prof. Hu Ying (Hunan University), and A/Prof. Fan Qiangqiang (Northeastern University).

This panel will discuss the context of China, a culture with 5000 years, that has developed rapidly in recent decades. Traditional cultures, industries and social organizations are impacted by accelerated influence of on-line and artificial intelligence technologies. The panellists are researchers examining various service design practices in these areas to discuss tensions, paradoxes and pluralities of what service design could offer. They will cover how to balance the traditional with the modern, relationships between people and technology, and how service design needs to respect and pay attention to create a more human and sustainable futures.

Sinagpore

Designing toward a Creative City: Positioning the Citizen in Singapore's Rebranding

A/Prof. Jung Joo Lee (NUS, Service Design Lab), Dr Carol Soon (LKY School of Public Policy), Debbie Ng (ThinkPlace), Justin Zhuang (Plain Words) and Vicky Gerard (Loughborough University London)

This panel will examine the intentions and practices underlying the Design 2025 call to engage the Singapore public in the country's national design identity. While the government recognises that this will require an opening up of social and political spaces more conducive to experimentation and innovation; complete freedom of public expression on political, ethnic, and religious issues remains relatively controlled. Some have suggested that this reflects the image of an "emerging creative city", where a flourishing - if not slightly corralled - creative economy is encouraging a "gradual democratisation" of society. With indications that the national design policy is up for review this year, and considering recently revived conversations around citizen voice, the panel will discuss what the future image of Singapore as a creative city might be, what that might mean for the public, and what the role of service design might be to achieving it.

Japan

How to reframe 'service' values in a Japanese de-growth society?

Yuki Uchida (Re:Public); Koki Kusano (Merpay and Keio University); Prof. Daijiro Mizuno (Kyoto Institute of Technology); Prof. Masano Takeyama (Keio University), Momoko Tamada (Loughborough University).

While Japan is the third largest economy in world, following China and the US, paradoxically, over the last 20 years, its economy has been under general degrowth due to increasing ageing population and severity in natural disasters. This means the modern agenda for rapid expansion and economic progress can no longer be the primary aims. The Japanese panellists bring their rich and varied professional experiences to re-frame what 'services' means in a culture that sets the global standard for service excellence that is paradoxical in being respectful and inflexible. They have assembled to share what other what 'services' are needed for a meaningful society when resources and population are diminishing? They aim to share their thoughts on building services and systems upon deep rooted practices, cultures and thoughts in Japan.

Behind the Scenes by Students

Image above: Acknowledgement of Country offered by students before co-design workshops with representatives of the service design community in Melbourne

Image above: Co-design session among students, ServDes.2020 Chairs and service design practitioners

As a way to explore and prototype how the principles of diversity and inclusion could be pursued, we invited the diversity of students enrolled at RMIT University studying service design to research, explore, iterate, test and propose what this could mean. These students were central to provoke, contest and reimagine a variety of experiences of the ServDes.2020 conference, including accessibility of formats, communications, spaces, and tactics employed to leverage a diversity of perspectives.

One example that productively explored the conference theme – tensions – revolved around potential meals served and consumed during the conference. Lunch, snacks and drinks are standard services offered to fee-paying delegates at ServDes., and we estimated the need to cater for about 500 guests. Under the guidance of the Food Chairs (Juan Sanin, Areli Avendano, Tanja Rosenquvist), students took this opportunity to investigate and reveal the invisible systems that lie behind serving meals to this large group of people. For example, research into the enormity of embodied energy for growing, transporting and preparing food and the resources consumed to clean and dispose them, led the students to propose that all the meals should be seasonal, locally-grown and plant-based. In other words, rather than conforming to socio-economic privilege based on abundance, convenience and choice, including options to eat a variety of meats (with big ecological footprint), their argument rested on minimising carbon footprint as well as framing mealtimes as a touchpoint to educate and delight the delegates about seasons of Indigenous Kulin calendar, local (and native) ingredients, and multicultural influences on a variety of dishes. Based on these criteria, the students nominated a selection of caterers that had systems and local suppliers already in place to recycle, compost, minimise single use, and have ways to redistribute untouched food to those experiencing social disadvantage. The students' evidence was decisive in selecting the conference caterers that were also committed to working with supplies that are local family businesses, community-run or Indigenous enterprises to keep in view that our decisions had flow-on effects in the broader Melbourne community.
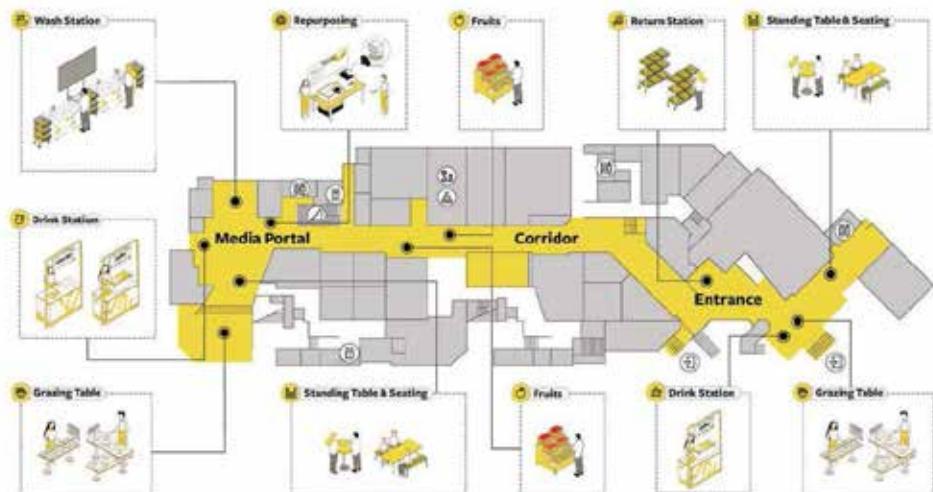
Image on right: A flow diagram for minimising waste during conference mealtime

Image left: Students presenting work in progress to ServDes.2020 Chairs

Image above: A prototype of conference lanyard as a booklet of maps and program with a Koorie Heritage Trust bead necklace as a keepsake.

Image above: Mindfulness room

The students also examined other hidden systems of labour concerning cleaners, maintenance, service staff as key stakeholders that are often burdened during large events. Discussions in the classroom and guiding students to research, visualise and communicate hidden systems as part of their education prompted them to reflect on the labour conditions of their own home countries in Asia as well as the experiences they are observing regarding the precarious labour markets for fellow migrant workers. Both in Australia and elsewhere, international students take up part-time work to supplement their cost of living and high tuition fees, and due to their temporary legal status they are often low-paid, pressured and exploited. Folding in the students' first-hand experiences and empathy for their fellow migrant workers allowed them to work with these tensions productively to consider alternative proposals for labour for the conference. This generated controversial propositions, such as instructing the conference delegates to self-serve, wash, tidy, clean and sort out the waste themselves as a way of contributing in this labour. Systems for washing up stations, waste-sorting containers, coffee-composting bins and educational videos were designed as touchpoints to scaffold this proposition and provoke discussion. Viewing this work triggered serious debate among the conference organising committee, for instance, would this form of labour offend or alienate high-profile professors and leaders in business, and what power-dynamics might we witness if they refused to participate, in turn, creating more hassle and pain for the cleaners and service staff? What are the ethics of enforcing such a system on to the delegates during their meal breaks? What other scaffolds are needed to open up the lived actualities of the paradoxes that this conference has sought to expose?

Unfortunately, the cancellation of the physical, on-site conference due to COVID-19 meant that many of these propositions were also abandoned. These, together with other persuasive student works, such as those that critiqued patriarchal and binary norms explored breastfeeding facilities, childcare services and gender-neutral toilets; or noting the absence and sensitivity to faith-based practices in Design that engendered ideas for prayer rooms and mindfulness meditation. Documenting them in the ServDes.2020 Conference Proceedings and website (see https://servdes2020.org/behind_the_scenes) is a way to honour their pioneering contributions and to share invaluable learnings that sought to contest and expand the 'norms' of services in conference designing.

Thank you to all the students, staff, Chairs and participants (see p. 5) for researching, exploring, co-designing and testing ServDes.2020 conference experiences!

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Designing an organisation's design culture: How appropriation of service design tools and methods cultivates sustainable design capabilities in SMEs

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Abstract

Service design (SD) is acknowledged as an approach that can help organisations to address service innovation. However, organisations are struggling to build design capabilities and develop sustainable SD cultures within the organisations. This paper focuses on this central challenge by exploring how a small and medium-sized "non-design-intensive organisation" can integrate SD both as a way to develop internal design capabilities and as an approach to service innovation. We report on an action research study in which we initiated seven SD micro cases. The findings show how our designed SD learning activities developed autonomous SD initiatives within the organisation, and thus over time fostered a sustainable SD culture in this context. Based on our findings, we conclude that organisational appropriation of SD tools and methods is crucial for an organisation's ability to build and sustain capabilities which can foster an SD culture.

Introduction

It is becoming increasingly difficult for organisations to ignore the need to hold inherent capabilities for continuous improvement and development work (Wetter-Edman & Malmberg, 2016). Therefore, more and more organisations are investing in design-enhancing initiatives as a way to become more innovative and competitive (Lima & Sangiorgi, 2018; Wetter-Edman & Malmberg, 2016). SD has been recognised as a useful and beneficial approach to service innovation, due to the way it supports the generation of innovative ideas through a user-centric and holistic perspective (Meroni & Sangiorgi, 2011). However, research shows that many organisations experience difficulty in developing a sustainable SD culture from within the organisation (Holmlid & Malmberg, 2018; Lima & Sangiorgi, 2018). So far, there has been little discussion about how small and medium-sized organisations (SMEs) can overcome the critical challenge of not only integrating SD tools and methods but doing so in ways that foster a sustainable SD culture in the organisation. This paper explores how a medium-sized, non-design-intensive service organisation can integrate SD as an approach to build and sustain design capabilities and address service innovation.

SD constitutes a human-centred, holistic, creative, and iterative approach to creating new or improved existing services (Blomkvist et al., 2010; Meroni & Sangiorgi, 2011). While these definitions have proven useful in previous studies, this paper argues they are too limited when discussing the adoption of SD in SMEs. Instead, this paper makes use of an understanding of SD, as proposed by Blomberg & Darrah (2015). In this perspective 'designing' is understood as a bundle of activities rather than a single activity or process and 'services' constitute "fundamentally abstract propositions or transformations [that] are replaced with socio-material configurations of people and their know-how, artifacts and spaces" (ibid. p. 74). This means that services are deeply embedded within practices as well as enacted through practices (Blomberg & Darrah, 2015). This perspective embraces an understanding of SD that it can be practised beyond a single process and in between projects.

Based on our framing of SD, what does it mean, then, to build sustainable design capabilities (Malmberg, 2017)? The notion of design culture has

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emerged as a multifaceted concept which aims to shed light on the qualities by which design is practised, meaning how design is perceived, understood and enacted in everyday life (Julier, 2006). This means a design culture can exist at a very local level, for instance in a specific organisational context, and is influenced by an organisation's design capabilities, as these make up how and to what extent design is practised within a given context (Malmberg, 2017). When adding 'sustainable' to the concept of design culture, it is essential to have the context of the study in mind. SMEs are often incapable of simply hiring (service) designers and rarely have specific design departments that can drive change. Thus, if design should be part of a non-design intensive SME, it needs to be part of their DNA. A *sustainable* design culture for SMEs means integrating design in ways that are durable according to their size and resources in the long-term. On this basis, the term sustainable design culture will be used throughout this paper to refer to an organisation's ability to change dominant organisational cultures by making use of SD in ways that prompt continuous service innovation over time.

This study is situated at the medium-sized service organisation Industriens Uddannelser (in English: The Education Secretariat for Industry, hereafter the acronym IU is used), which is an education secretariat based in Copenhagen, Denmark. IU facilitates the collaboration between multiple labour market partners to develop educational programs for vocational training and adult vocational training in the industrial sector in Denmark. Prior to this study, IU had minimal knowledge of and experience with creative problem solving and "design thinking" (Curedale, 2019). This paper presents an empirical study where the authors initiated SD initiatives, so-called "service design micro cases", to develop SD capabilities at IU. We show how these micro cases spurred additional initiatives and manifested an emergent design culture at IU. The paper takes a socio-cultural perspective to discuss how SMEs can initiate learning activities that help to overcome the challenges of integrating and maintaining SD as an approach to service innovation. Due to the study's organisational context, this paper makes use of the notion of service innovation as a new or improved process or service offering that is put into practice and adopted by an organisation to further create value to one or more actors in a service network (Patrício et al., 2018).

In the following sections, this paper is organised as follows: we present the related work, which focuses on (a) the organisational challenge of adopting SD in organisations, (b) the current state of service innovation and SD literature, and (c) the concept of the Zone of Proximal

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Development (Cole, 1985), which constitutes our analytical lens. Then follows a description of our methodology. The paper proceeds to our analysis and discussions, which focus on our proposed SD learning activities and their impact at IU. In particular, the analysis investigates how the learning activities transformed into three waves that in different ways brought about organisational and cultural change. Following a discussion, the paper concludes by proposing three lessons learned for future practice that can support SMEs' integration of SD.

The challenge of adopting service design in organisations

In the past decade, SD has developed and established itself as a practice that enables Industry to innovate their services through a human-centred design approach (Miettinen, 2016). The prevalence of positive business cases has caused non-design intensive organisations to invest in initiatives that develop and enhance SD capabilities as a means to drive innovation and trigger organisational change (Brown, 2019; Lima & Sangiorgi, 2018; Malmberg, 2017; Sangiorgi & Prendiville, 2017). This tendency originates from a need "to build innovative organisations and organisations that inherently hold capacities for continuous improvement and development work" (Wetter-Edman & Malmberg, 2016, p. 516). However, this is easier said than done. Despite this growing interest, Holmlid & Malmberg (2018) find that few studies have been published on organisations' *successful* adoption of SD. They identify that it is a barrier for many organisations to disseminate design practices within their organisation, and thus develop a sustainable design culture. They argue that although individual members of an organisation participate in design-enhancing and capability-building initiatives, many of these projects do not diffuse SD knowledge or practice to other projects or additional members of the organisation (Holmlid & Malmberg, 2018). This means that while SD has proven to be a useful way for organisations in many different industries to approach innovation, they are struggling to expand and sustain their design capabilities.

There is a growing body of research that studies organisations' introduction to and application of SD as an approach to innovation. These studies investigate both public and private organisations that have engaged in SD projects to address various issues. The areas of application range from innovating service offerings in the insurance and

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escalator industries (Miettinen, 2016; Polaine et al., 2013) to improvements of policymaking and healthcare (Bailey & Lloyd, 2016; Bailey, 2012). More recent evidence (Kurtmollaiev et al., 2018) shows that SD can be adopted successfully in order to improve an organisation's innovation capabilities. In their study of a large service organisation, Kurtmollaiev et al. (2018) find that top management can overcome the challenges of adopting SD in the organisation "by encouraging the creation of a service design based corporate language, by re-aligning KPIs with service design principles and objectives, and by providing room for experimentation" (ibid. p. 71). Other studies of large organisations' adoption of SD support these findings (Madden, 2017; Miettinen, 2016). However, little is known about how SMEs' can successfully adopt SD as an approach to build inherent capabilities for continuous improvement and innovation work. This paper seeks to address this research gap by providing in-depth insights into the process of adopting SD in a medium-sized, service organisation.

The (missing) link between service innovation and service design

Service innovation and SD intuitively seem to be interconnected topics. However, it has been demonstrated that literature within these two research areas are still scattered and lacks integration (Patrício et al., 2018). Studies have emphasised that service innovation is a priority in both service research and practice, due to the growing service economy, technological developments and increased globalization which challenges organisations' competitiveness (Ostrom et al., 2015; Patrício et al., 2018). Recent literature reviews have found that there are many different understandings and definitions of service innovation, which prevent knowledge development in the field (Snyder et al., 2016; Witell et al., 2016). In parallel, similar calls have been made to gain a better understanding of the service concept in order to advance knowledge of SD (Ostrom et al., 2015). From a research perspective, the gap between service innovation and SD is problematic because knowledge from both fields should be combined to develop the current discourse more holistically to establish the research domains further (Antons & Breidbach, 2018). While it is not the overall aim of this paper, this study contributes to strengthening the link between service innovation and SD research, by developing an understanding of how SD can support service innovation in SMEs.

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The zone of proximal development as an analytical lens

This paper takes a socio-cultural perspective to discuss how SMEs can initiate learning activities that help to overcome the challenges of integrating SD as an approach to service innovation. In line with Holmlid & Malmberg (2018), the paper makes use of the concept of the Zone of Proximal Development (ZPD)(Cole, 1985) as an analytical lens to understand how members of an organisation develop knowledge through participation in (practical) learning activities. The notion of the ZPD can be defined as the space between what a learner can do without help and where the learner needs support (Cole, 1985). In other words, the ZPD constitutes the edge where a learner (e.g. an organisational member) can succeed only with guidance from a mentor (e.g. a designer) or in collaboration with more capable peers (e.g. other organisational members with broader knowledge and skillset). These forms of mentoring are termed "scaffolding", which suggests flexible and temporary support that is enacted until the learning task is accomplished. At this point, the learner's ZPD has evolved, and scaffolding is moved to the edge of the now expanded ZPD (Cole, 1985). The underlying assumption behind the ZPD is that the development and instruction are socially embedded, which means that in order to understand these aspects it is necessary to analyse the context of the learning situation and its social relations. Thus, the notion of ZPD also sheds light on the practice aspect in line with our understanding of SD. By considering the SD micro cases and surrounding activities at IU as learning activities, it is possible to analyse in which situations individual organisational members reached their ZPD and further, how adaption of SD tools and methods enabled them to overcome this challenge and thereby expand their ZPD.

Method

The study presented in this paper took place at IU. The research is part of a larger, 3-year action research project between the university and IU. We understand action research as a methodology, which implies that the research aims to induce change and improvement of certain aspects of the target research domain (Robson, 2002; Stringer, 2013). The overall project is comprised of three action research interventions. This study

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originates from the second intervention, which intended to build SD capabilities within the organisation as a way to address and advance service innovation.

 The data collection happened over the cause of 17 months (February 2018 – July 2019). During this period, the first and second authors spent 2-3 days a week at the case organisation, where they worked as an Industrial PhD student and part-time student worker respectively. Both authors were familiar with the case organisation and trained in SD. This therefore created, what Holmlid & Malmberg (2018) describe as a rare setup in which the designers are also a part of the organisation where SD is being integrated. However, in this case, the authors were not hired as service designers per se, but rather as internal "motivators for SD". The authors' position allowed them to follow organisational processes from the inside, making continuous observations in situ, having formal and informal conversations with members of the organisation. Also, the overall frame of the Industrial PhD project provided a space for exploring and experimenting with the application of SD in this organisational context.
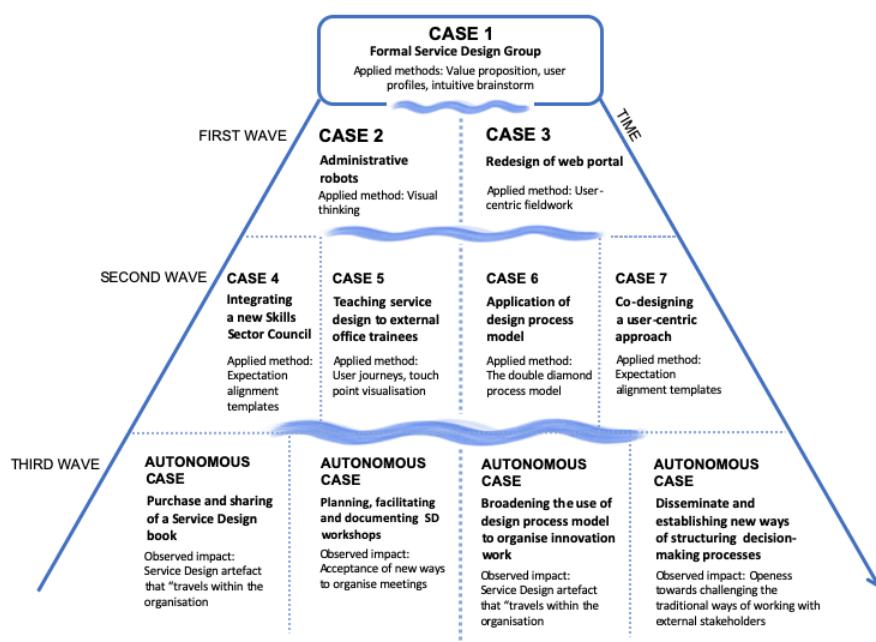
Figure 1. The evolution of SD micro cases at IU

SD was initiated in at IU through a proposal to establish an SD group (which will be explained in more detail in the Findings section). This proposal transformed into seven SD micro cases (see Figure 1). The two first cases were selected by the authors based on (1) the perceived scope

of the individual case, preferably as small as possible and (2) projects that were ongoing and at a nascent stage or planned to begin within the data collection period. Throughout the seven micro cases, the authors instructed 14 different learning activities, which included two customized SD compendiums, three 'miniature editions' (to offer organisational members short, condensed introductions to SD and with emphasis on specific elements or methods) and seven workshops, which each lasted 1-3 hours. During the workshops, the authors introduced the double diamond process model (UK Design Council, 2019), value propositions, empathy maps, user profiles, and ad-libs (Osterwalder et al., 2014), as well as intuitive brainstorms (IDEO, 2015). Visualisations tools such as user journeys (Kalbach, 2016) and service blueprints (Bitner et al., 2008) were also introduced. As a way to introduce these tools and methods, 13 templates were appropriated or created to guide the practical learning activities. We documented the process by making audio or video recording of the workshops, collecting the workshop outputs, conducting 12 minutes, and taking 172 fieldnotes to capture informal chats, follow-ups, observations and reflections. We developed a shared system for precise and consistent record keeping, to ensure transparency and verifiability of data collected (Perecman & Curran, 2006). We emphasized a critically-reflective practice, which closely related itself to the idea of learning from experience. This practice helped us to transform observations and reflections into subsequent actions, and we considered ourselves active participants in the organisational learning situations (Thompson & Pascal, 2012).

Our data analysis occurred in two main steps. First, we processed the data by categorizing the seven micro cases and detecting patterns by sorting the data based on twelve different case characteristics (e.g. the aim of the micro case, who and how many people were involved, and which methods and tools were introduced in each case). Based on this initial analysis, we identified 14 learning activities across the seven micro cases. We define a learning activity as actions that involve introduction to or collaborative use of SD tools and methods. An example of a learning activity is an SD workshop with management (this workshop is explained in more detail in the next section). By analysing these 14 learning activities resulted in the identification of 36 successful learning experiences, where organisational members expressed increased understanding or appreciation of SD. Thanks to the scope of the paper, we highlight four successful learning experiences to exemplify our analytical findings, which we present in the next section.

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Findings

When trying to change cultural practices in an organisation, one can 'make waves' by challenging the status quo and initiate movements. In this section, we present our findings as three waves, which show how the developed SD learning activities built sustainable design capabilities within IU. First, we elaborate on our initial approach to integrate SD in the organisation and explain why this did not work out as planned. Then, we describe how our approach transformed into three waves of SD micro cases, which over time fostered an SD sustainable culture at IU.

Making waves: Initiating service design as an approach to innovation

We feel it necessity to share our *adapted approach* to integrating SD at IU because this adaptation became a key catalyst to affect the organizational culture. We experienced this during the negotiation of what "form" SD should take within IU. A formalized group was not considered meaningful, as it would cause too big of a commitment and an additional load for a few selected employees. The learning gained from accepting a decentralized and informal approach to embedding SD as an approach to innovation was found in the fluidity of the approach. In this way, we could, in the context of an SME, induce SD with a perception of less being at stake (especially in terms of committed resources), while reaching broader within the organization by exemplifying how SD could be contextualized to any given project and any given practice. We elaborate on this learning in the following paragraphs.

We initiated the study by proposing to establish a formalised SD team as a means to anchor and build SD capabilities within IU. This initiative was inspired by previous studies, which have reported on the use of internal resources as a beneficial way to anchor SD in an organisational setting (Lima & Sangiorgi, 2018). Moreover, establishing specialised teams was the most commonly-used approach in IU to create cross-organisational collaboration to address overall issues. We proposed that this internal and cross-departmental team would receive a crash-course in SD, allowing them to act as ambassadors with SD knowledge and practice. The proposal was that this "task force" should support other teams in the organisation by making use of SD tools and methods to address development work. The initiative was presented at a meeting with IU's management team. Despite our efforts to explain how this approach to SD could benefit the organisation, the six managers were reluctant and expressed concerns about their lack of resources. Also, one manager

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explained, "it is difficult to agree to this proposal, when you do not know what you are buying into" (manager, SD workshop, 20.09.2018). In this way, we identified a need to educate the managers about SD and showcase the use of SD through practice before they were able to decide whether to settle with a formalized SD team or not.

To increase their knowledge of SD, we designed a learning activity constituted a customized compendium with relevant resources, which took into account that the management team had little or no knowledge about SD. This aimed to function as a joint knowledge base. On this basis, the authors organised and facilitated an SD workshop, which took its point of departure in a project that was on the manager's agenda but had not yet been realised, due to limited resources. The project had the goal of developing an internal 'academy' to support the on-boarding process of new education consultants. The reason for making use of this project was to show the benefits of SD tools and methods through a use case that would simultaneously help managers to progress with a stagnant project. In line with previous studies, we found that practising SD helped the management team to comprehend what SD is and how it could potentially help the organisation to become more innovative (Wetter-Edman & Malmberg, 2016). Making use of a concrete project as a way to mediate how SD can support service innovation helped the management to understand and internalise the benefits of SD. In this way, we found that contextualising SD is important. Working with SD tools and methods close to a relevant, concrete project was perceived very positively by the management team.

Despite the manager's positive experiences of using SD as an approach to development work, the decision about whether to establish an SD group was postponed. In the end, the management team proposed an alternative, which caused our approach to change. The initial idea of a formalised team transformed into decentralised "SD micro cases", which required less commitment and allocating of resources from a management perspective. This shift is central as it changed the perception of drawing (even harder) on existing resources, to allocating additional resources (the researchers) to current projects. The decentralized micro cases aimed to incorporate SD in upcoming and ongoing development projects across the organisation. It became visible that there was a need to adapt the overall approach to the integration of SD. Our attempt to adopt formal structures did not work. Instead, we found that it was crucial to adapt our approach to account for the available resources, the current (lack of) design capabilities at IU and the context of the organisation. This opened our

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eyes to the everyday practices as well as the cultural and social context of the organisation. In the following, we describe how our new approach manifested as three waves of SD micro cases and elaborate on the impact of these waves.

The first wave of service design micro cases

The first wave exemplifies how it is possible to reinforce an emerging design culture by supporting the struggle experienced by employees, by approaching their daily practices in new ways. To overcome this struggle, employees need to be mentally prepared, for instance, through a "need to know" object, which can encourage them to go through the struggle. By ensuring alignment of expectations in a learning group, the learning environment is supportive and can stimulate collective, local learning experiences. By doing this, we learned that it is the motivation and positive experience of a ZPD expansion that feeds the "wave-making processes". We will elaborate on this learning here.

The first wave constituted two of the initially-selected micro cases that were proposed by the management team. To illustrate this wave, we elaborate on one of the cases (2nd SD initiative, Figure 1), which focused on the exploration of possibilities for implementing administrative robots at IU. In this case, a project group aimed to identify potential work procedures that would benefit from automation. The group, which included two IT consultants and two members of the administrative department, were struggling with organising the identification and prioritization of the work procedures that potentially could be automated. As a way to incorporate SD tools and methods in this project, the authors suggested making use of visual thinking (Brown, 2019) their next project meeting. We proposed that they should visualise the processes in a manner inspired by "Customer Journey Mapping" (Stickdorn & Schneider, 2011). This is a well-known SD technique used to describe the service recipients as they operate and interact with touchpoints and service interfaces (Blomberg & Darrah, 2015). The project group agreed to approach the meeting in this way, which was new and different for all of them. Prior to the learning activity, the authors prepared a short document that explained what SD is and briefly introduced how visualisation tools can be used. We took into account that the project group had limited knowledge about SD and had different professions, and thus adjusted the document accordingly, in order to prepare the participants mentally before making use of these new methods. As such, the document constituted the group's shared "need to know" object, which helped to align their expectations. For instance, when

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employees are motivated to make an effort to approach a meeting situation differently, they engage in a struggle that goes beyond current cultural practices (in this context what it means to "have a meeting"). The moment in which this struggle immediately occurs can be described as the ZPD. This became visible during the meeting where one of the IT consultants was challenged, attempting to visualize a process on the whiteboard. He stated: "I do not know how to draw this, because I do not know this part of the process very well" (Meeting participant, 15.10.2018). In this situation, the authors acted as mentors by suggesting that the IT consultant could draw a question mark (using signs) to express that there are steps in the process that need further investigation. In this way, the IT consultant and the other group members extended their understanding of how they could make use of visual thinking in this context. For instance, one of the participants said "drawing the processes shows how many steps there are in each work procedure - how complex it is. It was good that you [the authors] suggested that we draw the processes" (Meeting participant, 15.10.2018). Thus, by incorporating an SD learning activity as a part of a regular meeting allowed the participants to expand their ZPD. Moreover, by suggesting the incorporation of SD elements in this way made the organisational members then regarded SD as a "generous offering" rather than a "bureaucratic burden", which leaves a positive impression of going through the struggle. These observations were reinforced when one of the members of the project group showed how she had developed the visualisations from the meeting. She did so by highlighting where value was created throughout their operational processes. This exemplifies the emerging interest in further exploration of the new tools and methods that occurred during this first wave. The group's knowledge about and positive experience with visual thinking was shared at the following "IU meeting" (a monthly meeting where management, departments, and employees share updates on projects and insightful experiences). We found that when learners shared their positive learning experiences with their colleagues, they engaged in "wave-making processes" which made others curious to learn and expand their ZPD as well. They implicitly passed on the supportive environment they experienced themselves, by assuring others new to SD, that it is "safe" to welcome these new practices.

The second wave of service design micro cases

The first micro cases gave rise to an increased curiosity for SD thinking and induced the organic growth of a new wave, constituting four additional micro cases. These micro cases differed from the first wave because

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initially, they were put forward by organisational members rather than the authors or the management group. Secondly, they were put forward by members that all had been involved in one of the first micro cases from the first wave (see figure 2 below). The four identified micro cases all had a different focus and objectives (see micro case 4-7 in figure 1), but all grew out of unforeseen changes or struggles experienced in daily procedures. Based on those changes or struggles, SD became an approach to gain a new perspective and a way forward. In the following, we elaborate on micro case 6 to illustrate the impact of the learning activities. This case generated learning in terms of stressing the importance of intentionally designing for repetitive participation of organizational members as well as a collaborative adaptation of methods and tools to ease the integration of new practices.

Micro case 6 constituted an SD initiative which aimed to understand how the inclusion of a design process model might support education consultants' wish to create room for and enhance innovation work when collaborating with the appointed sector skills council. In this case, the structuring of the sector skills council had been rearranged, which offered a challenge for the consultants in terms of a mismatch of expectations to innovation processes, and the pace of concrete results being presented. The micro case was encouraged by a department manager who had questioned whether the education consultants might be able to make use of an SD process model (UK Design Council, 2019) to (re)structure innovation work and redefine what was considered a result in the different phases of the innovation process. The department manager was inspired and got the idea from the SD compendium that the management team received prior to the initial SD workshop before the micro cases were initiated. However, the manager did not know how to apply the model in the context of an education consultant's everyday work practices and collaboration with the sector skill councils. Working together, the authors and two education consultants adapted the model to function in the context of their development work, which meant including a timeline to assure external committee members that the development work would progress, while at the same time creating space for education consultants' creative problem solving and experimentation. These collaborative learning activities had a dual outcome: education consultants developed an understanding of SD and further expanded their knowledge by adapting the model together with the authors, who acted as mentors. The authors also gained a better understanding of how SD tools and methods could be adapted to the context of IU and its network of stakeholders and collaborators. This contextual understanding is vital for cultural changes,

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as it enables appropriation. The appropriation is a way to work around the challenge of integrating SD as an approach to service innovation. When the new ways of working fit with the daily context, it is easier to overcome the challenges of doing something new. When evaluating the adapted tool, one of the consultants stated that "because the tool was already adapted to them [external stakeholders] and their preferences [being a set timeframe] they thought it would be a useful way to address innovation work" (Education consultant, 08.04.2019). This supports our finding that by adapting tools and methods in collaboration with those that should be using them, SD can greatly benefit an organisation. This informal way of using SD and appropriating it is a way to include it in daily practices more efficiently. Another noteworthy observation is that all four emerging micro cases all included members of the organization that to a certain extent, had been involved in one of the first micro cases, as mentioned above. This suggests that a decentralised approach to the integration of SD in SMEs is a good way to avoid "one-off projects", where the integration of SD will remain only on an introductory level. By designing for repetition, it is possible to disseminate knowledge and experience about SD across the organisation (Holmlid & Malmberg, 2018).
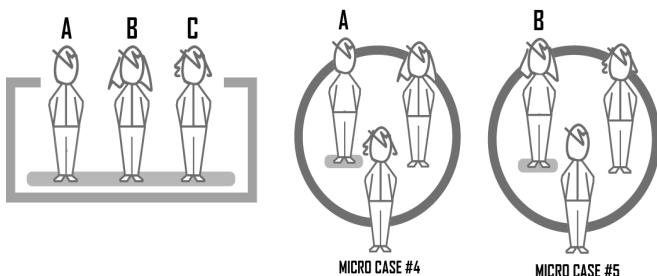
Figure 2. Dissemination of SD knowledge. SD micro cases support organisational members' repetitive participation in different SD learning activities.

The third wave: the impact of the service design micro cases

The third wave is a symbol of how cultural changes manifested themselves at IU. This wave emerged without the involvement of the authors and new autonomous SD initiatives were observed, ranging from small initiatives such as an SD artefact circulating within the organisation, to more comprehensive changes, where a department were all required to adopt the SD process model as its their standard approach to innovation work. Those autonomous cases demonstrate how local learning experiences can evolve into more substantial structural changes, affecting the organisation and its culture at a broader level.

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Over time, we observed how the micro cases from the first and second wave surprisingly developed and generated new autonomous initiatives that were appropriated and incorporated in projects independently, without mentoring or guidance from the authors (See 3rd wave, figure 1). One example is based on observations of an administrative team, where several employees had participated in micro case 2. On their initiative, this team chose to expand their nascent SD knowledge and practice by buying and sharing an SD book. A team member shared that the aim was to develop their joint knowledge base to develop their joint knowledge base and discuss how they could make use of SD tools and methods to a greater extent as a way to innovate their internal procedures. Based on increased curiosity, the SD book started to travel from department to department, symbolizing the increased interest in new design capabilities that was starting to show locally in different departments. Another example of an autonomous SD initiative builds upon our previous example of the education consultants who introduced the adapted SD process model in their sector skill council. They explained how their positive experiences of changing their development practices had created curiosity and awareness of SD within their department. Their dissemination of knowledge and use of the adapted model later resulted in an executive decision, which states that all education consultants in the department should make use of this model as a tool to enhance innovation work in the skills sector councils. These autonomous SD initiatives support the findings stated above and suggest that this decentralised and informal approach is a valuable way for SMEs to overcome the challenges of successfully integrating SD as an approach to innovation, despite their inability to commit too many resources in doing so. Based on our understanding of design culture, these autonomous SD initiatives are a clear indication of a change in the dominant culture within the organisation. In other words, our study finds that our efforts to integrate SD through scaffolding and a range of learning activities have contributed to an emerging design culture at IU.

Discussion

So far, this paper has presented findings showing how SD capabilities can be built through learning activities with appropriated SD tools and methods to foster a sustainable design culture within a medium-sized, non-design-intensive service organisation. The paper has also shown that a decentralised and informal approach to adopting SD is useful in this

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organisational context, as it offers a fluidity that helps SD to expand its impact with fewer resources allocated. With the designed and tested set of learning activities, the authors provide preliminary suggestions to how organisations can address the challenge of integrating SD as an approach to service innovation, and how to sustain this approach replacing it with previous practices in non-design intensive SMEs.

When designing learning activities as a way to build SD capabilities in an organisational context, it is essential to recognise that while the majority of development work emerges from collaborative practices, the ZPD is different for each member of the organisation. This means it should not be expected that "generic" introduction to SD tools and methods will result in a growing design culture from within the organisation. This finding reflects that of Holmlid & Malmberg (2018) who also found that knowledge about SD "is not enough to drive the aspired transformation and integration" (ibid. p. 46). Moreover, Blomberg & Darrah stress "no matter how well we understand the practices of a community, it is dangerous to assume that the objects of our designing can simply be inserted in those practices" (2015, p. 52). This emphasises the importance of understanding how SD tools and methods need to be appropriated for a specific organisational context, in order for them to be embedded in everyday practice and thereby drive organisational change and prompt service innovation. In our case, it was initially the authors that proposed suggestions for the appropriation of the tools and methods. However, this changed during the 2nd and 3rd wave of the SD initiatives, the employees involved began to act more as capable peers and, in this way, disseminated knowledge to additional members of the organisation. This transformation occurred thanks to the organisational members that participated in more than one SD initiative (figure 2). Based on these results, we suggest designing for repetition (e.g. plan for employees' repeated involvement in SD initiatives) as a way to scaffold the organisational members. At the same time, they learn to adapt and apply SD tools and methods in their everyday work practices.

Another way to support the integration of SD is by developing a joint, contextualised knowledge base that supports the temporality of the ZPD. Despite the individual nature of the ZPD, there are times when a group needs to coincide. These moments can be promoted when learners are provided with explicit material about a relevant topic. During the initial phase of this study, the management team needed to develop a mutual understanding of the value of SD in order to decide on whether to establish a formalised SD group or not. To support this decision-making

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process, the authors created a compendium on "SD at X" that provided the managers with explicit and carefully selected resources. The compendium became a central object, which guided the group to discover their interpretations and expressions of the tools and methods related to their organisation. This shows it is highly relevant to question what and how much is necessary for organisational members to know in order to embed the knowledge in their everyday practice. In this way, the "need to know" object became a structure, a guideline for how to make sense of SD. However, such a structure should only be considered temporary. Once an individual learner or group has grasped the new knowledge, it is necessary to update or even remove the structure in order to create a new scaffold at the given time and space. An example of how this temporality manifested itself, in this case, is the evolution of the short document to a shared book (see micro case 2, figure 1). This enabled the department to expand their ZPD on their initiative. This further exemplifies how the process of adapting SD tools and methods at a local level implies a reflective process among the organisational members, which can lead to the development of a local learning process. In our case, the various learning activities, which were initiated during the first and second wave of SD micro cases, supported the development of such local learning processes, fostering the emergence of a sustainable design culture at IU.

Before presenting our conclusions, it is interesting to come back to our failed attempt to integrate SD at IU through a formalised and centralised structure. The need to change from a formalised to a decentralised approach suggests that it might be necessary for SMEs to adopt SD differently compared to large organisations (Kurtmollaiev et al., 2018). It was not until we addressed the integration of SD as an intrinsic part of everyday practice that we observed organisational transformation and the emergence of a design culture at IU. Thus, it is crucial to acknowledge that service designing should include participation in a social context and therefore, it is necessary to use tools and methods which are appropriate for this scenario. This helps to embed local conventions in the emerging SD practices that, in our case, fostered a sustainable SD culture.

Conclusion

This paper demonstrates that integrating SD into organisations as an approach to advance service innovation is not merely a question of providing an SD toolbox. On the contrary, it is crucial to adopt an

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understanding of SD as ambiguous, diffuse and as an intrinsic part of everyday practice. This allows SMEs to divert from the need to establish end-to-end SD projects or specialised SD teams, which may be too resource-demanding for a smaller organisation. Instead, taking a decentralised and informal approach to the integration of SD enables the members of the organisation to apply relevant tools and methods as a part of their work practices step by step. Our study shows that this approach develops design capabilities, and over time fosters a sustainable SD culture within the organisation. We propose three lessons learned for practice that can help non-design intensive SMEs to integrate SD as an approach to service innovation successfully. First, it is essential to actively involve organizational members in the appropriation of service design tools and methods as this helps to embed local conventions in the emerging service design practices. Second, design for repetition. This means that members of the organization are involved in several service design initiatives. This approach can then function as a way to scaffold the organisational members, whilst they simultaneously learn to adapt and apply SD tools and methods. Finally, we propose the development of a common, contextualized knowledge to support the temporality of the employees' zone of proximal development. Overall, this study contributes to our understanding of how SMEs can appropriate SD tools and methods to their cultural practices in order to build sustainable SD culture.

References

Antons, D., & Breidbach, C. F. (2018). Big Data, Big Insights? Advancing Service Innovation and Design With Machine Learning. *Journal of Service Research*, *21*(1), 17–39.https://doi.org/10.1177/1094670517738373

Bailey, J., & Lloyd, P. (2016). A view from the other side: Perspectives on an emergent design culture in Whitehall. *Service Design Geographies. Proceedings of the ServDes2016 Conference*, 14–26. https://ep.liu.se/ecp/125/002/ecp16125002.pdf

Bailey, S. G. (2012). Embedding service design: The long and the short of it. *Co-Creating Services. Proceedings of the 3rd Service Design and Service Innovation Conference*, 1–11.http://www.servdes.org/wp/wp-content/uploads/2012/02/Embedding-Design.pdf

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Bitner, M. J., Ostrom, A. L., & Morgan, F. N. (2008). Service Blueprinting: A Practical Technique for Service Innovation. California Management Review, 50(3), 66–94.

Blomberg, J., & Darrah, C. (2015). *An Anthropology of Services: Toward a Practice Approach to Designing Services* (Vol. 8). Morgan & Claypool Publishers.

Blomkvist, J., Holmlid, S., & Segelström, F. (2010). Service Design Research: Yesterday, Today and Tomorrow. In *This is Service Design Thinking: Basics—Tools—Cases* (1st ed., pp.308–315). BIS Publishers.

Brown, T. (2019). *Change by design: How design thinking transforms organizations and inspires innovation* (B. Katz, Ed.; Revised and updated edition). HarperBusiness, an imprint of HarperCollinsPublishers.

Cole, M. (1985). The zone of proximal development: Where culture and cognition create each other. In J. V. Wertsch (Ed.), *Culture communication, and cognition: Vygotskian perspectives*. Cambridge University Press.

Curedale, R. (2019). *Design thinking: Process & methods* (5th ed.). Design Community College Inc.

Holmlid, S., & Malmberg, L. (2018). Learning to design in public sector organisations: A critique towards effectiveness of design integration. *ServDes2018. Service Design Proof of Concept, Proceedings of the ServDes.2018 Conference*. ServDes, Milano, Italy.http://www.servdes.org/wp/wp-content/uploads/2018/07/4.pdf

IDEO (Ed.). (2015). *The field guide to human-centered design: Design kit* (1st. ed). IDEO.

Julier, G. (2006). From Visual Culture to Design Culture. *Design Issues*, *22*(1), 64–76. https://doi.org/10.1162/074793606775247817

Kalbach, J. (2016). *Mapping experiences: A guide to creating value through journeys, blueprints, and diagrams*. O'Reilly Media.

Kurtmollaiev, S., Fjuk, A., Pedersen, P. E., Clatworthy, S., & Kvale, K. (2018). Organizational Transformation Through Service Design: The Institutional Logics Perspective. *Journal of Service Research*, *21*(1), 59–74. https://doi.org/10.1177/1094670517738371

Lima, F., & Sangiorgi, D. (2018, June 18). Fostering a sustained design capability in non design-intensive organizations: A knowledge transfer perspective. *ServDes2018 - Service Design Proof of Concept*. ServDes2018, Politecnico di Milano1. http://www.servdes.org/wp/wpcontent/uploads/2018/07/5.pdf

Madden, H. (2017). *Designing Change in a Higher Education Institution* [Thesis, Cardiff Metropolitan University]. https://repository.cardiffmet.ac.uk/handle/10369/9930

Malmberg, L. (2017). *Building Design Capability in the Public Sector: Expanding the Horizons of Development* [Monograph, Linköping University Electronic Press]. http://liu.diva portal.org/smash/record.jsf?pid=diva2%3A1074095&dswid=-1476

Meroni, A., & Sangiorgi, D. (2011). *Design for Services* (1st ed.). Routledge. https://doi.org/10.4324/9781315576657

Miettinen, S. (2016). *An Introduction to Industrial Service Design*. Routledge. https://doi.org/10.4324/9781315566863

Osterwalder, A., Pigneur, Y., Bernarda, G., & Smith, A. (2014). *Value proposition design: How to create products and services customers want*. John Wiley & Sons.

Ostrom, A. L., Parasuraman, A., Bowen, D. E., Patrício, L., & Voss, C. A. (2015). Service Research Priorities in a Rapidly Changing Context. *Journal of Service Research*, *18*(2), 127–159. https://doi.org/10.1177/1094670515576315

Patrício, L., Gustafsson, A., & Fisk, R. (2018). Upframing Service Design and Innovation for Research Impact. *Journal of Service Research*, *21*(1), 3–16. https://doi.org/10.1177/1094670517746780

Perecman, E., & Curran, S. R. (Eds.). (2006). *A handbook for social science field research: Essays & bibliographic sources on research design and methods*. Sage Publications.

Polaine, A., Lovlie, L., & Reason, B. (2013). *Service design: From insight to implementation*. Rosenfeld Media.

Robson, C. (2002). *Real world research: A resource for social scientists and practitioner-researchers* (2nd ed). Blackwell Publishers.

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Sangiorgi, D., & Prendiville, A. (Eds.). (2017). *Designing for service: Key issues and new directions*. Bloomsbury Academic, an imprint of Bloomsbury Publishing Plc.

Snyder, H., Witell, L., Gustafsson, A., Fombelle, P., & Kristensson, P. (2016). Identifying categories of service innovation: A review and synthesis of the literature. *Journal of Business Research*, *69*(7), 2401–2408. https://doi.org/10.1016/j.jbusres.2016.01.009

Stickdorn, M., & Schneider, J. (Eds.). (2011). *This is service design thinking: Basics - tools - cases* (2nd ed.). BIS Publishers.

Stringer, E. T. (2013). *Action research* (Fourth edition.). SAGE.

Thompson, N., & Pascal, J. (2012). Developing critically reflective practice. *Reflective Practice*, 13(2), 311–325. https://doi.org/10.1080/14623943.2012.657795

UK Design Council. (2019, September 3). *The Double Diamond: 15 years on*. Design Council. https://www.designcouncil.org.uk/news-opinion/double-diamond-15-years

Wetter-Edman, K., & Malmberg, L. (2016). Experience and expertise: Key issues for developing innovation capabilities through service design. *Service Design Geographies. Proceedings of the ServDes.2016 Conference*, 526–521.

Witell, L., Snyder, H., Gustafsson, A., Fombelle, P., & Kristensson, P. (2016). Defining service innovation: A review and synthesis. Journal of Business Research, 69(8), 2863–2872. https://doi.org/10.1016/j.jbusres.2015.12.055

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'Not Invented Here': Organizational Misalignment as a Barrier to Innovation Implementation in Service Organizations

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Abstract

To build and sustain the legitimacy of design as an approach to service innovation, we need an improved understanding of how and why service organizations fail to implement design-led service concepts. As service innovation implementation requires the synchronous interplay of service operators, customers and indirect stakeholders, challenges exceed the dichotomous relationship between design and production that informs much of the existing knowledge. In this study, we aim to diagnose what organizational conditions function as barriers to innovation implementation in the context of a large service organization. We present findings from a 14-month action research study. The first author immersed himself in a large airline and engaged with employees from different levels of the organization to conduct actions as part of reflective, collaborative research cycles and to perform formal and conversational interviews. We find that implementation requires collaboration between three instead of two organizational units: (1) an exploration hub; (2) a support partner and; (3) an operational unit. We reveal how conflicting organizational logics between these units obstructs implementation, not at a specific hand-over moment, but throughout the innovation process. Misalignment between units regarding what constitutes a legitimate priority, design approach and project scope results from these conflicts. This misalignment informs a *not-invented-here* response from units whose resources are required for implementation. We suggest that managing misalignments between

organizational units requires institutional work in various layers of the organization and that organizations take a risk when they leave the challenge of managing these conflicts completely to individual champions.

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'Not Invented Here': Organizational Misalignment as a Barrier to Innovation Implementation in Service Organizations

Proliferating Service Design in a large multi-cultural IT organization – an inside-out approach

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Abstract

In light of product companies shifting towards services and service companies embracing service design approaches, there is a greater need for the proliferation of service design. However, organizations are still not fully ready for this shift. Notably, Information Technology (IT) service organizations provide a unique premise, where employees engage and facilitate their customers to undergo the journey of adopting service design into their service innovation processes, while they themselves are similarly undergoing the same journey. Amidst the different change management theories available, to help their employees learn, design and deliver better customer services, organizations are exploring and adopting different approaches to introduce service design. We explored an inside-out approach where we wanted the employees of IT organizations to understand, develop and experience the power of a service design-led innovation activity, understand the different complexities involved, and further become empowered to design service experiences for their customer organizations. Using iterative 'Plan-Act-Observe-Reflect-Refine' cycles, we explored several internal employee-centric services such as employee hiring, onboarding and integration services. We adopted the CraftChange behaviour change progression model to enable the proliferation of service design techniques and processes, by using the 'internalizing through experiencing' approach. Once the employees experienced the benefits of service design within their organization, they

were ready to proliferate service design, in their respective customer organizations. In this paper, we share our reflections on the 'inside-out' service design proliferation journey within the large multi-cultural and global IT organization in which we work. We argue that our approach can aid highly pluralistic, varied-domain or cross-geography complex services to plan their service design proliferation strategies and activities effectively.

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Three perspectives on inclusive Service Design: user-centred, adaptive systems, and service logics

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Abstract

How do we design services that are inclusive and accessible to a wide variety of users (e.g. people with disabilities, of different ethnical backgrounds, of different genders)? Inclusive design has been extensively researched in product design and architecture, but less has been done in the area of service design. We will, in this conceptual paper, describe and discuss a plurality of perspectives on inclusive service design. The first perspective explores user-centred design and describes it as an umbrella covering a multitude of user groups. The second perspective takes an adaptive systems perspective to manage a variability in users.

The third perspective uses service logics to describe inclusive service design in terms of resource integration. The different perspectives also come with their own tensions. It is concluded that a plurality of perspectives can contribute to a rich understanding of how to approach inclusive and accessible design of services

Keywords: inclusive design, service design, design for all, universal design

Introduction

The problem area for this paper is how to design services that are inclusive and accessible to a wide variety of users. By a wide variety we mean for example people with disabilities, people of different ethnical backgrounds, and of different genders. Accommodating disabilities and ageing populations is critical for accessible, usable, and useful public as well as commercial services. While little research has been done on inclusive service design, the topic has been thoroughly researched in other domains of design (e.g. product design and architecture). The inclusive design team at the Engineering Design Centre, University of Cambridge has over the years done a great deal of research on inclusive design, and the overview below builds to a large extent on their work.

In the domain of product design, inclusive design is about making mainstream products so that they accommodate diverse customers in the chosen target market, and better meet the needs of a wider range of people, with or without special needs (Waller et al., 2015; Goodman-Deane et al., 2014; Persson et al., 2015). One approach to inclusive design is to start from a model of people's capabilities within the target market (Keates et al., 2000; Keates et al., 2002).

A method has been suggested by Persad et al., (2007, p. 10) for estimating "proportions of people excluded and proportions with difficulty based on matching product demands to user capabilities." Proportions of excluded users has accordingly been suggested as a way of evaluating inclusiveness. A user would be excluded from a product when it exceeds the user's capabilities. New products should ensure that they do not go beyond the user's abilities to use it in their expected environments (Clarkson et al., 2015).

Hosking et al., (2010) describe the diversity of people on different levels of ability in a segmented pyramid (based on data from a Microsoft survey in 2003). The pyramid illustrates ability variation in a population (see Figure 1). The bottom segment of the pyramid represents those with no difficulties (21%), the next segment represents those with minimal difficulties (16%), the following segment represents those with mild difficulties (37%), and the top segment represents those with severe

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difficulties (25%). Some segments of the pyramid may be included, and other segments can be excluded in the design. Inclusive design attempts to cover all of the segments in the pyramid. Inclusive design however cannot address the requirements of the entire population just by designing a single product or service (Waller et al., 2015). Therefore, the objective of inclusive design is to solve the difficulties below severe difficulties, while assistive technologies can be used to address the specific needs of the people at the top of the pyramid (Hosking et al., 2010).

There are many methods and tools that can be used in inclusive product design. The Inclusive Design Toolkit offers a selection of tools and methods (Engineering Design Centre, University of Cambridge, n.d.). User trials are important to discover usability problems which users encounter in both usual and unusual task sequences. The aforementioned method of exclusion calculations is more effective in identifying problems for people with disabilities who are often inadequately represented in user samples (Goodman-Deane et al., 2014). This means that user trials and exclusion calculations are complementary methods.

The notion of inclusive design has developed in the area of product design, but it can also be used as an umbrella term to include universal design and design for all. Moreover, it can also be applied not only to products but to architecture as well (Heylighen et al., 2017). There are, however, nuances that differentiate inclusive design, universal design, and design for all. Inclusive design emphasizes the diversity of people and environments in addition to the care for everyone's capabilities, needs, and goals within a reasonable range, whereas universal design and design for all focus more on designing the products to fit the broadest range of the population (Persson et al., 2015).

When considering the design of environments, it should be noted that "disability arises from interactions with the surrounding environment that are amenable to design and structural interventions, and not inherently from capability levels, health status, or associated degrees of impairment" (Clarkson & Coleman, 2015, p. 235). Creating an environment that enables everyone to engage equally requires also that the design process expands to accommodate diverse users (Persson et al., 2015). As technology permeates our designed environments, the question of how

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diverse people can be included becomes essential. Crabb et al., 2019 explored visual aspects, cognitive aspects, and communication aspects in augmented and virtual reality to assess the inclusivity of learning environments. They found that the design of learning spaces (including physical and digital aspects) should meet the learning needs of everyone rather than just the perceived wants of a few people in the environment.

Turning to the domain of service design, inclusive design is less well developed, both theoretically and pragmatically. Few studies have been conducted with regards to inclusive service design. Bue Lintho & Begnum (2018) proposed six strategies to promote inclusive service design practices. They found that service designers do not have a clear understanding of inclusive design, and that there is no definition of inclusive design for service designers. Moreover, there are few examples within the service design field of services designed specifically to accommodate a population where inclusive design is needed. There are also few analytic design studies of services, from an inclusive design perspective (Santana et al., 2017; Aceves-Gonzales et al., 2014). In the reality of services, however, there are multiple examples of services that are, and work in, both inclusive and excluding ways. This is also seen in a variety of studies, e.g. on inclusion in healthcare, transport services, education, etc. (Fisk et al., 2018).

Fisk et al., (2018) argue that service exclusion can be reduced by considering the diversity of people and making the service resources available to more people. They also propose four significant pillars of service inclusion: enabling opportunity; offering choice; relieving suffering; and fostering happiness. To some extent, inclusive design should give priority to not only the elderly and people with disabilities, but also to the equality of whole service systems. Therefore, they argue that it is crucial to deliver services in a positive environment that can foster customers' happiness, they argue.

Inclusive service design is still early in its development. We aim therefore, in this conceptual paper, to describe and discuss a plurality of potential perspectives on inclusive service design. The first perspective starts with user-centred design and describes it as an umbrella covering a multitude of user groups. The second perspective takes an adaptive systems

perspective to manage the variability in users. The third, but not final, perspective uses service logics to describe inclusive service design in terms of resource integration.

A user-centred perspective on inclusive Service Design

The first perspective that we can apply to inclusive service design is to conceive it as a user- centred design (UCD) process. UCD derives to a large extent from industrial design and ergonomics (Saffer, 2009). The aim of user-centred design is to put the users at the centre of the whole design process. It enables us to understand the people we design for and also their needs and goals in some specific scenarios (Pratt & Nunes, 2012). Although UCD involves multiple team members with the goal of generating more ideas in a project, the voice of actual users cannot be replaced by others (Chammas et al., 2015). Hence, inclusive service design from a UCD-perspective involves different actors in the design process, and users' needs, capabilities, and disabilities are taken into account through their involvement.

A metaphor to understand what a user-centred perspective on inclusive service design means, is to think of it as an umbrella that is supposed to cover different user groups based on their capabilities (see Figure 1). Users' capabilities should be valued as resources that can be actively used the service process, and not as problems (Meroni & Sangiorgi, 2011). For example, there are many people with visual impairment who are engaged as masseurs in China after receiving professional training. It is a way to enable visually impaired people to feel valued and gain satisfaction from their work. It integrates them into the workforce and they become a resource within the massage industry. This line of reasoning foreshadows our forthcoming discussion about the service logics perspective.

The ribs of the umbrella are the service actors who are critical in maintaining the inclusive service design. They support the whole umbrella. Each rib of the umbrella represents one type of actor with a diverse dashed line, which reflects the dynamic nature of actors who play a vital

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role in the service design. Many resources flow dynamically among diverse actors, which is represented by the canopy of the umbrella.
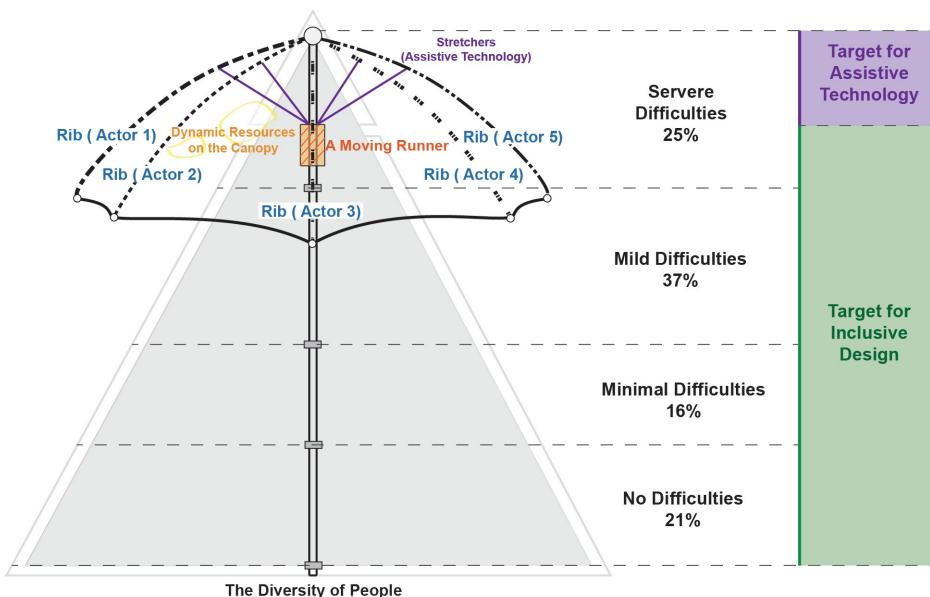
Figure 1: An umbrella model based on the pyramid from Hosking, et al. (2010)

The UCD is considered, in a broad sense, as a human-centred approach that refers to any user, such as the end-users, customers, service providers, service staff, communities in a service system (Stickdorn, Hormess, Lawrence & Schneider, 2018). As a result, inclusive service design is a mind-set which accommodates all the stakeholders and their needs, desires, behaviours, knowledge, skills and experiences, as well as the network of resources in the service process which sit outside the user's capabilities (Meroni & Sangiorgi, 2011).

A paradox of the user-centred perspective on inclusive service design is that there is an ever- changing diversity and variability of users. Designers need to think about inclusion not just for disabled and ageing people, but also with regards to a diversity of family roles beyond heteronormative structures, class, cultural and ethnical backgrounds. This means there is always another user group to include or consider. Designing for the needs of the widest possible audience may prove seriously restrictive because human differences are too varied to accommodate. This means that

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making trade-offs based on many concurrent demands and values is the usual case (Bianchin & Heylighen, 2018). The questions are then: What are the core values, and what are the essential variables on which users may differ? These questions are addressed in the next perspective on inclusive service design: the adaptive systems perspective.

An adaptive systems perspective on inclusive Service Design

Service design in general, but also inclusive service design, can be approached using an adaptive systems perspective. In this view, the unit of analysis is different from conventional service design, and we view service actors (providers and customers) as adaptive regulators of service processes - they act to keep the essential variables of the service within reasonable limits. For example, imagine a person with visual impairment who is going to shop for groceries. He may find it easier to go to smaller stores, but they may also have less staff. The staff would then like this customer to call before coming so they can assign someone to assist. The essential variables are for the customer to get the groceries without too much effort, and for the store to have a good relation to this customer, get paid, manage the regular stream of customers, and manage the logistics of the store. To achieve this, they need to cooperate, and agree on a time for shopping that allows for a variation in the process introduced by a visually impaired customer.

There is a law for adaptive systems called the Law of Requisite Variety (Ashby, 1956). It stipulates that "variety can destroy variety" (p. 207). Ashby used an example of an automatic pilot that is a good regulator if the passengers on the flight do not notice the gustiness of the wind outside the airplane. The variability in the automatic pilot's behaviour takes out the variability in wind speed. Put differently, "every good regulator of a system must be a model of that system" (Conant & Ashby, 1970, p. 89). The regulator's action potentials must be isomorphic to the system's actions and events. The system that regulates another system must be able to handle the variability of the system under control. The variability of the system under control is often described in terms of the process plus

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sources of disturbances. If there are states that cannot be handled there is a risk of losing control, which can cause breakdowns.

One way to handle variability and not lose control is to make routines, plans and procedures. However, they are too brittle to manage all possible situations and variabilities, instead they tend to become underspecified (Hollnagel et al., 2006; Woods et al., 1990). This means that the actors in the service situation are required to adapt routines to the particularities of the situation. There is accordingly a trade- off between remote supervision and local action that must be skilfully managed. This is called the *resilience function* of the system (Woods & Shattuck, 2000). It implies that a system should be designed to prepare actors to be surprised. There is an area of potential variability in situations that can be considered theoretically as likely to occur, but there is also an area of unthought-of variability that is not envisaged before service operations (Cuvelier & Falzon, 2011). Figure 2 illustrates these areas of variability and includes also a line for the lowest acceptable performance, i.e. a critical performance threshold. T0 in the figure represents a starting point for the service (e.g. opening for the day).

In a service context, this points to the relevance of improvisation (Pina e Cunha et al., 2009). An individual actor (person at the service provider) needs to be able to perceive action potentials (what are the things they can do) for managing the surprising situation. This includes having the ability, resources and mandate for improvisation (Rodrigues et al., 2018).
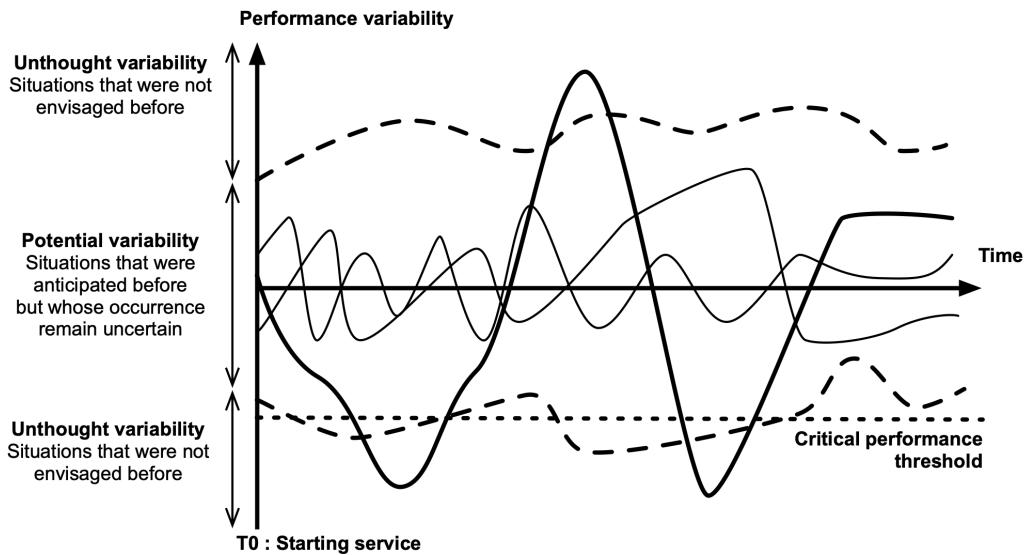
Figure 2. Variability in service performance – adapted from Cuvelier & Falzon (2011, p. 35)

If we strive to design for inclusive service, this line of reasoning translates to the ability of the service to manage customer variability. To a large extent, the heterogeneity of services and the difficulty of standardisation are due to variability in customer resources (Moeller, 2010). Customers can vary in arrival, requests, effort, preference, and capability (Frei, 2006). Designers need to assume a certain amount of variability in the user population, and that service employees have the perceived action potentials to act in order to manage such variability. This may include being clear on what the essential variables and core values of the service are, to be able to make trade-offs (Lundberg & Johansson, 2019). It also includes the mandate to, for example, slow down the flow of customers to make more time for the ones that need more time in a classic trade-off between efficiency and service (Frei, 2006). Sometimes the service employee needs to ask for assistance and recruit resources from other actors and neighboring actors in the service network, if there is not redundancy in the service provider's own resources (e.g. call in a sign language interpreter). The notion of recruiting resources from other actors points to the next perspective on inclusive service design: Service logics.

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A service logics perspective on inclusive Service Design

In some of the more developed perspectives on service, such as service logic (Grönroos, 2006) and service dominant logic (Lusch & Vargo, 2014), the idea that actors integrate resources to cocreate value has taken on a central role (Kleinaltenkamp et al 2012; Grönroos & Gummerus, 2014). Resources comes in two categories, operand resources, that are static resources (i.e. goods), and operant resources (e.g. knowledge, skills, information), that are resources that can act on and potentially change other resources (Arnould et al., 2006). That is, an IT-system is an operant resource, acting on operand resources such as available hotel rooms.

From the point of view of a service "in action", resource integration can broadly be seen in three different ways: (1) as presumed actors actively sharing resources and integrating them, with used and new resources as well as values as outcomes (Kleinaltenkamp et al, 2012); (2) as a network of actors each with its own potential resources to integrate (Gummesson & Mele, 2010); and (3) as an adaptive network of actors each with its value-creating objectives and each with its own potential resources to engage in resource integration (Zimmerman, 1951).

As inclusion goes, it may suffice to think in two dimensions. In the first, one differentiates between whether the actors are given or not. In the second, one views resources as already existing or resources as becoming (Edvardsson et al., 2014). This will frame inclusion practices in different ways, i.e. have we already decided who the actors are, or can we work with others, and are we restructuring existing resources or are resources created in interactions? What unites the two dimensions, is that they start out with the resources the actors perceive they have or to which they can provide access. In that sense, this perspective does not focus on limitations or disabilities, rather the possibilities of the actors. It also does not focus on the resources that an actor perceives they are lacking, rather on the incompleteness of resources of the set of actors in the network. For example, if a patient cannot go to a healthcare centre on their own, some other actor might be needed to provide transport.

Employing this manner of thinking allows for the creation of whole businesses which provide access to resources that would have formerly

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been seen as problematic, such as consultancy companies which consist solely of people who focus on and are particularly knowledgeable about specific subjects.

A shift in perspective is needed when thinking like this. A simple example would be a primary healthcare centre in a medium sized city, also catering for the rural towns and hamlets (see Figure 3). An elderly person in one of the hamlets has the resources to attend the care centre between 10 am and 1 pm, because the bus to the hamlet leaves at 2 pm. As such, not all visitors to the care centre can freely choose when their resources are available for integration. Being inclusive based on a resource-integration perspective will require designers to pay closer attention to variations in resources, such as patients' availability and transportation possibilities. Designers will also have to include more actors into the design process, such as the transportation companies actually available.
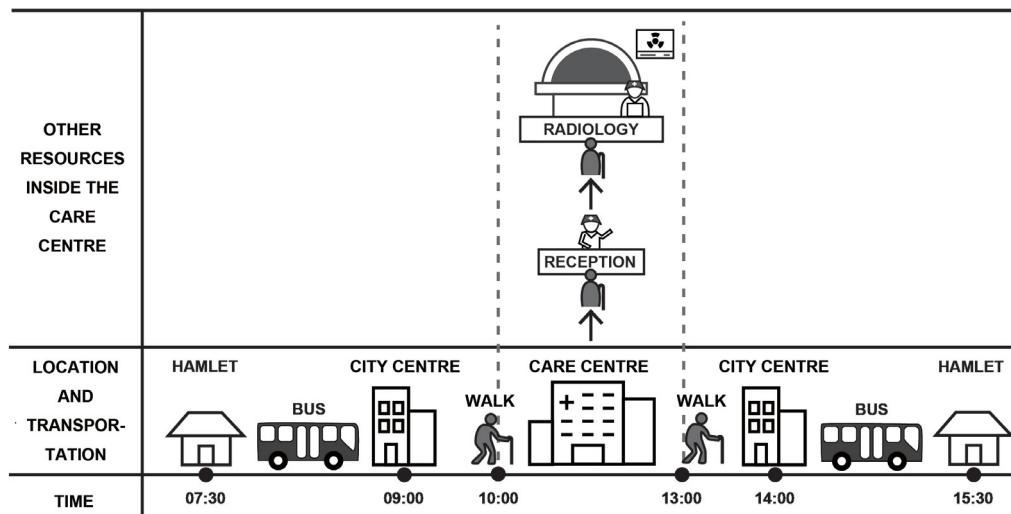
Figure 3. Actors and resources patient journey

In the example, the impact of inclusive design may be to devise specific means of transport, that provide the person with the resource of being at the care centre at other times, that is, acknowledging that the actor network is incomplete and find an actor that gives access to resources needed. Another impact of inclusive design would be to reserve other

resources in the health care system to be used at the request of the care centre, such as reserving a slot between 10am and 1pm on Fridays in the radiology department, because the care centre frequently books patients where the likelihood of needing radiology is high.

When approaching inclusive design from a resource integration perspective, four things become important. First, we need to understand the character of the resources that the set of actors have in the network, and how they relate to central and fringe characters of the service, often represented, as taken for granted resources or actors, in journey maps, value maps, system maps, service blueprints, etc. Second, we need to be critical towards the system boundaries set based on participants conceptions about the service, and to be open to the resource potential that actors outside those system boundaries may provide. Third, we need to work closely with the actors of the service, so their role as actors also focuses on the variety of available resources and adapts the service and the service system accordingly. Fourth, we need to work closely with the actors of the service, so that their role includes being creative with the mandate to include new resources from (new) actors, with the goal of making this beneficial for value creation. Inclusive design in this sense is as much design after design, similar to the inclusive methods and tools in a conceptual design process. This means that design work happens in action, and inclusive design is then about what actors do in service interactions and how they are trained to understand resource constraints and possibilities; inclusive design is not only about what designers do in the research and concept phases.

Discussion

The user-centred perspective on inclusive service design treats service as a product. That is, it is something that is designed, implemented, and finally put to use. The adaptive systems perspective treats service as a process to be managed and controlled by service operators. The service logics perspective treats service as resource integration between multiple actors. All three perspectives highlight some aspects of what inclusive

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service design can be and hide other aspects of it. The differences and similarities are summarized in Table 1.

	User-centred	Adaptive Systems	Service Logics
Overview	Focus on the user's needs and goals instrumentally.	Focus on the limits of essential variables of the service process.	Focus on actors and their resources to achieve some useful purposes and values.
Service Customers	To be involved as one of the service resources for quality control of design.	Part of the process to be controlled and regulated.	Active co-creators.
Service Providers	1. Designers collect the user's information and lead the design process; 2. Other providers offer requirement documents of services and financial supports.	Acting as regulators and controllers of the service process.	Active co-creators.
Motivation	Put users at the centre of the design process to solve their problems.	Understand the relations between whole and parts of the service system.	Making the most of the abilities and resources people have.
Nature of Value	Include more user groups.	Control and resilience.	Resource integration.
Methods and Tools	Interviewing; Observations; Product Prototyping; Usability testing.	Interviewing; Observations; Modelling; Stimulation; Workshops.	Workshops; Service Prototyping; Interviewing; Observations.

Table 1. Comparison of three perspectives on inclusive service design

A user-centred perspective focuses on the design time. That is, how people are included in research, ideation, prototyping, and testing, and how this then will lead to more inclusive situations of use. The umbrella model, which we presented earlier in this paper, suggests that the focus is to cover more groups of users within a reasonable range of the market. Service inclusion builds however on social inclusion, which is people-driven rather than product-driven (Fisk et al., 2018). This is something that the adaptive systems and service logics perspectives highlight. These perspectives focus on what goes on in the sharp end of service operators' activities as they tweak the ongoing service.

An adaptive systems perspective is about managing the variability in service situations based on the variation among users. This is a perspective that treats the service as a process, and the users become objects in the process which is regulated. In contrast, the service logics perspective treats users as pro-active resource integrators and co-creating actors. The adaptive systems perspective focuses on the systemic issues that make the resource integration possible, while the service logic perspective centres on how the people involved in the service interaction can act on the variability in resources available on-stage (e.g. the time available to an elderly person living in a hamlet).

Equal opportunity is an important topic for inclusive design, and it is dependent upon who participates in the decision making (Bianchin & Heylighen, 2018). However, equal opportunity is also a matter of how actors participate in co-creation of value in service interactions. We need to design for ways of participating for all actors and also acknowledge the special status of disabilities (Bianchin & Heylighen, 2018). In services, actors also become creators of inclusive conditions, and all actors in the service system need to be focusing on inclusive strategies. The abilities and the resources that are available become not only constraints, but also critical design materials, for actors to adapt when abilities and resources are lacking.

There is a tension between the user-centred perspective on inclusive design and the service logics perspective in the concept of "user". In user-centred inclusive design there are users that need to be able to use a product, but in the service logics perspective, users are actors with

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resources who need to be able to act. A paradox of a user-centred perspective on inclusive design is that we cannot design one product for all users. This is recognised by user-centred inclusive design, and there are strategies and tactics created to ensure good quality end-products. A paradox of service logic in relation to inclusive design is that we are designing for many contexts. In a service-logic perspective these two paradoxes can be re-solved in service by viewing a product as one of many resources. The service logic perspective allows us to work with resource systems, or clusters of resources, that an actor has access to in a specific service interaction. A resource system is the network of possible operand and operant resources surrounding an actor in each situation. We provide resources, and are given access to resources by others, which are then integrated. Inclusive service design then does not project inclusivity on the design of single objects, but on clusters of resources that in different combinations can achieve the value creation in an inclusive manner. Designing for that resource integration then becomes an act of making arrangements so that all actors in the situation understand how to combine resources from the resource clusters, and have the ability to adapt accordingly (Rodrigues et al., 2018). One option, for instance, is to ask someone else to help you in recruiting resources (transportation in our healthcare example) from elsewhere (Lundberg & Johansson, 2019). Inclusive service design therefore needs to pay attention to the capability of actors to adapt at service runtime (e.g. adding resources, actors, developing resources).

In conclusion, the three perspectives on inclusive service design described in this paper offer a pluralism of ways of seeing the design effort. A designer that can actively change perspective will be able to re-frame their design effort. Design of truly inclusive services requires the inclusion of broader groups of users in design processes, as depicted in the user-centred design perspective. The adaptive systems perspective also requires a readiness of service operators to manage a variability in users and resources, while the services logic perspective requires users to work with multiple resources. A plurality of perspectives on inclusive service design will accordingly lead to more inclusive services.

References

Aceves-Gonzalez, C., Cook, S. & May, A. (2014). *Inclusive service design: in search of better services*. Advances in Human Factors and Ergonomics 2014, Proceedings of the 5th AHFE Conference. 10–19. Retrieved from https://repository.lboro.ac.uk/account/articles/9338753

Arnould, E. J., Price, L. L., & Malshe, A. (2006). Toward a cultural resource-based theory of the customer. In R. F. Lusch & S. L. Vargo (Eds.), *The service-dominant logic of marketing: dialog, debate, and directions* (pp. 320–33). Armonk, NY: M.E. Sharpe Inc.

Ashby, W. R. (1956). *An introduction to cybernetics*. London, UK: Chapman & Hall. Retrieved from http://pcp.vub.ac.be/books/IntroCyb.pdf

Bianchin, M., & Heylighen, A. (2018). Just design*. Design studies,* 54, 1–22. https://doi.org/10.1016/j.destud.2017.10.001

Bue Lintho, O., & Begnum, M. E. N. (2018). *Towards inclusive service design in the digital society: Current practices and future recommendations.* NordDesign 2018. 14–17 August, 2018. Linköping, Sweden. The Design Society. Retrieved from https://www.designsociety.org/publication/40964/Towards+Inclusive+Service+Design+in+the+Digital+Society%3A+Current+Practices+and+Future+Recommendations

Chammas, A., Quaresma, M., & Mont'Alvão, C. (2015). *A closer look on the user centred design*. *Procedia manufacturing, 3*, 5397–5404. https://doi.org/10.1016/j.promfg.2015.07.656

Clarkson, P. J., Waller S., & Cardoso, C. (2015). Approaches to estimating user exclusion. *Applied ergonomics*, *46*(Part B), 304–310. https://doi.org/10.1016/j.apergo.2013.03.001

Clarkson, P. J., & Coleman, R. (2015). History of inclusive design in the UK. *Applied ergonomics*, 46(Part B), 235–247. https://doi.org/10.1016/j.apergo.2013.03.002

Conant, R. C., & Ashby, W. R. (1970). Every good regulator of a system must be a model of that system. *International journal of systems science,* 1(2), 89–97. https://doi.org/10.1080/00207727008920220

Crabb, M., Clarke, D., Alwaer, H., Heron, M., & Laing, R. (2019). Inclusive design for immersive spaces. *The design journal*, 22, 2105–2118. https://doi.org/10.1080/14606925.2019.1594934

Cuvelier, L. & Falzon, P. (2011). Coping with uncertainty. Resilient decisions in anaesthesia. In E. Hollnagel, J. Pariès, D. Woods, & J. Wreathall (Eds.), *Resilience engineering in practice: a guidebook* (pp. 29–43). Farnham, UK: Ashgate.

Edvardsson, B., Kleinaltenkamp, M., Tronvoll, B., McHugh, P., & Windahl, C. (2014). Institutional logics matter when coordinating resource integration. *Marketing theory,* 14(3), 291–309. https://doi.org/10.1177/1470593114534343

Engineering Design Centre, University of Cambridge. (n.d.). *Inclusive design toolkit*. Retrieved from http://www.inclusivedesigntoolkit.com/

Fisk, R. P., Dean, A. M., Alkire, L., Joubert, A., Previte, J., Robertson, N., & Rosenbaum, M. S. (2018). Design for service inclusion: creating inclusive service systems by 2050. *Journal of service management*, 29(5), 834–858. https://doi.org/10.1108/JOSM-05-2018-0121

Frei, F. X. (2006). Breaking the trade-off between efficiency and service. *Harvard business review,* 84(11), 92–101.

Goodman-Deane, J., Ward, J., Hosking, I., & Clarkson, P.J. (2014). A comparison of methods currently used in inclusive design. *Applied ergonomics,* 45(4), 886–894. https://doi.org/10.1016/j.apergo.2013.11.005

Grönroos, C. (2006). Adopting a service logic for marketing. *Marketing theory,* 6(3), 317–333. https://doi.org/10.1177/1470593106066794

Grönroos, C., & Gummerus, J. (2014). The service revolution and its marketing implications: service logic vs service-dominant logic.

Managing service quality: An international journal, 24(3), 206–229. https://doi.org/10.1108/MSQ-03-2014-0042

Gummesson, E., & Mele, C. (2010). Marketing as value co-creation through network interaction and resource integration. *Journal of Business Market Management*, 4(4), 181–198. https://doi.org/10.1007/s12087-010-0044-2

Heylighen, A., Van der Linden, V., & Van Steenwinkel, I. (2017). Ten questions concerning inclusive design of the built environment. *Building and environment,* 114, 507–517. https://doi.org/10.1016/j.buildenv.2016.12.008

Hollnagel, E., Woods, D.D., & Leveson, N. (2006). *Resilience engineering: concepts and precepts*. Aldershot, UK: Ashgate.

Hosking, I., Waller, S., & Clarkson, P. J., (2010). It is normal to be different: applying inclusive design in the industry. *Interacting with computers,* 22(6), 496–501. https://doi.org/10.1016/j.intcom.2010.08.004

Keates, S., Clarkson, P. J., Harrison L.A., & Robinson, P. (2000). *Towards a practical inclusive design approach*. The 2000 Conference on Universal Usability (CUU '00). 16–17 November, 2000. Arlington, Virginia, USA. New York, NY: ACM Press. 45–52. http://dx.doi.org/10.1145/355460.355471

Keates, S., Clarkson, P. J., & Robinson, P. (2002). Developing a practical inclusive interface design approach. *Interacting with computers,* 14(4), 271–299. https://doi.org/10.1016/S0953- 5438(01)00054-6

Kleinaltenkamp, M., Brodie, R. J., Frow, P., Hughes, T., Peters, L. D., & Woratschek, H. (2012). Resource integration. *Marketing theory,* 12(2), 21–205. https://doi.org/10.1177/1470593111429512

Lundberg, J., & Johansson, B. J. E. (2019). Resilience is not a silver bullet – harnessing resilience as core values and resource contexts in a double adaptive process. *Reliability engineering & system safety,* 188, 110–117. https://doi.org/10.1016/j.ress.2019.03.003

Lusch, R. F., & Vargo, S. L. (2014). *Service-dominant logic: premises, perspectives, possibilities.* Cambridge, UK: Cambridge University Press.

Meroni, A., & Sangiorgi, D. (2011). *Design for services*. Great Britain, UK: Gower. Moeller, S. (2010). Characteristics of services – a new approach uncovers their value. *Journal of services marketing, 24*(5), 359–368. https://doi.org/10.1108/08876041011060468

Persad, U., Langdon, P., & Clarkson, P. J. (2007). *A framework for analytical inclusive design evaluation.* ICED 2007, the 16th International Conference on Engineering Design. 28–31 July. 2007. Paris, France. The Design Society. 817–818. Retrieved from https://www.designsociety.org/publication/25736/A+Framework+for+Analytical+Inclusi ve+Design+Evaluation

Persson, H., Åhman, H., Yngling, A. A., & Gulliksen, J. (2015). Universal design, inclusive design, accessible design, design for all: different concepts—one goal? On the concept of accessibility— historical, methodological and philosophical aspects. *Universal access in the information society,* 14(4), 505–526. https://doi.org/10.1007/s10209-014-0358-z

Pina e Cunha, M., Rego, A., & Kamoche, K. (2009). Improvisation in service recovery. *Managing service quality: an international journal,* 19(6), 657–669. https://doi.org/10.1108/09604520911005053

Pratt A., & Nunes, J. (2012). *Interactive design: an introduction to the theory and application of user- centered design*. Beverly, MA: Rockport Publishers.

Rodrigues, V., Blomkvist, J., & Holmlid, S. (2018). *Perceived Action Potential: A strong concept in development.* ServDes.2018 Conference. 18–20 June, 2018. Milano, Italy. Linköping: Linköping University Electronic Press. 1162–1174. Retrieved from http://www.ep.liu.se/ecp/150/094/ecp18150094.pdf

Saffer, D. (2009). *Designing for interaction: creating innovative applications and devices*. Berkeley, CA: New Riders.

Santana, F. E., Cardoso, C. C., Ferreira, M. G. G., Catapan, M. F., Montanha Jr, I. R., & Forcellini, F. A. (2017). Towards a more inclusive service development process for the wider population. *Design studies,* 55, 146–173. https://doi.org/10.1016/j.destud.2017.10.003

Stickdorn, M., Hormess, M., Lawrence, A., & Schneider, J. (2018). *This is service design doing*. Sebastopol, CA: O'Reilly Media.

Waller, S., Bradley, M., Hosking, I., & Clarkson, P. J., (2015). Making the case for inclusive design. *Applied ergonomics,* 46(Part B), 297–303. https://doi.org/10.1016/j.apergo.2013.03.012

Woods, D. D., Roth, E. M., & Bennett, K. B. (1990). Explorations in joint human-machine cognitive systems. In S. Robertson, W. Zachary, & J. Black (Eds.), *Cognition, computing, and cooperation* (pp. 123–158). Norwood, NJ: Ablex.

Woods, D. D., & Shattuck, L. G. (2000). Distant supervision–local action given the potential for surprise. *Cognition, Technology & Work,* 2(4), 242–245. https://doi.org/10.1007/PL00011516

Zimmermann, E. W. (1951). *World resources and industries: a functional appraisal of the availability of agricultural and industrial materials.* New York, NY: Harper & Brothers.

Robots in Service Design: Considering uncertainty in social interaction with robots

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Abstract

As robots become more prevalent in society, they will also become part of service systems, and will be among the materials that designers work with. The body of literature on robots in service systems is scarce, in service research as well as in service design research, especially regarding how to understand robots in service, and how design for service is impacted. In this conceptual paper we aim to shed light on how social robots will affect service. We take a look at the current state of robots' ability to interact socially with people and highlight some of the issues that need to be considered when including social robots as part of service.

In navigating the social world, people exhibit an intentional stance, in which they rely on assumptions that social behaviour is governed by underlying mental states, such as beliefs and desires. Due to fundamental differences between humans and robots, people's attribution of the mental state of robots, such as what a particular robot knows and believes, is often precarious and leads to uncertainty in interactions, partly relating to issues with common ground. Additionally, people might hesitate to initiate interactions with robots, based on considerations of privacy and trust, or

due to negative attitudes towards them. Designing for service systems where e.g. a robot is being introduced, requires knowledge and understanding of these issues from a design perspective. Service designers therefore need to consider not only the technical aspects of robots, but the specific issues that arise in interactions because of them.

Keywords: robots, uncertainty, human-robot interaction, conceptual paper, social interaction

Holding it open: Building capacity for self-determined collaborative Service Design

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Abstract

Despite welcome explorations of difference in Service Design approaches in recent scholarship, the prevailing notion that the field is measured by tools, methods, and outcomes limits how SD might contribute to open-ended practices of self-determined design and capacity-making in socially and politically-grounded contexts. We draw on a two-year service design collaboration among three learning-communities with differently situated students to suggest means for "holding open" collaborative work in process as a way to both create space for collectivity and to grapple with difference, tension, and emergent conditions. This framework is a proposition for self-determined service design, rooted in the complex contexts of collaborators' experiences and self-articulated desires. We argue for extending SD practitioners' and researchers' understandings of uncertainty (Alexander, 2006) and the unknown (Akama, Pink & Sumartojo, 2018) to consider these as approaches for engaging in plurality and emergence, rather than seeing them as conditions requiring mitigation to reach a specific end-goal.

Keywords: self-determined design, learning-communities, incarceration, social justice, uncertainty

Dignity as a principle of service design: a study of four perspectives on dignity and their applications to pedagogy

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Abstract

Dignity is a fundamental principle of today's democratic society as well as human-centred design. Dignity is particularly important in the design of services. Services directly influence those who go through the service system, and many services seek to change their customers as a core outcome. Additionally, service co-production often starts with tense situations in which strangers meet for the first time and this can sometimes lead to serious conflict. A humanistic principle, such as dignity, is needed in this process and in the outcome of a service. Designers can better integrate and support dignity by treating it as a principle, method, quality or pedagogy of service design. This paper explores four perspectives on dignity: as a universal right, as interpersonal care, as merit and as autonomy. I introduce the key philosophical interpretations, social backgrounds, and historical shifts in the concept of dignity with design examples. Dignity as a universal and intrinsic value of human nature is likely the dominant meaning of dignity in today's democratic society. Dignity also concerns a humanistic treatment that is exchanged with another individual based on social emotions. Historically, however, people were seen to have more dignity if they proved to be better suited for a higher rank. In contrast, modern philosophers have argued/argue that the basis of dignity is autonomy, that is, the capacity for decision and action. I then present service design projects from a class, in which student teams

utilize each of the four perspectives as a guiding principle for redesigning a flight experience.

Keywords: service design, dignity, design principle, design pedagogy, flight experience

Unpacking the nature of social structures as the materials of service design

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Abstract

Service design is increasingly broadening its focus from creating intangible offerings to shaping service systems. This shift calls for a re-examination of the materials of service design. The traditional emphasis on touchpoints and service interfaces reflects a reductionist approach that leaves service design practitioners tinkering with disconnected parts, rather than addressing the service system as a whole. While historically social structures, such as norms, rules, roles and beliefs, have been seen as externalities in service design, a focus on shaping service systems brings them into the spotlight. The purpose of this paper is to build a more holistic understanding of service design materials to enable a systemic service design practice. Drawing from institutional theory, this paper develops a conceptual framework of service design materials that situates the traditional materials as the physical enactments of institutionalized social structures. The framework deconstructs the nature of service design materials by suggesting that they are all comprised of regulative, normative, and cultural-cognitive elements and have specific contradictory properties. Building on this understanding, the paper presents a practical tool called the Iceberg Blueprint of Social Structures that can help service design practitioners to expose the social structures constituting service systems.

Designing to facilitate and enrich human relationships for complex societal challenges

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Abstract

Service designers increasingly tackle complex societal challenges, also referred to as social innovation. To address such challenges, a growing group of designers has started to combine their design practices with systems thinking practices. Systems thinking is about zooming out, considering things in relation to a larger system, or indivisible whole, of which they are part. For example, complex adaptive systems theory explains how relational processes of self-organisation lead to new emergent behaviour of the whole, thereby adapting to its environment. While systems thinking zooms out, service design zooms in on human experiences and increasingly focuses on human relationships. In social innovation, it becomes relevant for service designers to examine the impact that human relationships have on the emergent behaviour – and in particular adaptation - of the system as a whole, such as healthcare or education systems. This paper connects service design to complex systems thinking, and shows how designing for certain experiential qualities of human relationships has the potential to contribute to enabling adaptive social systems. This is illustrated by four social innovation project case studies which each addressed particular patterns of qualities of relationships, including learning, motivation, and care and support. The

author speculates when and how those qualities have the potential to enable an adaptive social system, and argues that service design is well-positioned to design conditions that facilitate and enrich human relationships with such qualities. This position is supported by service designers' ability to design for the intangible and focus on human experiences, and their potential to impact people's mental models of relationships.

Keywords: systemic design, relational services, complexity, emergence, human-centred design

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Patterns of disruption: Diagnosing response mechanisms in actor networks

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Abstract

Service, and failures associated with it, occur in networked contexts. It is important to understand patterns of disruptions in service, and how actors influence possible failures through their participation as this can impact value creation. This paper reports the results of an interview study analysed using critical incident theory supported by design-driven generative tools. We identify eight patterns of disruption: request, query, hiccup, delay, mistake, flaw, breakdown and the unexpected. The paper also contributes a disruption ripple model, and identifies five tensions in responding to disruptions: competing priorities, dealing with difficult others, mismatching expectations, shouldering responsibility and reluctant assistance. The patterns of disruption provide a more nuanced way of understanding incidents in service situations. The ripple model and identified tensions illustrate the underlying complexities in network relationships. We argue that service-providing organisations need to address the development of relationships to support beneficial value outcomes.

Keywords: service design, disruption ripple model, service failure, critical incident technique, healthcare

**SERV20
DES20**

Designing in response to Indigenous sovereignties

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Abstract

This paper presents 'gaps' or limitations within the Western Design episteme as the author explores the requirement of Design to position itself in response to Indigenous sovereignty, specifically through the sovereign practice of Welcoming. The author argues that these gaps are created by, denied and deflected through racialized, capitalist logics. However, Indigenous sovereignty remains, presenting the opportunity and responsibility of the non-Indigenous Designer to reposition into practices of Designing lawfully on Country. This paper is written in Melbourne or Naarm therefore the author responds to Kulin practices of Welcoming; Womin Djeka. This sovereign practice locates Design ontologically and epistemically as 'the visitor'; dependent on and distinct to the Indigenous sovereign host. This paper may also serve as an example to non-Indigenous Designers, in global contexts designing, researching and visiting on unceded lands. The paper's central argument emerges through a critique of the universalising logic of whiteness in Design, which by its nature replicates globally, therefore this critical reckoning has global applicability. On Kulin lands, the sovereign practice of Womin Djeka addresses the guest or visitor and may include the laws of Bundjil. I contend that Womin Djeka is the foundation from which to Design lawfully in response to the ontological and epistemic boundaries set by Indigenous sovereignty.

N.B. The author is a non-Indigenous white man; invited to live and practice Design on the unceded lands of the eastern Kulin Nations (Melbourne as Naarm). I've heard colleagues and friends refer to themselves as 'uninvited' guests, settlers or visitors. I refer to myself as invited in recognition of the sovereign practice of inviting and welcoming guests. However, I also acknowledge the value in the term 'uninvited' in recognition of the ways I have been taught to misinterpret or ignore the sovereign invitation. Therefore, I also see the term 'uninvited' as a recognition of my starting point and unrealised design practice response.

Keywords: sovereignty, design ontology, epistemes, womin djeka, plurality, whiteness

The Acknowledgment, an important first step: In the contemporary moment

Across Australia it is becoming increasingly common to hear an Acknowledgement of Country at the start of formal Design events, meetings or gatherings. While these are often tentatively, awkwardly expressed, it is nonetheless a significant step forward as recognising the sovereignty of Indigenous peoples. Until it no longer is. Until it is performative or a barely noticeable social nicety; a, 'how are you?' 'Good thanks,' ritual. I contend that the Acknowledgement of Country captures a complex amalgam of tensions for many non-Indigenous Designers; it is an enactment that reveals what we've not been allowed to know or what we've wilfully ignored. It triggers the anxiety of feeling inept and exposed. This nervous apprehension is the first hint at the realisation that Western Design has never substantially matured into a sovereign relationship by understanding the lawful connections and separations between knowledge systems. So in our incapacity we often recite an institutional statement as Acknowledgment and then move on to the event at hand.

As we fumble, we reveal our ontological displacement. We fumble and yet we make the circumstances in which we lost our footing. These circumstances are so well Designed that we struggle to recognise the Design itself.

Introduction

The Service Design conference is hosted on the unceded lands of the Woi Wurrung and Boon Wurrung language groups of the eastern Kulin Nations. To state this, is to recognize the sovereignty and the sovereign practices of the eastern Kulin.

Aboriginal and Torres Strait Islander peoples have never ceded their land, rights or identity. The continent known as 'Australia' is comprised of over 300 sovereign nations with distinct language, laws, culture, knowledge and governing systems (Behrendt, 2003). However, Indigenous sovereignty, dislocates and unsettles particularly white non-Indigenous people as it is heard and deflected through the racialised logics of the white possessive (Moreton-Robinson, 2015). Here the 'White Possessive' is rendered a term by Moreton-Robinson for describing the links between race, sovereignty and possession through themes of property and owning property as outlined in her book, of this title. In this paper, the author draws from Critical Race and Whiteness and Indigeneity (CRWI) scholarship as a provocation to Western Design. I draw from the theorizing of Indigenous and non-Indigenous scholars within CRWI discourse as foregrounding my emerging concerns that non-Indigenous Designers might stall at the Acknowledgement without progressing by understanding the relationship between knowledge systems as an obligation of a lawful Design practice. This is towards the possibility that Indigenous sovereignties be understood as foundational to non-Indigeneity and Design; to be ontologically and epistemically located through the sovereign.

Designing in response to Indigenous sovereignties

I argue for an approach to Design that is grounded by or consciousness of being in response to Indigenous sovereignty. This prioritises what Indigenous sovereignty asks of and offers the non-Indigenous Design practitioner, as a fundamental premise of how Design is enacted in relation to place or more specifically practiced lawfully 'on country'.[1] These

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1 I use the term country as Indigenous people use it, to refer to the land to which they belong and is their place of Dreaming (Moreton-Robinson, 2000). The Indigenous use of the term country is much broader than that of standard English.

relationships are at times explicit, demonstrable engagements, such as acknowledging the sovereign or acknowledging Indigenous knowledge systems that you Design in relation to; while others are much more transformative, in terms of the non-Indigenous individual, looking critically for the omnipresent yet illusive practices of colonial whiteness and challenging the possessive, capitalist logics at the core of Design epistemes (Moreton-Robinson, 2015). Furthermore, I argue that Design can only develop a unique 'Australian' identity through an epistemological and ontological grounding in response to Indigenous sovereignty. This requires a particular critical reflection by the non-Indigenous Designer through challenging Design logics in order to be lawfully 'the visitor'. This is to wrestle with the discomfort or white fragility (DiAngleo, 2011) of not being the owner or expert of Design knowledges which ontologically emerge from here.[2]

"Welcome": Positioning the Western Design episteme

For the non-Indigenous visitor Indigenous sovereignty sets the foundation of the relationship between knowledge systems through the practice of Welcoming. On Kulin lands this is expressed as; Womin Djeka. This poses questions; requiring 'you' to stand forward, to account for yourself in relation to Kulin as sovereigns. Kulin Elders often directly refer to non-Kulin as 'the guest' and, or 'the visitor' and through Djeka ask, 'what is your business or intention'? This is an invitation and obligation to know yourself and your Design practice as framed by and within the socio-political and in relation to the sovereign. I argue that this that obliges the visiting Western Design epistemes to contour in relation to Indigenous knowledge systems, expressed as distinct sovereignties across Australia. Western Design can only be practiced lawfully by knowing itself as being in relation to multiple systems of law (Balint et al., 2020). In Melbourne or Naarm I am in relation to the laws of Bundjil, as a system of laws that exist with me and outside of my complete translation.[3]

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2 In the Australian context I often use whiteness to include all non-Indigenous who, to differing extents, are implicated in and benefit from the colonial apparatus.

3 The Bundjil Statement has been developed to deepen the RMIT community's ngarn-ga (understandings) of how we work lawfully and respectfully on Kulin Nation where RMIT

The first dent, which might offer some contouring, is to begin to understand that Design and Design thinking has been practiced on these lands since time immemorial. Prior to first contact, Indigenous sovereignties operated through distinct systems of trade, sharing and knowledge transmission, therefore we must deduce that these practices were Designed and continue to be Designed. However, the offer of being 'the visitor' can elicit an adverse response in the non-Indigenous, especially white Designers. The perception is that the term 'visitor' minimises their particular relationship to place. However I contend that the term 'visitor' contextualises what Moreton Robinson refers to as a personal, nostalgic or sentimental connection (Moreton-Robinson, 2003). My practice repositioning begins by asking: what are the attributes of being the visitor that Western Design can practice lawfully? I ask myself, what does the Design practice leave behind and as a visitor, it has come from elsewhere; what are Designs origins and the impacts of its ongoing movement and 'elsewhere-ness?'. I argue that the offence emerges through the authority of what Moreton Robinson refers to as the 'white possessive'. I direct this towards the prioritised logic of whiteness in Design such as property ownership, nostalgic connection to place, spiritual romantisism, temporal modernity and the omnipresent dominance of Western knowledge measures (Nakata, 2007; Foucault, 2013).

Womin Djeka is a statement and practice of Kulin sovereignty. It situates by stating to the non-Indigenous visitor; I am from here. Where are you from? This is a question that can't be solved or answered through a person to person exchange. It is an offer to understand your whole being in lawful obligation; within the laws of country (Nicolacopoulos & Vassilacopoulos, 2014). The Acknowledgment is your reply, accepting of the terms, laws and commitment to engaging with the sovereignty of

University stands. This statement informs how we know, be, and do our dhumbali (promise/commitment) to Bundjil. This statement helps us frame how we deliver education, undertake research and engage with the communities we serve. It informs all aspects of how we conduct business on place.

Womin djeka, Bundjil was a powerful man, who travelled as an Eagle. He was the head man of the Kulin people. Bundjil taught us to always welcome guests. Bundjil asks what is your purpose for coming and understanding place? When you are on place you make a dhumbali (promise/commitment) to Bundjil and the land of the Kulin Nation.

Indigenous peoples. However, it is useful to note, as a positioning exemplar that the acknowledgement is inconsequential to Indigenous sovereignty itself. Indigenous sovereignty exists through an ontological and epistemic grounding apart from Western Design and therefore operates irrespective of the non-Indigenous Acknowledgement. This is a challenge to transactional Design logics which would prioritise a person to person exchange and be validated through interaction and response.

Plurality for the non-Indigenous guest or visitor

In Designs for the Pluriverse (2018b), Colombian Design and anthropology scholar Arturo Escobar eloquently interrogates neo-liberal modernity, patriarchy, individualism, colonialism. This is a broad reaching, thorough critique of the failures of the capitalist existence. Pertinently, Escobar points directly to Design and Design theory as being the enablers of expansionist capitalism leading to the fragile, uncertain environmental socio-economic state we now navigate. For Escobar, the privileged, freewheeling nature of Design is a Design failure. To shift this trajectory would require a significant epistemic shift away from defaulting to the whims of capitalism, which I argue requires reckoning with Design's racialized, transactional, consumptive, possessive logic at its epistemic core.

Escobar hopes to get at what he calls the Pluriverse; a world where many worlds exist alongside each other. I suspect that Escobar is conscious of the white colonial misreading of this, qualifying the term by stating (2018b, p.20), "It is not about 'expanding the range of choices' but is intended to transform the kinds of beings we desire to be". He writes,

> I present ontological Design as a means to think about, and contribute to, the transition from the hegemony of modernity's one-world ontology to a pluriverse of sociocultural configurations; in this context Designs for the pluriverse becomes a tool for reimagining and reconstructing local worlds (2018b, p.19).

There is significant complexity and tension here which Escobar is also alert to, evidenced by his range of choice qualifiers. I hope to add to this alertness by naming the manager of this range of choices as white privilege and more broadly highlight the likely white reading of the Pluriverse. My initial concerns emanate from what Critical Race and

Whiteness scholar Fiona Nicoll names as white virtue (Nicoll, 2014). Through this theorising I am conscious of the ways in which offers of Indigenous knowledges to non-Indigenous Design practitioners are misread and consumed as 'good' virtuous, diversity work (Ahmed, 2012). This becomes a way of avoiding the critical, repositioning required to be within the logics of the pluriverse rather than hovering above, participating at will and appearing to approve. Design discourse and methods have moved significantly towards participatory and co-Designing practices, in which experts not trained in (Western) Design are invited into the Design process (Björgvinsson et al., 2012; Manzini & Rizzo, 2011; Parker & Parker, 2007; Sanders & Stappers, 2008). We are, in a sense diversifying within Design. More recent PD discourse is far more conscious of power dynamics, unequal ground and the uneven toll of inclusion (Akama et al., 2019; Akama & Light, 2018). The capacity of others to interpret and contribute, as Luck (2018) argues, is the basis of which Designers should treat participation itself as a matter of concern. I also draw from Ahmed's (2012) critique of institutional enthusiasm for diversity being incommensurate with the ability of researchers and practitioners to substantially respond to difference. I argue that without the necessary critical focus on race and whiteness, practices of inclusive participation can result in Design including Indigenous people as racialized other rather than as sovereigns.

A critical attentiveness to Design's epistemic truth emerges through Suchman who argues for situatedness by challenging the notion that the Designer holds an objective, benign, apolitical view. Suchman's (2007) work is significant in illuminating the conditioned, circumstantial bias often at play. Furthermore, Suchman emphasizes the importance of locating the intent and provenance of Design. In more recent discourse the dominant Western Eurocentric Design framework is being named as such. I see this located, critical naming as a valuable preparatory grounding for the 'stand forward, account for yourself and Design with intention' aspect of Designing in response to Indigenous sovereignty.

Furthermore, Nicoll's theorising on white virtue plays out in the assumption that by including the marginalized other the Designer has politely, benignly included a voice that needed to be heard or elevated. In the emergence of intersectional thinking in Design (Onafuwa, 2018) I argue that it is equally important to remain vigilant of the privilege and power of the disciplines as being able to construct and consume the 'other' as source material (Nakata, 2007; Foucault, 2013; Tuhiwai Smith, 2013). These concerns are raised and advanced in Design discourse from scholars such as Akama

(2019; 2015); Light (2018) Irani et al. (2010); & Haslem (2012) and in relation to Design and coloniality, and perspectival awareness, through the work of Matthew Kiem (See Akama et al., 2015; Shultz et al., 2018). A critical dialogue, which would speak directly to the imported nature and of Western Design as it is practiced in Australia is yet to be taken up extensively by white Design practitioner researchers. Yet this is often the challenge posed to settler researchers by Black and Indigenous scholars (Anderson, 2014; Heath-Justice, 2016). These racialised logics are omnipresent in the continent known as Australia and difficult to see, particularly for myself, as a non-Indigenous white man (Ahmed, 2013; Maddison, 2013; Tuck & Yang, 2012). The challenges of being alert to and 'anti' something I am embedded in is not lost on the author, as is the allure of being the self-appointed, innocent 'good critical' academic (Macoun, 2016). I see this is not a deterrent but rather an impetus for 'staying with the trouble' (Harraway, 2016) of continually questioning what I can know and how I Design in relation to multiple knowledges and truths. I return to Escobar's urging towards consideration of local worlds. I agree wholeheartedly with Escobar but seek to include a critical consciousness of whiteness amongst the Australian local worlds. Here, in Australia and in other colonized countries such as Canada, New Zealand and the United States, I argue that non-Indigeneity can only see or 'account for itself' itself amongst local worlds through Indigenous sovereignty. This activity of knowing yourself, then possibly knowing the Western Design episteme as emerging from capitalist or consumptive, racialized logics, presents the opportunity to expand how Design is challenged specifically in response to local worlds. One such challenge is the realisation that Indigenous knowledges cannot be fully translated or explained into Western Design logics and yet that is often the demand and assumption of Design itself. Indigenous sovereignty sets a border or gap for the non-Indigenous Designer, which situates us within the Pluriverse. This is the critical reflective signal which Western can't smooth over as solution-based thinking or adapt to by including in diversity-based practices.[4] I argue that whiteness within Design must identify itself as one of the guesting or 'freewheeling' (Escobar 2018) visitor worlds. The critical examination of visitor whiteness is the global application of my argument, referred to earlier in this paper.

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4 These critical strategies of deflection are outlined in a forthcoming paper that accompanies the 2019 NAISA conference.

Design's capitalist logics and inability to practice in the sovereign relationship or knowledge systems in relation (Fry, 2013) is perhaps most blatantly revealed by the dilemma of 'cultural appropriation'. Design discourse focused on cultural appropriation tends to address this through management of the Western Design practice and offer guidelines to avoid disadvantaging the Indigenous community as collaborator (Scaffidi, 2005). The Australian Indigenous Design Charter (IDC) has sought to make leeway in this area, by specifically noting how Design collaborations between Indigenous and non-Indigenous people can result in theft and consumption of Indigenous knowledges (Kennedy, Kelly, Greenaway, & Chatfield, 2017). My concern is regarding the 'call out' itself occupying a disproportionate amount of attention. Consequently, the opportunity to challenge the power structures which allowed it to occur in the first place might be missed.

The problem of defining Indigenous sovereignty

It is important to note that I approach the use of Sovereignty knowing that it is a Western construct and term. It is a term Indigenous people use to speak to or be heard by non- Indigenous people. Indigenous sovereignty predates the term sovereignty. The interplay between Indigenous senses of sovereignty and how it relates to statist, Westphalian sovereignty is articulated in the recent Uluru statement (2017):

> This sovereignty is a spiritual notion: the ancestral tie between the land, or 'mother nature', and the Aboriginal and Torres Strait Islander peoples who were born therefrom, remain attached thereto, and must one day return hither to be united with our ancestors. This link is the basis of the ownership of the soil, or better, of sovereignty. It has never been ceded or extinguished, and co-exists with the sovereignty of the Crown. How could it be otherwise? That peoples possessed a land for sixty millennia and this sacred link disappears from world history in merely the last two hundred years?

The first critical challenge for the non-Indigenous is to understand this as not a relationship of middle ground, balance, reciprocity or mutual recognition. Here the focus is on the person (Designer) to person relationship in what might be for the non-Indigenous, a transient, project-based exchange. This challenges the temporary, transactional nature of

project-based Design relationships. There is also a risk of white virtue and politeness defining an 'authentic' relationship via the offering of Design as supporting or solving an Indigenous issue (West, Akama et al., 2016). Whereas the obligation to Design in response to Indigenous sovereignties is a constant, across the continent known as Australia.

As outlined in the Uluru Statement, Indigenous sovereignty is lived, felt and embodied, and known ontologically. It is this constitutive, indefinable quality that CRWI scholar, Fiona Nicoll points to as demonstrating the inherent belonging of sovereignty to Indigenous Australians. This inability to fully grasp Indigenous sovereignty immediately casts an epistemic and ontological separation between the Indigenous and the non-Indigenous (Moreton-Robinson & Nicoll, 2006). Being an inherent or 'originary' sovereignty (Reynolds, 1996) it cannot logically be known to those for whom it is not inherent or who are not the original peoples. Or as Aunty Mary Graham articulates, as cited in Schultz et al. (2018: 8), there is "no Aboriginal equivalent to the Cartesian notion of "I think therefore I am". Instead she proffers if it were, it would be, I am located therefore I am". Here Schultz further articulates of Graham's relation to place and Dreaming that: "there are multiple Places so there are multiple Dreamings, so there are multiple Laws that equal multiple Logics that equal multiple Truths".

Design and responding to Indigenous sovereignty & CRW

It can be viewed that Western Eurocentric Design is well suited to repositioning and responding to Indigenous sovereignty. Design, in terms of its culture of experimentation, piloting, learning through doing and flexibility seems to be the perfect site for systemic epistemological change. However, this can also lead to consumption as Design extrapolates and represent collaborative processes, categorises and reproduces complex relationships as simplified frameworks all in the name of Design offering solutions (Akama, 2019). I argue that these possessive, at times, paternalizing actions are indicative of the logics of whiteness in design. Invariably in non-Indigenous, Indigenous Design based relationships, it is Indigenous people or their conditions which need to be solved rather working through a critical examination of the role of Western Design has in creating and defining the problem itself.

The Western Design epistemes were not founded in the continent known as Australia through an understanding of Indigenous sovereignty. The

opportunity to mature design into practices of being in relation to multiple knowledge systems has been obscured or wilfully ignored in the privilege of passive observation. As Moreton Robinson argues it is patriarchal white sovereignty that has been taught and I would argue that it is Designed and practiced. Design has a particular role in the obscuring and exclusion of Indigenous peoples and knowledges. I locate that the first and ongoing application of Western Design in Australia is terra nullius. This is to suggest (and justify) that Australia was unoccupied; an empty space to be Designed, and a problem to be fixed by Eurocentric Western Design. The challenge for the guest Design practitioner and the Design discipline is practicing through a consciousness of the ontological and epistemic boundaries that are brought into view by Indigenous sovereignty. This is a Design practice position and forms an emergent non-Indigenous ontology. Indigenous sovereignty reflects an ontological and epistemic possibility back to the non-Indigenous visitor. Non-Indigenous Designers are being addressed by Indigenous sovereignty: 'I am from here. Where are you from? In this sense, non-Indigenous Designers are given a footing and an opportunity to know and to practise in a frame of response.

References

Ahmed, S. (2013). Critical racism/critical sexism. Feminist Killjoys. http://feministkilljoys.com/2013/12/19/critical-racismcritical-sexism/

Ahmed, S. (2012). On Being Included. Racism and Diversity in Institutional Life. Duke University Press: Durham, U.S.A.

Akama, Y., Hagen, P, Whaanga-Schollum, D. (2019). Problematizing Replicable Design to Practice Respectful, Reciprocal, and Relational Co-Designing with Indigenous People'. Design and Culture, 11(1), pp. 55-84.

Akama, Y., Stuedahl, D. & Van Zyl, I. (2015). Design Disruptions for Contested, Contingent and Contradictory Changes.

Akama, Y. & Light, A. (2018). Practices of readiness: punctuation, poise and the contingencies of participatory Design. Proceedings of the 15th Participatory Design Conference: Full Papers, 1, 1-12.

Anderson, C. (2014). Intellectual Predilections and Institutional Realities. In: MORETON-ROBINSON, A. (ed.) Critical indigenous studies: engagements in first world locations. University of Arizona Press.

Balint, J., Evans, J., McMillan, N. & McMillan, M. (2020). Keeping hold of justice: Encounters between law and colonialism, University of Michigan Press.

Behrendt, L. (2003). Achieving social justice: Indigenous rights and Australia's future: Federation Press.

Björgvinsson, E., Ehn, P. and Hillgren. P. A. (2012). "Agonistic participatory Design: working with marginalized social movements". CoDesign, 8 (2-3), 127-144.

DiAngelo, R. (2011). "White fragility". The International Journal of Critical Pedagogy, 3(3).

Escobar, A. (2018a). Autonomous Design and the emergent transnational critical Design studies field. Strategic Design Research Journal, 11(2), 139-146.

Escobar, A. (2018b). Designs for the pluriverse: Radical interdependence, autonomy, and the making of worlds: Duke University Press.

Foucault, M. (2013). Archaeology of knowledge: Routledge.

Fry, T. (2013). Becoming human by Design: A&C Black.

Fry, T. (2017). Design for/by "The Global South". Design Philosophy Papers, 15(1), 3-37.

Haraway, D. J. (2016). Staying with the trouble: Making kin in the Chthulucene: Duke University Press.

Haslem, N. (2012). The Design collaborator as the other: investigating the intersubjective in communication Design practice. RED Objects|Collaboration in Experimental Design Research Conference Proceedings, 53.

Heath-Justice, D. (2016). In: Moreton-Robinson, A. (ed.) Critical indigenous studies: engagements in first world locations. University of Arizona Press.

Irani, L. et al. (2010). Postcolonial computing: a lens on Design and development. Proceedings of the SIGCHI conference on human factors in computing systems, 1311-1320.

Kennedy, R., Kelly, M., Greenaway, J., & Chatfield, E. (2017). International Indigenous Design Charter: Communication Design.

Paper presented at the Proceedings of the 2017 World Design Summit Congress.

Luck, R. (2018). Inclusive Design and making in practice: Bringing bodily experience into closer contact with making. Design Studies, 54, 96-119.

Macoun, A. (2016). Colonising white innocence: Complicity and critical encounters. The Limits of Settler Colonial Reconciliation: Springer.

Maddison, S. (2011). Beyond white guilt: The real challenge for black-white relations in Australia, ReadHowYouWant. com.

Manzini, E., & Rizzo, F. (2011) "Small Projects/Large Changes: Participatory Design as an Open Participated Process". Co:Design:International Journal of CoCreation in Design and the Arts 7, no. 3-4.

Moreton-Robinson, A. (2003). I still call Australia home: Indigenous belonging and place in a white postcolonizing society. Uprootings/regroundings: Questions of home and migration, 23-40.

Moreton-Robinson, A. (2015). The white possessive: Property, power, and indigenous sovereignty: University of Minnesota Press.

Moreton-Robinson, A., & Nicoll, F. (2006). "We shall fight them on the beaches: protesting cultures of white possession". Journal of Australian Studies, 30(89), 149-160.

Nakata, M. N. (2007). Disciplining the savages, savaging the disciplines: Aboriginal Studies Press.

Nicoll, F. (2014). "Beyond white virtue: reflections on the first decade of critical race and whiteness studies in the Australian academy". Critical Race and Whiteness Studies, 10, 1-19.

Nicolacopoulos, T., & Vassilacopoulos, G. (2014). Indigenous sovereignty and the Being of the occupier: re.press

Onafuwa, D. (2018) Allies and Decoloniality: A Review of the Intersectional Perspectives on Design, Politics, and Power Symposium, Design and Culture, 10:1, 7-15, DOI:10.1080/17547075.2018.1430995

Parker, S., & Parker, S. (2007). Unlocking Innovation. Why citizens hold the key to public service reform: Demos.

Reynolds, H. (1996). Aboriginal sovereignty: Reflections on race, state, and nation: Allen & Unwin.

Sanders, E. B.-N. & Stappers, P. J. (2008). "Co-creation and the new landscapes of Design". Co-Design, 4, 5-18.

Suchman, L. (2007). Human-machine reconfigurations: Plans and situated actions: Cambridge University Press.

Schultz et al. (2018). 'What Is at Stake with Decolonising Design? A Roundtable. Design and Culture, 10.1, 81-101.

Scafidi, S. (2005). Who owns culture?: Appropriation and authenticity in American law: Rutgers University Press.

Smith, L. T. (2013). Decolonizing methodologies: Research and indigenous peoples: Zed Books Ltd.

Tuck, E., & Yang, K. W. (2012). "Decolonization is not a metaphor". Decolonization: Indigeneity, Education & Society, 1(1).

West, P., Akama, Y., & McMillan, M. (2016). "I was worried about insulting Indigenous communities with my Designs": shifting from fear to recognition to create a meeting place of sovereigns. Paper presented at the ACUADS 2016: Adaptation.

Experimenting with design tools for just public services

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Abstract

The emergence of digital public services in Australia is evidencing a techno-colonisation of service design imaginaries. This paper considers how design tools are mediating this process. A workshop with seven designers experimented with four speculative and decolonising design tools to interrogate three areas of public services. The resulting maps and design fictions suggest just public service futures might be envisioned through design tools that make socio-political tensions more visible.

Keywords: digital public services, decolonising design, design tools

Digital public services

Throughout the industrial revolutions, designers have often illustrated future visions that service a technological modernity. Now, in the fourth industrial revolution, design has been enlisted by governments in a scramble to harness the perceived power of artificial intelligence, blockchain, algorithms, and big data gathered by ubiquitous information technologies to manifest such futures. As the Australian Government

races to digitalise all public services by 2025 (Digital Transformation Agency, 2018), design's role in this 'digital transformation' is configuring the next 'modern' iteration of public services delivered by a government "fit for the digital age" (Digital Transformation Agency, 2018, p39). The design of public services from a technological packaging of options (Mignolo, 2011) carries forth a common dogma: that technological development is natural evolution (Fry, 2009). Citizens, characterised as passive consumers in a neoliberal technology marketplace, can expect to have systemic social problems like poverty managed with apps, automated algorithms, cashless cards, and online virtual assistants.

Tensions can be located across a range of socio-technical systems wherein digital public services are unfolding. For example, in Australia's welfare system, Centrelink's part-automated debt recovery scheme, known as robo-debt, has issued hundreds of thousands of false overpayment receipts to welfare recipients using an invalid data-matching algorithm (Karp, 2019). The scheme caused further adversity among already poor and vulnerable groups, transferring the demand for social services onto non-profit care organisations (Hinton, 2018) and legal aid (National Legal Aid, 2019). In public resource management systems, sensors and blockchain technology purport efficiency savings by tracking and managing waste streams with more speed. While waste generation rises each year, passivity is preserved by technologies perpetuating the concealment and speed of the material consequences of hyper-consumption (Schultz and Hardie, 2018). Similarly, increased speed and efficiency rationalises the design of a blockchain-based electronic voting app which promises to decentralise and remedy power imbalances in Australia's electoral systems (Elton-Pym, 2016). In this case, existing disparity in digital participation risks downgrading the political participation of those without access.

The concentrated vision for digital public services aligns with broader notions argued by design theorists: that the speed of technological evolutions evidences a techno-colonisation of plural imagination (Escobar, 2018; Schultz, 2018a; Fry, 2017). Design is implicated in this when it suppresses options beyond the digital for governments and communities to manage public matters. To explore ways for decolonising public service futures, this paper discusses an experiment with design tools that may enable designers to imagine public services otherwise.

Design tools for digital public services

Upon brief analysis of the design strategies and tools used for Australian government services (Digital Transformation Agency, 2019), problems can be identified in the employment of user-centred design thinking tools. For example, standardised journey maps are used to chart an individual's 'life events' and points of interaction with government services informed by user research (Wilson, 2019). As a design tool imported from customer service management, journey mapping recasts citizens as passive consumers of services; a move that detaches the political agency from people. Journey maps also omit space for exploring the systemic origins of socio-political tensions. Instead, technical glitches or 'pain points' within digital public services, such as having to provide the government with information multiple times, supplement the absence of much more complex design problems yet to be sufficiently addressed. Journey mapping is one among many popular design tools that performs an inescapable neoliberal politics where complexity is visually reduced and rationalised by the objectivity of palatable data (Hall, 2011). Thinking, therefore designing, is trapped by the visual absence of relational forces, ontologically reproducing the same systemic conditions for social, political and environmental injustice.

Design tools for just public services

In an attempt to experiment with design tools that might lead to visions of just public services, a workshop (see Figure 1) was designed by the author from a hacked compilation of four existing design tools that drew on speculation, relational and systems thinking, and visual complexity. The tools included critical mapping (Schultz, 2018b), visual dialogue (Sheehan, 2011), Dunne and Raby's (2013) futures cone, and design fictions.

The workshop began with a yarning circle (talking circle) where seven designers shared stories that connected them to three systems of public service (welfare, waste, and democracy) by positioning their intersectional identities in relation to personal and professional experiences. Then, designers sketched and noted responses to the question, 'what will design be in futures of welfare, waste and democracy?' in futures cones on cards. Following Schultz's (2018b) adaptation of Sheehan's (2011) visual dialogue, the designers placed their cards on the floor to reflect on relational patterns and responses. The designers drew on forecasting sources (ARUP, n.d.), knowledge cards (Relative Creative, n.d.), tacit

knowledge and lived experience to map components of their system as it appears in the *present* (e.g. digital voting, health, and waste), tracing its existence into being by naming *pasts* (e.g. colonialism, patriarchy, and modernity). They identified points of tension in the systems where they were able to see *futures arriving* (e.g. ageing population, climate change, and technological singularity) poised to clash with the present trajectories of waste, welfare and democracy. Lastly, the designers used their mapped interrogations to imagine possible futures of just public service design. Their multiple speculative glimpses are summarised in the following design fiction:

> In the year 2040, 'design' has been recoded in the public psyche. Design is no longer categorised into professional disciplines, but rather design signifies powerful processes for facilitating systems change. Job titles like 'Visual Systems Engineers' and 'Health Systems Forecasters' have opened technical design roles toward interdisciplinary modes of designing. A national strain on public health services, due to population growth and ageing, prompts a collaboration between designers, medical professionals, traditional custodians and farmers to decolonise food production. Australia's welfare systems roll out universal basic income alongside programs that reskill communities to become more self-sufficient and connected. Democracy looks different. Instead of electoral voting every few years, everyday community touchpoints (including workshops and online social networks) encourage active citizen participation and are facilitated by local councils, public servants and policy makers trained in design thinking. Algorithms are used to identify key values and contentions in community-generated discussions and artefacts to inform policy action. The combination of technology and in-person contributions allows a variety of people to be involved in vison-making and decision-making. In another vision, the redirection of waste parallels the re-design of education systems. A critical pedagogy that teaches students adaptation skills and values in affordances, not things, over time psychologically recodes the meaning of waste, transitioning Western cultures of linear production and hyper-consumption toward cultures of caring, sharing and repairing. (The Design in Futures of Waste, Welfare and Democracy Workshop took place at the Queensland College of Art at Griffith University in September 2019).

Figure 1: Two designers discuss and map forces, concerns, tensions and connections in democracy using knowledge cards, forecasting sources and a critical mapping tool (Schultz, 2018b) to produce design fictions.

Figure 2: A close-up of 'pasts' identified in the welfare map.

Conclusion

This paper considered how Australia's digital public services are manifesting through popular design tools such as journey mapping, then overviewed an experiment with four design tools with an aim to find alternative ways to arrive at just public service visions. The tools enabled a visual and verbal dialogue which prompted designers to reflect on their own knowledge and experiences within the systems through their identities e.g. as a woman, as a person with disability, as a racial minority, as a queer person. This allowed the designers to acknowledge who has been absent in the design of public systems (see Figure 2), such as how the exclusion of groups from Western patriarchal medicine has designed gaps in medical datasets today. In response to the mapped tensions, the group then discussed opportunities for mobilising interdisciplinary and participatory design processes between designers, communities and service providers.

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A key finding from the workshop was that the design tools drew out socio-political tensions, rather than concealed them. Designer's were able to articulate and locate complex and interconnected issues in the socio-technical systems in which public services are embedded. This contrasts the actions of a popular design tool, journey mapping, which was critiqued for concealing and simplifying tensions as 'pain points' passively experienced by citizen-users. The workshop's design tools shifted the scope for re-design onto societal systems, which prompted the designers into an open negotiation of their values, concerns and politics. This experiment suggests design tools that make socio-political tensions explicit through critical interrogations, visual complexity, relational understandings and decolonising visions could potentially provide a more just foundation to inform the configuration of technology and public service design.

References

ARUP. (n.d.). Drivers of Change. www.driversofchange.com

Digital Transformation Agency. (2018). Vision 2025: We will deliver world-leading digital services for the benefit of all Australians. Retrieved from: https://www.dta.gov.au/digital-transformation-strategy

Digital Transformation Agency. (2019). Little Book of Digital. Australian Government. Retrieved from: https://www.dta.gov.au/blogs/thinking-and-acting-digitally-little-book-digital

Dunne, A. & Raby, F. (2013). Speculative Everything: Design, Fiction, and Social Dreaming. Cambridge, Massachusetts & London, England: MIT Press.

Elton-Pym, J. (2016). Crowdsourcing democracy: The Flux Party's radical plan for Australian politics. SBS News. Retrieved from: https://www.sbs.com.au/news/crowdsourcing-democracy-the-flux-party-s-radical-plan-for-australian-politics

Escobar, A. (2018). Designs for the Pluriverse: Radical Interdependence, Autonomy, and the Making of Worlds. p. 312. Durham: Duke University Press.

Fry, T. (2009). Design Futuring: Sustainability, Ethics and New Practice. Oxford: Berg.

Fry, T. (2017). Remaking Cities: An Introduction to Urban Metrofitting. p. 200. London: Bloomsbury Academic.

Hall, P. (2011). Bubbles, Lines and String: How Visualization Shapes Society. In Graphic Design: Now in Production, edited by Andrew Blauvelt and Ellen Lupton, pp. 170-185. Minneapolis: Walker Art Center.

Hinton, T. (2018). Paying the Price of Welfare Reform: The experiences of Anglicare staff and clients in interacting with Centrelink. Anglicare. Retrieved from: https://www.anglicare.asn.au/docs/default-source/default-document-library/full-report.pdf?sfvrsn=0

Karp, P. (2019). Robodebt: the federal court ruling and what it means for targeted welfare recipients. The Guardian. Retrieved from: https://www.theguardian.com/australia-news/2019/nov/28/robodebt-the-federal-court-ruling-and-what-it-means-for-targeted-welfare-recipients

Mignolo, W. D. (2011). The Darker Side of Western Modernity: Global Futures, Decolonial Options. Durham, NC: Duke University Press.

National Legal Aid. (2019). Rethink Robo-debt: Building a fair and accurate system people can trust. Submission to the Senate Community Affairs References Committee Inquiry into Centrelink's Compliance Program. Retrieved from: https://www.aph.gov.au/DocumentStore.ashx?id=7ca2fe4d-b216-4caf-bd27-2cc56dc4f74f&subId=670768

Relative Creative. (n.d.). Relative Futures Knowledge Cards. https://relativecreative.com.au/resource/relative-futures-knowledge-cards/

Schultz, T. (2018a). Mapping Indigenous Futures: Decolonising Techno-Colonising Designs. Strategic Design Research Journal, 11(2). 79-91.

Schultz, T. (2018b). Critical Mapping as an Articulatory Design Practice Visual Guide. Retrieved from: https://relativecreative.com.au/resource/critical-mapping-visual-guide/

Schultz, T. & Hardie, P. (2018). Blockchain: Wasted Design Futures? UnMaking Waste Conference. 20-23 September, 2018. Adelaide, September.

Sheehan, N. (2011). Indigenous Knowledge and Respectful Design: An Evidence-Based Approach. Design Issues, 27(4). 68-80.

Wilson, G. 2019. How to easily and consistently map life event journeys. Digital Transformation Agency, accessed May 2020. Retrieved from: https://www.dta.gov.au/blogs/how-easily-and-consistently-map-life-event-journeys

What the Popol Vuh can teach design

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Abstract

This focused reflection explores how Mesoamerican worldviews can inform design activity. Design here is understood as a type of thinking or an approach that underpins acts of creative imagination across design areas, including the design of products, services, and systems. Mayan accounts of creation are examined here to discover insights and entailments that sustain ways of creating that are different from the dominant Western paradigm of design. With this, we wish to formulate deep questions about the core beliefs and views of what design creation can be in a more plural and inclusive world.

Keywords: co-creation; decolonization; global south; mayans; concientización

Introduction

The stories about the origins of life influence how we perceive our everyday life and ourselves (Christian, 2019). For designers, these narratives play a role in our creative practice and identity as we engage in the creation of ideas that shape futures (Akama, 2017). This exploratory paper delves into ancient stories of creation from an indigenous group in

Mesoamerica, the Mayans, with the aim to formulate questions and insights about design beyond Western beliefs. This short reflection is part of an ongoing personal quest where the author investigates ancestral indigenous *cosmovisiones* to seek guidance for future design practices in times of transition.

A design-oriented inquiry of Mayan mythology is based on direct sources. The core question guiding this exploration is: "How may indigenous myths of creation contribute to the decolonization of creativity?". This has special relevance for designers in the Global South, who so far have been educated and highly influenced by beliefs from the Global North.

> The first step in liquidating a people,' said Hubl, 'is to erase its memory. Destroy its books, its culture, its history. Then have somebody write new books, manufacture a new culture, invent a new history. Before long the nation will begin to forget what it is and what it was. The world around it will forget even faster. (Kundera, 1999) p. 159.

This work seeks a more complete understanding of design that goes beyond Western understandings. This journey calls for a commitment to creativity liberation (de Sousa Santos, 2014; Freire, 2000) that can reshape how design is conceived, practiced, and evaluated as an approach or way of thinking as it underpins service innovation (Eun & Sangiorgi, 2014).

The dominant paradigm of design education is rooted in Western views of creation that follow a lineage originating from Greco-Roman and Judeo-Christian traditions and lead to Vitruvius, Descartes, the Bauhaus, and modern-day IDEO. We recognize Western philosophy at the core of mainstream design today, and notice the influence of the Biblical genesis narrative in the dominant paradigm of the creative act. Design schools around the world tend to educate future designers under the Western paradigm, excluding local histories and philosophies. This perpetuates a program of cultural colonization that, for Mesoamerica, began in the fifteenth century and continues to this day.

The aim of this work is plurality and *mutual liberation* (Freire, 2000), as it seeks to enrich design discourse by incorporating other voices, other ways of understanding, and other ways of learning and being. Designers including those shaping the service economy are ontologically embedded in their contexts and in their ancestries, yet these influences are largely omitted from their education, professional practice, and intellectual inquiry (Akama, 2017).

Creation for the *Quiché Mayas*

An ancient creation narrative is reviewed here informed by anthropology, historiography, and archaeology. Yet, its core intention is *designerly* as we seek to discover insights and ask new questions that lead to other ways of creating. The Mayan tradition examined here is one of the hundreds of original cultures from Mesoamerica that were colonized by European conquistadores starting in 1492 and extends to the present (Galeano, 1997). The *Popol Vuh*[1] is a compulsory text for middle school children in Mexico, and we consider it a window to our world that was obliterated in the Conquista and Colonia. In this sacred text, deities collaborate and deliberate to create the world and life:

> Heart of Sky spoke with Sovereign and Quetzal Serpent. They talked together then. They thought and they pondered. They reached an accord, bringing together their words and their thoughts. Then they gave birth, heartening one another. Beneath the light, they gave birth to humanity.

This effortful and laboured process of creation is rooted in collaboration (i.e., *"bringing together; heartening one another"*) and indicates a substantially different nature from the biblical monotheistic and omnipotent power of creation. The difference is accentuated by the planting and growing of a Ceiba tree that anchors the creation process by connecting the levels of the Mayan under and upper worlds. Once the animals were created, the deities asked them to speak their names and to worship them.

> However, They did not speak like people. They only squawked and chattered and roared… (they were told) You shall be replaced because you were not successful. You could not speak. We have therefore changed our word… Your calling will merely be to have your flesh eaten.

Upon realising this outcome, the deities experiment again:

> It must simply be tried again. The time for the planting and dawning is nearing… So then comes the building and working with earth and mud. But they saw that it was still not good. It merely came undone and crumbled. It merely fell apart and dissolved… At first it spoke, but without knowledge… "We have made a mistake; thus let this be

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[1] Popol Vuh: http://www.mesoweb.com/publications/Christenson/PopolVuh.pdf

merely a mistake. It cannot walk, neither can it multiply." So then they dismantled, again they brought down their work and design.

This indicates a purpose guiding the creation process, reinforces its difficulty, and it also shows the capacity to acknowledge and learn from misconceptions. This iterative process is different from the biblical accounts rooted in *Enuma Elish*, the Babylonian account of creation (Regalado, 2002). Here, creation is a journey of trying out and figuring out alternatives, including in consultation with experts:

> We shall merely tell Xpiyacoc and Xmucane, Hunahpu Possum and Hunahpu Coyote: 'Try again a divination, a shaping,'" And when they had spoken, straightaway the effigies of carved wood were made. They had the appearance of people and spoke like people as well. The effigies of carved wood began to multiply, bearing daughters and sons. Nevertheless, they still did not possess their hearts nor their minds. They were merely an experiment, an attempt at people… then came the end of the effigies carved of wood, for they were ruined, crushed, and killed… So this is why monkeys look like people: they are a sign of a previous human work, human design—mere woodcarvings.

Mayan creation centres on the physical properties of materials and their transformation ("woodcarving"). Iteration and collaboration efforts lead to improvements in the fulfilment of the intended outcome (wood found to be more appropriate than mud). Failed attempts lead to learning and to contingent outcomes, as explained by the resemblance between primates. A final attempt is carried under pressure once the Sun and Moon were in place by the complementary forces of the twin deities *Hunahpu* and *Xbalanque*:

> Then spoke they: "The dawn approaches, and our work is not successfully completed. Thus they gathered together and joined their thoughts in the darkness, in the night. They searched and they sifted. Here they thought and they pondered. Their thoughts came forth bright and clear. They discovered and established that which would become the flesh of humanity… Thus was found the food that would become the flesh of the newly framed and shaped people. Water was their blood. It became the blood of humanity… Their flesh was merely yellow ears of maize and white ears of maize.

Though an arduous effort, the creation of the people of maize is completed before dawn. However, this outcome was *too good* and required some adjustments:

> Instantly they were able to behold everything… Their knowledge
> became full. Their vision passed beyond the trees and the rocks,
> beyond the lakes and the seas… But this did not sound good to the
> Framer and the Shaper. Thus their knowledge was taken back: "What
> can be done to them so that their vision reaches only nearby, so that
> only a little of the face of the earth can be seen by them? It is a
> mistake that they have become like gods… Thus their eyes were
> blinded. They could see only nearby; things were clear to them only
> where they were.

Mayan creation concludes with the regulation of god-like capacities thus explaining the human limits of reasoning and comprehension. The story contains several key characteristics of creation regarding the *what*, *who*, *how*, and *why* which are significantly different from the biblical account. Mayan creation differs from the central idea in the biblical genesis that creation is completed. Consistent with Mesoamerican beliefs, creation for the Mayan is ongoing and hence the current version of human form is unfinished and a phase in a process of change.

Learning from the Popol Vuh

Firstly, Mayan creation - consistent with other Mesoamerican accounts - is far from *ex nihilo*, it does not happen from scratch. There is a marked absence in these indigenous beliefs of anything like *creatio ex nihilo* ("creation out of nothing") from the biblical genesis (Waltke, 1991). Mayan creation acknowledges what exists and uses it to form the new. Mesoamerican creators act in unison with others, commanded by others, or in response to existing conditions and purposes not set unilaterally by them. This transcends hierarchies, as we understand that even deities need each other and need the help of animals.

Secondly, Mesoamerican creation is not a well-defined and orderly, linear sequence of incremental steps or stages, such as the six-day genesis. This type of creation is opportunistic and situational, and it is more accurately viewed as *re-creation*. This becomes evident in the cyclical journey of creation and destruction. Therefore, these indigenous worldviews call for collaboration, resourcefulness, emergence, situated practice, and iteratively building upon previous approximations - rather than episodic design projects that proclaim to solve problems.

The Mayan genesis suggests creative dispositions that are discerning of unintended consequences and of secondary outcomes (monkeys and

dogs as originating from failed humans). In the biblical genesis, creation is puzzle-like, a sequence of distinct segments that fit onto each other indicating a logical sequence. This could not be further from how ancient Mayans understood creation: a purposeful but intractable (wicked) journey full of emotions and serendipity. These ideas suggest a design process that is not fully amenable to planning and cannot be reduced to toolkits or methods. These ideas call for designers to continuously engage in *messy* situations (Law, 2004) and they also question the Western tendency to divide design into areas of specialization like Graphic, Industrial, and Spatial.

Individual and omnipotent dominance is antithetical to Mayan thinking. Creation is not an act of all-powerful control and conquest of order. Instead, it refers to epic explorations where creators face challenges, accept mistakes, and work in collaboration with or against others. These stories depict unfinished creations, a journey that is ongoing, opportunistic, and situational. The biblical genesis tells of a single, unitary formation process where the world was shaped, whilst the Mayans speak of a complex process of formation of the (current) world. This way of seeing and doing design starts from the underlying belief that creators do not own full agency over their creation process and over their creations. This leads to a type of design that acknowledges the agency of materials, instruments, collaborators, and more importantly, of that which is designed and those who are targeted by the design (Ihde, 2006).

Mayan deities and their partners are resourceful and imaginative. This is markedly different from a "black box" explanation of effortless commanding (*"And God said, 'Let there be light': and there was light. And God saw the light, that it was good"*, Genesis 1:3). Instead, Mayan creation takes place through diligent work, learning, trying out, defying the odds, working with others, and luck - far from an easy privilege. Moreover, humans are not seen as created in God's image and in charge over Nature (*"replenish the earth, and subdue it: and have dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth"*, Genesis 1:28). The Mayan deities explicitly made humans *unlike* themselves.

This way of creation calls for shared agency and giving up control and authorship. Western views on individual talent are built upon ideals from all-knowing, all-powerful monotheistic roots of creation. These foreign ideals are at odds with Mayan creativity which is hard to reduce to individual cognition, but takes place and is fundamentally grounded in experience and interaction with the world and with others. Neoliberal

agendas of control over others and over natural "resources" are well-aligned with the commandeering purpose given to humans by God but are unequivocally incompatible with Mesoamerican creation. Equally inappropriate are Western beliefs that exalt individual ownership and personal talent and celebrity status.

Discussion

Humans seem to be constantly asking where we come from (Christian, 2019) - and where the ideas that shape our world come from (Johnson, 2010). Designers from the colonized Global South are taught to repress, ignore, or denigrate their cultural heritage and their identities in their process of being *educated* as designers following models imposed from outside their realities. To liberate design, a decolonializing agenda is essential (de Sousa Santos, 2014). This work is but a step in paying attention to the voices of ancient civilizations as a way to derive insights that help enrich education, practice, and research for a more inclusive and richer version of design. This enquiry is relevant for people from cultures that have been colonized, since recognizing our own origins is often impeded by the imposition of the colonizer's system of values and beliefs, the systematic annihilation of our original culture, and the legacies of oppression that obfuscate our lineage (Galeano, 1997). More voices are formulating deep questions about the core beliefs and views of what design can be (Ansari, 2019). This exploratory paper seeks to contribute to this global conversation.

So far, the designers who create more products, product-services, or infrastructures for behaviour have been instrumental in the neoliberal agenda, applying their creativity to grow the profits for an elite. A commercial version of design "turns everything into merchandise, it makes merchandise of people, of nature, of culture, of history, of conscience" (EZLN, 2005). It also hides the true costs and consequences of artefacts to prioritize a lifestyle of endless consumption and mindless disposal. But even in the social design realm, the core beliefs of how people design are seldom critically examined. A more plural and inclusive version of design is needed for designers and the public to participate in design, especially

in the Global South. *Ya Basta!*[2] of reinforcing a paradigm of creativity that silences diversity. *Ya Basta!* of aspiring to a Global North version of design that sustains a lifestyle for a few and becomes an aspiration for most. Acknowledging ancient indigenous knowledge can inform other ways of designing, other ways of creating, and other ways of being. Indigenous people and indigenous knowledge continue to resist the dominance of a Western agenda which denigrates and subdues those considered inferior, as is the case with extreme violence in Bolivia at present (García Linera, 2019).

The ancestral ideas examined here are so profound that it is impossible to do them justice (Akama, 2017), but they do suggest a distinctiveness worth exploring to enrich our understanding of design by acknowledging different world views of creation. Indigenous beliefs "get in the way" of a homogeneous world (EZLN, 2005) and they can enrich how we teach, practice, and study design. Tentative reformulations of questions emerging from this work that can be of interest to service and all designers include:

1. How do we acknowledge and adapt to the ways in which local cultures create?
2. How do we include other voices without boxing them as "exotic" - which only leads to totemic understandings and exploitation (Kovach, 2009, p. 79)?
3. How do we identify our privilege, biases, and acculturation of Western worldviews?
4. In a plural world of design, how may we aspire to mutual liberation based on respect, celebrate differences, and emphasize dialogue and learning?
5. How do we teach, study, and practice design without preconceived ideas of what "product design problems" or "service design problems" are?
6. How do we teach more inclusive versions of design including a Design History that includes many histories to inform design in the XXI century?
7. How do we transcend a version of design that "turns everything into merchandise, it makes merchandise of people, of nature, of culture, of history, of conscience" (EZLN, 2005)?

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[2] "Ya Basta" roughly translates to "No more" but the original is used to capture the Zapatista ethos

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8. How do we transform a global culture of design that fosters celebrity, the cult of individuals, and awards?
9. How may we challenge creation as a property, as conceived in the Western paradigm of individual ownership of ideas, and replace it with suitable alternatives to protect collective creativity, such as the "Marcas Colectivas" example that recognises community rights (Jara, 2015)?
10. How do we de-centre design? Centring design activity around humans who are created in God's own image is antithetical to many indigenous cultures. After all, "Why one centre?" (whether human, more-than-human, etc.) when many, or shifting centres can sustain other ways of creating and shaping the *imagined/built* environment.

References

Akama, Y. (2017). Kokoro of design: Embracing heterogeneity in design research. Design and Culture, 9(1), 79-85.

Ansari, A. (2019). Decolonising Design [Design Studies || Carnegie Mellon University || Design from the Global South || Modernity\Coloniality, South Asian Technics, Power]. 14 October 2019. Retrieved from https://medium.com/@aansari86/

Christian, D. (2019). Origin Story: A Big History of Everything. London, UK: Penguin Press.

de Sousa Santos, B. (2014). Epistemologies of the South: Justice against Epistemicide. London: Paradigm Publishers.

Eun, Y., & Sangiorgi, D. (2014). Service Design as an Approach to New Service Development: Reflections and Future Studies. Service Futures ServDes 2014. 9-11 April 2014. Lancaster, UK. Linköping University Electronic Press. 194-204. Retrieved from http://www.servdes.org/

EZLN (2005). Sixth Declaration of the Selva Lacandona. Zapatista Army of National Liberation. Chiapas, México. Retrieved from https://enlacezapatista.ezln.org.mx/sdsl-en

Freire, P. (2000). Pedagogy of the Oppressed. New York: Continuum.

Galeano, E. (1997). Open veins of Latin America: Five centuries of the pillage of a continent. New York: NYU Press.

García Linera, Á. (2019). El Odio al Indio. La Jornada. 17/11/2019. Retrieved from https://www.jornada.com.mx/2019/11/17/mundo/026a1mun

Ihde, D. (2006). The designer fallacy and technological imagination. In J. Dakers (Ed.), Defining Technological Literacy: Towards an Epistemological Framework (pp. 121-131) New York: Palgrave Macmillan.

Jara, S. (2005). Ley de Fomento y Desarrollo Artesanal del Estado de Michoacán de Ocampo (2015). Retrieved from: http://leyes.michoacan.gob.mx/destino/O10369fue.pdf

Johnson, S. (2010). Where Good Ideas Come from: The Natural History of Innovation. New York: Riverhead Books.

Kovach, M. (2009). Indigenous Methodologies: Characteristics, Conversations and Contexts. Toronto: University of Toronto Press.

Kundera, M. (1999). The Book of Laughter and Forgetting. New York: Harper.

Law, J. (2004). After Method: Mess in Social Science Research. London: Routledge.

Regalado, F. O. (2002). The Creation Account in Genesis 1: Our World Only or the Universe? Journal of the Adventist Theological Society, 13(2), 108-120.

Waltke, B. K. (1991). Literary Genre of Genesis, Chapter One. Crux, 27(4), 2-10.

Challenges facing service design practitioners: a pilot study

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Abstract

This paper presents the result of a pilot survey study about challenges faced by practicing service designers. Challenges include: 1) low awareness of what service design is and how to use service design in organisations; 2) issues with involving people in the design process; such as getting the right stakeholders on board and doing user research; 3) assessing the business and organisational value of service design and the extent to which it is able to actually change roles within organisations; 4) design in the organisation where silos, culture, maturity, willingness to change and acceptance of design can all limit the usefulness of service design, 5) obstacles to implementation and 6) designer identity and how it can impact expectations. While some of these challenges are inherent to design approaches, others keep recurring in studies of (service) design practice and should be given more attention and taken seriously by academia.

Keywords: challenges, design practice, survey

Introduction and background

Research that aims to be useful for practitioners must be tailored to match the reality and needs of those practitioners. While practitioners may be familiar with theoretical concepts, frameworks and methods from academia, they may choose not to adopt them in their practice. The nature of their practice determines what research outputs they consider valuable. For instance, practitioners may not have the time required to analyse field data using complex theoretical frameworks from academia (Rogers, 2004). In order to be valuable and successfully adopted by design practice, research needs to be based on a thorough understanding of the design practice it aims to support (Stolterman, 2008). Hence, it is important that research which aims to contribute to practice is based in reality. One such notable example is Lucy Kimbell's (2009) study on what service designers do.

As service design grows as a research field and in practice, research outputs that are developed for practitioners should remain in touch with the reality of practice. For instance, while the value of service design in service innovation is acknowledged in academia (Ostrom et al., 2015), implementing service design as an approach remains challenging in practice. The introduction of a service design approach is fraught with frictions and embedding service design in organisations has been a topic of research in both the commercial (Kurtmollaiev et al., 2018) and the public sector (Bailey, 2012), and previous studies have illustrated challenges associated with both sectors respectively (Aricò, 2018; Junginger, 2014; Junginger & Bailey, 2017). The concept of design capability has been explored in the public (Malmberg, 2017) and commercial sectors (Aricò, 2018) to comprehend how the organisation's understanding of design develops. The explorative and playful nature of a design approach can be deemed risky, especially by civil servants (Salinas et al., 2014). Thus, to fully embed service design, both developing design capability and management support are needed in equal measures (Holmlid & Malmberg, 2018). Besides the introduction of service design as an approach, implementing the outcomes of service design projects has proven to be challenging as well (Sangiorgi et al., 2015). To address this challenge, researchers have studied which factors influence service implementation (Weisser et al., 2018) and suggested ways in which designers contribute to implementing the outcomes of service design projects (Raun, 2017). Recently, a survey among service designers in Sweden (Wedin, 2019) revealed that designers face challenges such as

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the value of design not always being acknowledged or understood, as well as organisational culture clashes. The survey shows a trend from a maturity level where design is being embedded in the organisation to lower maturity levels, where the organisation is invested in or committed to design (ibid., 2019).

While there are similarities between service design research and practice, there are also significant disparities in terms of the challenges that practitioners face and the topics that service design research addresses. In light of these tensions, it is essential to align academic and practice views of the challenges facing service design. This would help identify opportunities for service design research that are also valuable for service design practice. To the best of the authors' knowledge, no such systematic endeavour has yet been undertaken within the academic field of service design. This paper presents preliminary findings from a pilot survey conducted to scope out topics and themes for a more in-depth study on the subject in the future.

Method

A pilot survey was conducted to get an initial impression of challenges faced by people who identify as service designers. The questionnaire was posted in fora for professional service designers on Facebook and LinkedIn over a period of four weeks between March and April 2019. The survey included the following questions:

1. How do you currently use service design in your work?

2. How long have you been working with service design?

3. What challenges do you face when working with service design?

4. Professional Title

5. Additional comments

In total 29 people responded to the survey, with all responses able to be used. The participants' experience in the service design industry ranged from periods of six months up to 20 years.

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Since the survey consisted of open-ended questions, a deductive micro-coding approach was used. This yielded six broad themes on the challenges facing service design practitioners (see Table 1). The results of the survey are subject to limitations arising from the small size of a convenience sample. Respondents may also be subject to bias in answering the challenges question, relying on most recent or most memorable events. Other than the respondent's professional title, no data such as location, size of organisation, embeddedness of design or type of organisation were collected. This limits the insights that we can draw in relation to factors that might affect perceived challenges. However, since this study is meant to be a pilot test, it does not pose a threat to reliability or validity. Respondents were informed of their right to withdraw and were assured anonymity and the confidentiality of their data.

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Challenge	Aggregate theme
Lack of understanding about service design and what it can do.	What actually is service design?
Getting the relevant people on board	Involving people
Conducting user research	
Working with organisations whose understanding and use of design is limited	Design in the organisation
Dealing with an inhibiting organisational structure	
Incorporeal aspects of the organisation	
Unfavourable attitude towards design	
Articulating the impact and value of service design on organisations	Assessing the value of service design
Arguing for the financial value of service design outputs	
Applying service design concepts, tools, methods and approaches in practice	
Facing resistance to change	Challenging the status quo
Realising service transformation	
Clarifying the role and work of service designers in the organisation	Design Identity

Table 1: Practitioner given challenges mapped to themes

Findings

What actually is service design?

Many people lack understanding of service design and what it actually means. The interviewees have a hard time explaining to clients or colleagues what service design is and does (we have used ID:number to de-identify the participants of the research while attributing specific

quotes): "It's [a] general lack of understanding of what Service Design is among our partners, users, customers and clients" (ID:77). Differentiating service design from other existing, seemingly similar approaches is particularly required for the uninitiated and is closely coupled with several other challenges.

Involving people

In second place are challenges related to getting people within the organisation involved as well as reaching users. For instance: "Getting the money to do research and getting to the right people" (ID:49) is a problem mentioned several times in different words. It indicates that fitting service design with other organisational processes can be difficult. This problem is amplified by a reported lack of knowledge and the position of design in the organisation.

Design in the organisation

Most of the issues mentioned by the respondents can be traced back to organisational development and support. The siloed structures within organisations and unreceptive attitudes still cause trouble for designers who want to work across organisational boundaries.

Another experience echoed in the study is that the organisational culture makes it challenging to prove the value of service design – "it goes against the company culture which is very internal facing, and heavily laden with politics" (ID:76). Developing structures for design in the organisation as well as the design capabilities of its employees has been suggested in order to improve the knowledge and use of design in organisations (Holmlid & Malmberg, 2018; Aricò, 2018), which leads to the next theme: assessing the value of service design.

Assessing the value of service design

The fourth main challenge relates to the value of service design. Several informants referred to a difficulty in articulating the business value and overall impact of service design. One informant (ID:88) states: "to convince clients to spend money on a process that doesn't promise a specific output or short-term ROI." This has been partly addressed by previous service design research, specifically the ServDes 2018 conference, where one of the tracks addressed: "how to measure the multifaceted contribution of service design in service innovation" (Foglieni

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et al., 2018, p.490). Part of the issue lies in the difficulty in showcasing the value of service design through realisation of service transformation. The impact of service design on the organisation remains unclear and its value is not fully harnessed.

Challenging the status quo

This theme relates to organisational inertia and resistance to change. Organisational structures can prevent implementation of service design outcomes: "Getting to implementation, […] - when the change has to come no one is willing to change" (ID:49). The implementation challenge has started to receive more attention in academia over the past few years, both in general and at ServDes in particular (Yu & Sangiorgi, 2014; Lee, 2016; Almqvist, 2018). However additional research is still needed in order to better understand the different aspects of successful service transformation, as well as how design and designers can contribute to framing and addressing service transformation (Overkamp, 2019).

Design identity

Lastly, some informants commented on challenges related to the disparate notions of what designers (can) do. For instance: "too strong focus on interdisciplinarity (often meaning knowing little of everything) instead of building focused skill" (ID:99). Many people see the service designer as a jack of all trades. This makes it difficult for people working with service designers to have a clear view of what service designers can and cannot do. In addition, it seems unclear where the work of (in-house) service designers ends and the work of their colleagues begins: "[I]t's more like I'm an alien there and can do miracles of understanding around end-to-end services, but people don't connect it to their work." (ID:76). The multi-disciplinary nature of service design likely contributes to any existing confusion about its role.

Discussion and next steps

Research that aims to support design practice needs to be built on a thorough understanding of that practice (Stolterman, 2008). Our pilot study is intended as a starting point for developing such an understanding of the challenges that service design practitioners face in their work. In our pilot study we have identified challenges that practitioners face that relate to: 1)

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communicating what service design is and does; 2) involving and engaging people in the design process; 3) embedding service design in the existing organisational culture; 4) assessing the value of design; 5) obstacles for implementing outcomes of service design projects and 6) the identity of service designers. The findings that service design practitioners struggle with include articulating the business value of service design as well as the clashes between a design approach and the existing company culture. These are echoed by Wedin's (2019) study among service design practitioners. Furthermore, some of these challenges that our informants mentioned, such as assessing the value of service design (Foglieni et al., 2018) and embedding service design in (public sector) organisations (e.g. Malmberg, 2017; Kurtmollaiev et al., 2018), are addressed by contemporary service design research. This indicates that there is already some overlap in the challenges that are experienced by practitioners and topics that are considered relevant in academia. However, practitioners also experience other challenges that have not received as much attention in academia yet. These include trouble in communicating and delineating what service design is (not) and what designers can (not) do, and difficulty in involving and engaging people in the service design process. Research efforts that address these additional challenges can support service design practitioners in their work by providing both knowledge and approaches that mitigate the problems. An example of such work is the recent study by Prestes Joly et al., (2018) that aims at supporting dialogue between service designers from different disciplines, by integrating complementary perspectives on service design. Their study addresses the integration from an academic perspective, meaning that a practitioner's point-of-view still needs to be explored in order to "understand how Service Design integrates multidisciplinary contributions in practice" (Prestes Joly et al., 2018, p. 1157). Creating an overview of the plurality in service design perspectives that exist in academia and practice can help explain and understand service design.

As such, the outcomes of the survey serve as a springboard to set up structured research into the challenges that service designers face. Such a study helps develop an agenda of research topics which have relevance for service design practice and academia. Future research that will be part of this agenda will support service designers in their work. Based on the outcomes of the initial survey presented in this paper, we suggest that the structured version of the study should address at least the following topics:

1. Setting a collaborative agenda

2. Occupational mandate

3. Organisational structures for service design

4. Collecting insights from less successful ventures

Setting a collaborative agenda

The challenges that were addressed by the respondents of the survey may be difficult for service designers to tackle alone. It is therefore important to develop a research agenda that highlights topics which practitioners and academia can explore in partnership, where theory addresses the reality of service design practitioners and is made useful to them. Examples include design legacies (Junginger, 2014) to address why efforts to implement design fail, and the use of dynamic capabilities to address how design can be implemented in the public sector (Malmberg, 2017). At the same time, the challenges and reflections from the work of practitioners provides topics that are relevant for researchers, to better understand the direction in which service design practice is heading and what research topics (will) gain relevance.

Occupational mandate

The results from the survey imply that service design practitioners lack an *occupational mandate:* a shared understanding of what service design is and what position it can take (Fayard & Stigliani, 2017). This could be an effect of the plurality in perspectives on service design and its applications. Developing such an occupational mandate helps to give practitioners a "sense of solidarity and identity [which] gives them moral authority to claim that their ways of conduct and thinking related to the work are appropriate and relevant" (ibid., p. 272). By generalising the experiences of different service designers, researchers can help to develop such an occupational mandate for service designers. This is beneficial for both service designers as well as those who work with them. It helps to clarify what role is fitting for service designers, which in turn helps to make the contribution of service design(ers) clear.

Organisational structures

In order to resolve the challenges related to the position of design in the organisation, more knowledge is needed regarding the structures that are

necessary to integrate design work in the (other) organisational processes. This includes helping managers understand what they can expect from design work as well as how it can be part of development processes in the organisation (Holmlid & Malmberg, 2018). Another aspect involves determining how to best implement a service design approach in the organisation to facilitate successful service transformation. Understanding where service design capabilities need to be developed in the organisation is an important aspect of realising service transformation, but this topic is still under-researched.

Collecting insights from less successful ventures

While learning from successful service design examples is extremely valuable, much can often be learnt from failures as well. Such studies that include both the good and the bad are not new to service design research and were, in fact, among the first works in this research field (Akama, 2009). Over the years, more examples of similar studies have appeared. For instance, Holmlid and Malmberg (2018) used two theories on learning to address why certain initiatives aimed at embedding a service design approach in (public sector) organisations did not produce the intended results. With regard to implementation of outcomes of service design projects, Raun (2017) analysed which approaches adopted by service designers facilitated successful uptake of the outcomes. Future research on the challenges that service designers face should include success stories as well as failures, to provide insights into how practitioner challenges can be addressed. Such a plurality of case examples helps to aggregate insights and lessons learnt.

Conclusion

Various academic fields have taken an interest in service design, bringing a plurality of perspectives and corresponding research on the topic (see Prestes Joly et al., 2018). Practitioners often do not have the possibility of maintaining an overview over these developments, nor do they have time or access to a variety of cases and approaches which allow them to aggregate lessons learnt. Academia finds itself in a favourable position to study such issues given its dedication to research. We believe studies like these are important and point to areas where more research is needed. Research addresses the challenges

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practitioners face, supports dialogue between academia and practice, and helps avoid conflicts between what practitioners and researchers consider important for the development of the field. In this paper, we have presented the outcomes of a pilot study on challenges that service design practitioners face and have made suggestions for future research into these challenges.

References

Akama, Y. (2009). Warts-and-all: the real practice of service design. In Proceedings of the First Service Design and Innovation Conference. 24-26 November. Linköping, Sweden: Linköping University Electronic Press. pp. 1-11

Almqvist, F. (2018). Service design in the later project phases: Exploring the service design handover and introducing a service design roadmap. In Proceedings of ServDes.2018 Proof of Concept: the Sixth Service Design and Innovation conference. Linköping, Sweden: Linköping University Electronic Press. pp. 666-678

Aricò, M. (2018). Service Design as a Transformative Force: Introduction and Adoption in an Organizational Context. PhD thesis. Copenhagen Business School.

Bailey, S. G. (2012). Embedding service design: the long and the short of it. In proceedings of ServDes.2012: Co-Creating Services: Proceedings of the 3rd Service Design and Service Innovation Conference. Linköping, Sweden: Linköping University Electronic Press. pp. 31-41

Fayard, A., & Stigliani, I. (2017). How Nascent Occupations Construct a Mandate: The Case of Service Designers 'Ethos. Administrative Science Quarterly, 62(2), 270–303.

Foglieni, F., Villari, B., & Sleeswijk Visser, F. (2018). About evaluation in service design: As it is and how it could evolve. In Proceedings of ServDes.2018 Proof of Concept: the Sixth Service Design and Innovation conference. Linköping, Sweden: Linköping University Electronic Press. pp. 489–499

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Holmlid, S., & Malmberg, L. (2018). Learning to design in public sector organisations: A critique towards effectiveness of design integration. In Proceedings of ServDes.2018 Proof of Concept: the Sixth Service Design and Innovation conference. Linköping, Sweden: Linköping University Electronic Press. pp. 37–48)

Junginger, S. (2014). Design Legacies: Why service designers are not able to embed design in the organization. In Proceedings of ServDes.2014, Service Future: the Fourth Service Design and Innovation Conference, 9-11 April. Linköping, Sweden: Linköping University Electronic Press. pp. 164–172

Junginger, S., & Bailey, S. (2017). Designing vs designers: How organizational design narratives shift the focus from designers to designing. In D. Sangiorgi & A. Prendiville (Eds.), Designing for service: Key issues and new directions, (pp. 33-47). UK, Bloomsbury.

Kimbell, L. (2009). Insights from Service Design Practice. In Proceedings of 8th European Academy of Design Conference. Aberdeen. pp. 249-253

Kurtmollaiev, S., Fjuk, A., Pedersen, P. E., Clatworthy, S., & Kvale, K. (2018). Organizational Transformation Through Service Design. Journal of Service Research, 21(1), 59–74.

Lee, E. (2016). Service Design Challenge: Transitioning from Concept to Implementation. In Proceedings of ServDes.2016 Service Design Geographies: the Fifth Service Design and Innovation Conference. 24-26 May. Linköping, Sweden: Linköping University Electronic Press. pp. 228–240

Malmberg, L. (2017). Building design capability in the public sector: expanding the horizons of development. PhD thesis. Linköping University.

Ostrom, A. L., Parasuraman, A., Bowen, D. E., Patricio, L., & Voss, C. A. (2015). Service Research Priorities in a Rapidly Changing Context. Journal of Service Research, 18(2), 127–159.

Overkamp, T. (2019). How Service Ideas Are Implemented: Ways of Framing and Addressing Service Transformation. PhD Thesis. Linköping University.

Johan Blomkvist, Vanessa Rodrigues, Tim Overkamp
Challenges facing Service Design practitioners: a pilot study
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Prestes Joly, M., Teixeira, J. G., Patrício, L., & Sangiorgi, D. (2018). Service designers , unite ! Identifying shared concerns among multidisciplinary perspectives on service design. In Proceedings of ServDes.2018 Proof of Concept: the Sixth Service Design and Innovation conference. July. Linköping, Sweden: Linköping University Electronic Press. pp. 1144–1161.

Raun, L. (2017). Designing for Service Change. PhD thesis. Aalborg University.

Rogers, Y. (2004). New theoretical approaches for human-computer interaction. Annual review of information science and technology, 38(1), 87-143.

Salinas, L., Weise, S., & Pollastri, S. (2014). Transforming the Planning Process - Challenges for the Service Designer. In Proceedings of ServDes.2014, Service Future: the Fourth Service Design and Innovation Conference. 9-11 April. Linköping, Sweden: Linköping University Electronic Press. pp. 376-381

Sangiorgi, D., Prendiville, A., Jung, J., & Yu, E. (2015). Design for Service Innovation & Development. Final Report. Project report. Lancaster, UK. Lancaster University.

Stolterman, E. (2008). The nature of design practice and implications for interaction design research. International Journal of Design, 2(1).

Wedin, J. (2019, October 12). The State of Design — Swedish Edition 2019 by Design Leadership Sweden [Web log post]. Retrieved November 22, 2017, from https://medium.com/@jenswedin/the-state-of-design-swedish-edition-2019-by-design-leadership-sweden-d1b98ceb147b

Weisser, T., Jonas, W., & Mager, B. (2018). Successfully Implementing Service Design
Projects: Essential preconditions and influencing factors. Touchpoint, 10(1), 34–39.

Yu, E., & Sangiorgi, D. (2014). Service Design as an approach to New Service Development: reflections and future studies. In Proceedings of ServDes.2014, Service Future: the Fourth Service Design and Innovation Conference. 9-11 April. Linköping, Sweden: Linköping University Electronic Press. pp. 194–204

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Service Design Drinks Milan: a case of local community building around service design

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Abstract

This contribution aims at reporting a case of community building and activation in the city of Milan in Italy, namely the Service Design Drinks Milan.

The kind of community that we are referring to doesn't necessarily build upon the belonging to a specific territory, but rather on a common interest around a topic, which is the discipline of service design. The case described provides a source of inspiration for any local agent wanting to replicate a similar initiative in its own context or for anyone interested in exploring the communities of interest.

Keywords: community building, service design, community of interest, community of practice

Introduction

The article starts with the description of the Service Design Drinks Milan community case, including its origins, its development, its online and offline presence, the composition and the different formats that constitute the meetups. It then outlines a list of values that the community owns and how these values are reflected on the local ecosystem in a mutual virtuous exchange.

Delanty (2003) in his work Community sets out three macro categories of communities: (i) location-based communities (or communities of place), (ii) identity-based communities and (iii) organizationally-based communities. Location-based communities are indeed characterized by geographical proximity, identity-based community are related with religion or faith and organizationally-based communities include family, network-based guilds or even professional associations. If we had to ascribe one of those categories to SDD Milan we would point out to organizationally-based community and, more specifically, to those defined more recently (Robin and Robin, 2007; Henri and Pudelko, 2003) as 'communities of interest'.

Therefore, the case presented can be considered as an example of the development of a 'community of interest' or practice (Wegner, 2010) where people can be co-located, but it is not a necessary characteristic to constitute the community. The paper seeks to discuss the characteristics that connotate SDD Milan as a community of interest.

Service Design Drinks Milan

The community is called 'Service Design Drinks Milan' (SDD Milan) and has both online and offline presence. The offline presence is embodied by a series of "open and informal meetings [that] bring Milan Service Design community together", which is the statement that could be found on the online channels where the community exists. The online channels are both informative, such as the website www.servicedesignmilan.com, as well as engaging, such as the social media Facebook, Twitter and Instagram (@ServiceDesignDrinksMilan). The events run every one or two months during the evening in weekdays. They start at 7.30 pm and last around 2 hours in total. The time in the day is very peculiar because it is the 'aperitivo' time, which is a very traditional and established habit in Milan. The 'aperitivo' is a distressing moment that takes place just after working time and before the dinner and is characterized by a drink and some

snacks to enjoy while chatting with friends or colleagues. The SDD Milan wants to represent a similar kind of experience, adding to the world 'Drinks' an additional meaning, which refers to micro-learning moments.

The participants indeed, while enjoying drinks and snacks, can listen to the invited speakers of the event, who share their experience and knowledge on service design.

'Service Design Drinks' is an international format that went through a bottom-up progressive standardization. Hence, there is no central authority or direction that gives guidelines to the different local 'chapters'. It is rather the opposite: it's the case of a successful local format that gained international relevance and was therefore replicated elsewhere as spontaneous initiative of local actors. Precisely because those initiatives are independent and spontaneous, it is difficult to find reliable sources to track the first appearances of the format and a complete list of all the active chapters. Based on a research on the web in particular on social media (Facebook, Twitter and Instagram) using the keywords: 'service design drinks', the first appearance of 'Service Design Drinks' (SDD) seems to be dated back to 2011 in Berlin. 'Service Design Drinks' in Berlin is just one format which is part of a more articulated schedule of events that aims at engaging the community of service design enthusiasts in Berlin and drives the local ecosystem of the service design-related events. The organizers of SDD Berlin are indeed the initiators of other correlated events such as the 'Global Service Jam' local chapter (www.planet.globalservicejam.org) or the 'Service Experience Camp' international conference. The global reach that the above-mentioned community managed to reach thanks both to the frequency of local-oriented events and the international attractiveness of the conference, made it become a reference for other local communities that started to replicate the format of 'Service Design Drinks'.

This is the case also of the community in Milan. The original group of organizers was made of 5 service design early professionals that occasionally met during the 'Service Experience Camp' 2015 in Berlin. The authors of this article compose the complete team that is currently conceiving and running the 'Service Design Drinks Milan'. Part of the members of the current team are also the initiators. Since the event is completely no-profit and run on voluntary basis, the main motivation that led the initiators to start the SDD Milan was to open a discussion on the discipline, share experiences and knowledge and get to know relevant stakeholders in the field.

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Composition of the community

The first event, that gave birth to the community, was organized in 2015 on November, the 17th. It was organized in an apartment in the city center of Milan, which is designated to host events. It attracted unexpectedly 70 people and was a first successful answer from the community that demonstrated the potential of the format. From that time on, we organized 22 events on a regular basis every one or two months that now host more than 150 people for each event. The Facebook page represents the most active online channel of the community, therefore we will hereby refer to its analytics to describe the composition of the community. The community grew progressively from event to event and it is now composed by more than 2000 people in total (2021 'likes' and 2121 'follows' on Facebook page at present time), which makes it its social media channel with the largest following, compared to SDDMilan Twitter account (749 followers from November 2015), LinkedIn page (469 followers from January 2017) and Instagram account (793 followers since May 2019).

On the page, we, as community organizers, use to publish the upcoming events and occasionally share contents that could be of interest for the community. Those contents range from articles, to promotions of contests and job offers. The job offers represent the second more published content besides the events. This is because the community is very attractive for recruiters that look for profiles in the service design field, especially regarding junior positions. We will discuss deeper this value in the next paragraph. The community is composed for its most part by people within the age range of 25-34 where women represent nearly 60% of the total (Fig.1).
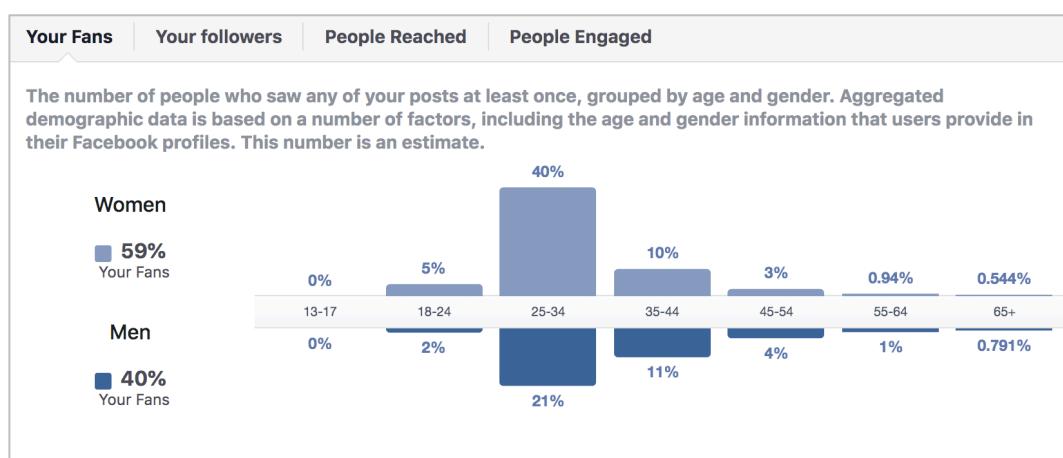
Fig.1: Composition of the community according to the Facebook page 'Service Design Drinks Milan' (age and gender)

The community is highly international. From the insights of the Facebook page we could see that there is a strong international presence with approximately 1000 people from countries outside Italy, which are half of the entire community (Fig.2). This is also confirmed by the attendance to our events. By tracking our attendants with an Eventbrite account, we spotted that most part of the participants is composed by students or alumni of the Master of Science in Product Service System Design of Politecnico di Milano: for each event, an average on 46% participants indicated the attendance to said Master course in the "University/Course" field within the registration form.

The M.sc. in Product Service System Design receives every year 80 students where half places are reserved to internationals. Since this course is one of the leading educational programs related with Service Design in Italy, it is a key player in the composition of our community.

The Service Design Landscape research project (www.servicedesignmap.polimi.it, 2018) presented during the last ServDes Conference in Milan, clearly shows the multiple service design-related educational programs that the Polimi Design System offers. The M.sc. in Product Service System Design plays a key role in the service design ecosystem by gathering and educating a high number of national international young talents, that consequently populate also the SDD Milan events.

Formats of the events

There are three main formats that shape the events of SDD Milan:

- *Theme-specific*: this format is the most frequent one. Based on previous research on the different field of applications of service design, we detect trends in the practice in order to propose forward looking cases to the audience. We therefore invite relevant speakers that can share their experiences with the topic while displaying projects they underwent as examples. We use to invite practitioners from the field as well as academics, in order to bring mixed perspectives. The practitioners could be service design professionals coming from design consultancies or companies. Sometimes we pair a consultant with a representative from a company to illustrate a project done in collaboration between the two. After the speakers' presentation, we moderate a discussion with the community about the topic.

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- *Native Culture Services*: a peer-to-peer sharing session within the community. It is based on the value given by the internationality of the participants. The speakers are indeed the community members, who are invited to present a service design case from their native country and discuss it with the rest of the audience in an informal debate.

- *Transforming Designers*: a panel discussion with experts about the evolution of the role of the service designer followed by an interview session with the recruiters of a design consultancy, dedicated to a selected group of participants to the event. This format is run in partnership with the design consultancy that performs the interviews. This kind of event owns the value of offering job opportunities to the community and it's a recruiting occasion for the design agency that also gains visibility through the event.

Country	Your Fans				
Italy	1,454	Mexico	13	Hungary	5
Germany	63	Taiwan	11	Singapore	5
United Kingdom	43	Turkey	11	South Korea	5
United States of America	33	Finland	10	Poland	5
Brazil	28	Belgium	8	Romania	5
Spain	27	Russia	8	Ireland	4
China	23	Chile	8	Israel	4
Netherlands	23	Australia	8	Greece	4
India	21	Canada	7	Lebanon	4
Switzerland	19	Argentina	7	Ukraine	3
Colombia	18	Thailand	7	Egypt	3
France	17	Sweden	6	Pakistan	3
Peru	15	Indonesia	6	Belarus	2
Portugal	13	Norway	5	Cyprus	2
Denmark	13	Japan	5	Austria	2

Fig.2: Composition of the community according to the Facebook page 'Service Design Drinks Milan' (country)

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Discussion

We believe that SDD Milan represents a successful case of how a common interest around a topic, and specifically around service design, can become agent of inclusion and local activation (Wegner, 2010). Based on some of the qualities that authors (Gardner, 1991) identified to characterize communities, we report a series of values that we believe SDD Milan fosters within the service design community in Milan.

Networking and professional growth opportunities

The events bring value to the participants because they represent gathering moments of networking, where attendants can spontaneously share experiences and knowledges and get to know each other. In this sense, SDD Milan is a hub of the service design professional local ecosystem. Hence, the events can be considered as sorts of celebrations that embody the shared identity of the members where extensive informal interactions are fostered (Gardner, 1991). Besides the events dedicated to recruiting (see the description above of the format *Transforming Designers*), all the events provide the opportunity to meet professionals that work in the field and match supply with demand in service design. Students or young professionals are indeed eager to learn about the contents presented as well as explore new job opportunities or investigate new collaborations (Fig.3). Recruiters or more experienced professionals can instead promote open positions in their companies and look for potential candidates. Hence, the commitment of SDD Milan is to pool talents, energy and resources, guided by the spirit that "when the team wins everybody wins" (Gardner, 1991).

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Fig.3: One of the event of Service Design Drinks Milan

Growth of the local ecosystem

A distinctive element of the events is that they are moving location from time to time. The locations range from co-working spaces to design agencies, to more traditional event locations. We believe that the nomadic nature of the events represents a value for both the community and the local ecosystem of innovation. If from one side the host location gets visibility and promotion, from the other side the community members get to know relevant actors on the local arena. During the last ServDes conference, SDD Milan had the honor to lead the open ceremony with a panel discussion between the invited track chairs in Teatro dell'Arte of Triennale di Milano.

Knowledge sharing and growth

The SDD Milan could be considered as an extension of the institutional education in Service Design offered in Milan. They represent micro-learning experiences that provide perspectives from the field which enrich the theoretical knowledge with insights from practice. The events are also occasions to build new relationships and connections through spontaneous networking which favors the community growth.

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Replicability and scalability

As mentioned above, the format has been already activated and adapted in other locations around the world. The 'chapter' in Milan in particular represented an example for other cities that had the willingness to initiate a local chapter. We, as organizers, have been contacted to share our experience and support other launches in different ways. Dublin and Toronto took Milan as an inspiration for building the brand identity. Currently the logos of those two chapters constitute a declination of the SDD Milan logo. For other chapters we provided a more articulated and stronger support to build the community both at national and international level.

In Italy we gave support to the organizers of the chapter in Bologna first, and then in Veneto. Besides offering our brand identity to be adapted, we shared our experiences and our lessons learnt, we created the connection with our contacts for the sponsorships and for the speakers. In providing guidance and support for the creation of other local communities, we reflected upon those values that we consider peculiar of the context of Milan and therefore must be taken into consideration when replicating the format in another place:

- *Schedule*: "aperitivo time" during weekdays is traditionally the best timing to organize these kinds of event for Milan and Italy more in general but there could be places and culture where it would be favourable organizing these moment during work time or weekends;

- *Inspirational approach*: we found out that events with a more operational focus (eg. whose topic was the presentation of a specific service design tool or practice) had a lower engagement than events with a more "strategic" or broad and inspirational topic, but this could not be the case for other contexts;

- *Nomadic events:* the huge number of spaces, dedicated to design and innovation, capable and willing to host this kind of events allowed us to hold our events in a variety of spaces, that in turn allowed us to give our community a closer look to this kind of businesses.

Regarding these features, other communities could try different approaches, according to their specificity in audience composition, awareness on the topic, level of interest and motivation of the participants, but we also believe a Service Design Drinks community should serve these universal and fundamental values:

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- *Engagement of community members*: members should be actively involved to design and deliver activities in a participatory and collaborative way;

- *Informality*: the exchange and sharing of knowledge should be carried out in a unstructured way in order not to create rigid hierarchies or closure in the participants;

- *Independence*: the management of the community should be carried out by a team of people that doesn't belong to a single organization or company in order to not incur in conflicts of interest or control over content and speakers;

- *Avant-gardism*: the topics tackled should serve the purpose of evolving the discipline and looking one step further than the status quo;

- *Networking*: following the principle of informality, networking activities allow participants to expand their awareness and knowledge of the discipline.

In order to translate these values into practical actions we identified a series of best practice that allow people to kickstart a community in their context in a quick and iterative way:

- *Experiment*: adopt an innovation approach and run test with your community as early as possible in order to learn from your context and adapt;

- *Activate your network*: in defining strategy, topics and themes of the community, leverage first on the personal network of the team because it will help to create a solid base where to start exploring from;

- *Address students*: students have more time and in general a more open attitude and willingness to try new things than workers. They represent an incredible source of energy for a newborn community;

- *Act as a bridge*: a community represent a meeting point - between students and job market; between freelancers and companies - so every activity should enable exchange between different parts of the community;

- *Find a ritual*: drinks represent a good aggregating element as they recall more informal occasions. This could not be the case for other

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cultures and places but a small side element that becomes distinctive of the brand will help your community to recognize you and aggregate.

Community activation

Our community is characterized by a very high level of proactivity and initiative. For every event we have a high number of volunteers that offer their help for the event production (Slingerland et al., 2018). The tasks that the volunteers perform are related with checking-in participants, serve beers, welcome the speakers, place the signs and take pictures.

This value embodies very well the distinctive characteristic of a community of enhancing "participation and sharing leadership tasks", as claimed by Gardner (1991). The volunteers are motivated just because they can have the chance to learn how to run such an event, because they get visibility with the attendants and the speakers and they are given branded SDD Milan gadgets. The volunteers indeed are publicly acknowledged during the event and they are recognizable because they are given a branded tag to put on their shirts.

Besides their involvement during the event, some volunteers take also part in the development of the communication of the event. This include the design of the visuals, which are designed by a different person every time. This kind of activities that relates with branding the events also contribute to the development of a sense of belonging to the community (Colombo et al., 2018). Moreover, the diversity of contributions makes the overall communication of Service Design Drinks Milan community-owned and well reflects the varied composition of the community.

Conclusions

For all the values outlined above, we believe that SDD Milan represents a case of local agent of inclusion that leverages on a common interest to instill a sense of belonging to community members. A distinctive aspect of the community is the diversity of cultures that are represented by its members. The power of SDD Milan is to leverage on this diversity to create "a common ground and a larger unity" (Gardner, 1991). The common interest around service design and the opportunity offered by SDD Milan make those different cultures gather in a same location offline

and online, therefore providing a platform to boost knowledge, inclusion, aggregation and professional opportunities.

References

Colombo, M., Giunta, E.E., and Papetti, P. (2018). We are Brand: Brand Co-Creation as an Engine for New Forms of Welfare Services. In Service Design Proof of Concept. Proceedings of the ServDes.2018 Conference. Linköping: Linköping University Electronic Press.

Delanty, G. (2003). Community. London: Routledge.

Gardner, J.W. (1991). On Leadership. New York: Free Press.

Henri, F. and Pudelko, B. (2003). Understanding and analysing activity and learning in virtual communities. Journal of Computer Assisted Learning. 19 (4): 474–487. doi:10.1046/j.0266-4909.2003.00051.x

Rubin, H. and Rubin, J. (2007). Community Organizing and Development. 4th ed. Boston: Allyn and Bacon.

Slingerland, G., Mulder, I., Jaskiewicz T. (2018). Empowering Community Volunteers Through Matchmaking Services. In Service Design Proof of Concept. Proceedings of the ServDes.2018 Conference. Linköping: Linköping University Electronic Press.

Wenger, E. (2010) Communities of Practice and Social Learning Systems: the Career of a Concept. In Blackmore, C. (Ed.) Social Learning Systems and Communities of Practice. Springer Verlag and the Open University.

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Combining machine learning and Service Design to improve customer experience

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Abstract

Service design is an effective approach for service-based businesses to improve customer experience. However, Double Diamond design process has limitations in identifying the development areas with most business impact. Combining service design process with machine learning presents a new opportunity for alleviating the aforementioned limitation. We present a case from a European service design agency and a Nordic life insurance company to describe the utilization of machine learning in the beginning of the service design process. With this new process we were able to quantify business impact of different customer experience factors and focus the design effort towards the most potential area. Additionally, we increased the buy-in from top management by enhancing the credibility of the qualitative approach with numeric evidence of customer experience data. The work resulted in increased Net Promoter Score for the client organization.

Keywords: customer experience, machine learning, service design, impact of design, net promoter score, double diamond process

Introduction

Integrating machine learning into design processes is one of the hot topics both in industry and academia. Although machine learning and large amounts of data have a potential to lead to innovative new services (Antons & Breidbach, 2018), it is not easy for design teams to find the ways of utilising them in service design or interaction design projects (Dove et al., 2017). There is a lack of articles that present theoretical or practical case examples to learn from. As a design agency based in Europe, we have been successfully exploring the role of machine learning and analysing large amounts of data in a few service design projects. This paper reports one of these projects, a case study with a Nordic life insurance company in 2017, to share one of our solutions for using machine learning in service design.

In service design practice, a Double Diamond process is typically applied to improve service experiences (British Design Council, accessed 2019). Qualitative research is used to gather insights and map the pain points of customers as well as the opportunities that can reach business targets (Diamond one). These insights are used to move the design phase that includes idea generation, concept development and prototyping to come up with solutions (Diamond two). The Double Diamond process was developed 15 years ago, but since then, design has developed to "solve more complex, multi-faceted challenges" (British Design Council, 2019). This is one reason why many companies have expanded the Double Diamond to Triple Diamond. However, none of the Triple Diamond processes that we have seen have introduced a machine learning approach in the beginning of the design process. Also, we have not found this approach addressed in scientific publications.

In this paper, we describe a case study where our machine learning-based analysis method was added in front of the Double Diamond design process. We call this quantitative analysis method "conversion analysis". It identifies the optimal development targets with respect to a selected key performance indicator (KPI). This helps service designers to focus their efforts on development targets with high estimated return of design effort. The conversion analysis is described briefly in the next section. **The business target of our client was to increase their Net Promoter Score (NPS) values by improving their customer experience**. Therefore, we used NPS as the main KPI. Our conversion analysis was able to identify the most impactful development targets for increasing the NPS ratings. We were able to design a customer-centric, actionable and provably NPS-optimal service identity for the organisation.

Based on our observations, adding the machine learning-based conversion analysis in the beginning of design process provided two major benefits: **increased buy-in from top management** and **higher impact of design work**. This approach created one more phase: "A Diamond Zero", before the actual start of the Double Diamond design process.

It is important to acknowledge that machine learning is a large scientific field with numerous methods, subtopics and subfields. Conversion analysis is our analysis method, which utilizes machine learning to perform KPI predictions. The initial "Diamond Zero" is the generalization of our experiences where the machine learning component can implement any analysis to steer design effort (e.g. segmentation of customer data). In this case, the conversion analysis was the machine learning component in "Diamond Zero" when we worked with the Nordic life insurance company. However, in future, we are planning to write more about the "Diamond Zero" itself with multiple examples of how we have utilized machine learning prior to design work (not only conversion analysis).

The following section describes the utilization of our conversion analysis in the design project. We also present the new diamond, focusing on machine learning in our proposed Triple Diamond process.

Method: Machine learning for service design

The collaboration with the Nordic life insurance company started with a deep dive into the available customer experience data. The data consists of totally anonymous individual customer feedback (slightly less than 10,000) relating to three service qualities that affect the customer experience. In our work, service qualities are called customer experience factors. The following three customer experience factors were available in the data:

1. Professionalism of customer service
2. Feeling that the organization cares about the customer
3. Perceived speed of the customer service

The assumption of top management was that the perceived expertise of the front-line personnel (Professionalism of customer service) has the biggest impact on the customer experience. They also believed that negative changes on the stock market have a negative impact on the NPS. To validate this assumption, we included stock exchange data of the most traded assets in two relevant European countries synchronized by

the response date of the respondents. We also added data about internal load that affects the delivery of customer service.

We applied our machine learning-based analysis method, called conversion analysis, to the aforementioned data to identify the design focus with the most impact for the customer experience (NPS as KPI). This analysis was done before commencing the design work (qualitative customer research and designing new service identity). So, conversion analysis predicted which (combinations of) customer experience factors have the greatest potential for improving customer experience by estimating the potential NPS conversion for all combinations of customer experience factors upon improvement. The following high-level steps are utilized by our conversion analysis to identify the optimal design opportunity with respect to KPI:

- Train a machine learning model to predict the NPS segment (detractors, neutrals and promoters) for each individual customer in the dataset.
- Use the trained prediction model to simulate the potential change in NPS segment if any combination of the key customer experience factors is improved.
- Identify the customer experience factors that, if improved, result in the optimal increase (conversion) of individual customers into a higher NPS segment.

Notice that the conversion analysis is not based on a simple linear regression analysis. Instead, it uses a machine learning classifier that utilizes nonlinear dependencies in its predictions. Based on our experience of utilizing the machine learning-based conversion analysis in this case, we propose the addition of a new diamond in the beginning of the established Double Diamond process. Figure 1 illustrates our proposed Triple Diamond design process to ensure impact and top management buy-in for the design work based on our experiences when working with the Nordic life insurance company. The first diamond is our contribution for the design process. The remaining diamonds are already present in the established Double Diamond process. The new diamond ("Diamond zero", Model and Focus) contains the following phases and activities:

Phase: Model
- Form a research question that will provide useful insight for design effort.

- Define the customer experience factors and acquire relevant, high-quality data for the research question.
- Select machine learning algorithms or analysis methods. This does not only mean our conversion analysis. For example, a clustering algorithm could be utilized for customer data.
- Analyse the data.

Phase: Focus

- Assess the analysis results carefully.
- Form a prioritized focus for the discovery phase of the design process.

In the "Model" phase, research questions are formed to steer the analysis and its requirements: do we need to obtain data, which machine learning algorithm is applicable, will the results be useful for the design phase. For example, numerical customer feedback could be collected from a feedback panel for our conversion analysis to identify optimal opportunity areas. In the "Focus" phase, the utilized data is analysed using machine learning and the analysis results are carefully assessed. For example, the numerically second-best option could be the most cost-effective opportunity area for the client. The outcome of this assessment, and the first diamond, is a brief for the design phase and where to focus the qualitative research.
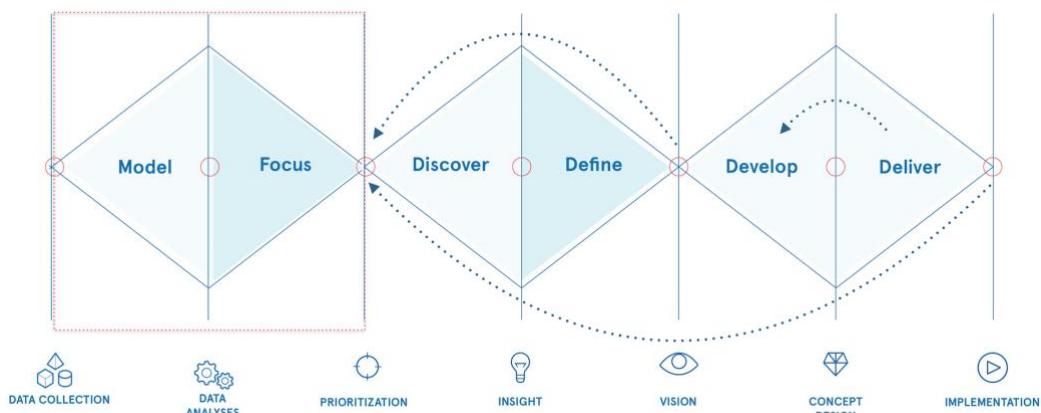
Figure 1: Our proposed Triple Diamond design process to ensure impact and top management buy-in for the design work.

Results

One of the first things our conversion analysis was able to prove was, contradicting the general belief within the client organization, that the performance of the stock exchanges did not have a significant effect on the customer NPS. There was no significant relationship identified between the development of stock prices and customer satisfaction scores. This was a surprise to the client organization, which now had to rethink the emphasis between different factors affecting customer experience. Also, there was no link between the internal load of the organization with respect to the NPS.

Among the three key factors, the conversion analysis showed it was the feeling of caring that had the biggest potential to increase the NPS of the individual customers. This factor refers to the customer's feeling of being cared for by the organization. This was an especially surprising outcome since the top management assumed that the professionalism of customer service was the most important customer experience factor. However, feeling of caring proved to have two times more impact than professionalism, which the conversion analysis ranked second. Professionalism was considered merely as a basic function of the expert organisation by the customers and was not a significant customer experience factor.

Notice that our conversion analysis does not say that professional customer support is not important for customers. The correct interpretation is that the current level of professionalism is good enough and its development does not increase the NPS as well as the development of feeling of caring does. Our conversion analysis estimates the potential impact, not the current level.

Foundation for the design process

The outcome of the conversion analysis became the starting point of the service design project, which follows a more typical Double Diamond process. The feeling of caring proved to be an interesting focus for customer and employee research, which was conducted to understand this customer experience factor more deeply. The feeling of caring as a "soft" design driver was seen to be in contrast with the existing brand image of the life insurance company. During the design process we recognized that these contrasts actually create a unique mix, when a soft and empathetic feeling of caring meets the masculine and powerful brand image. This finding also resonated well with customers and employees

involved in qualitative research. We translated this understanding into the design of a new service identity for the life insurance company. The new service identity focused especially on actions that increase the perceived feeling of caring for the customers. The service identity was communicated in the form of a guidebook and an operating model for strengthening the feeling of caring in all customer encounters and service channels. Furthermore, several touchpoints were co-designed and tested with the employees to help implement a new service identity (see about service prototypes e.g. in Blomkvist & Holmlid, 2010).

Improved Customer Experience

The impact of the design actions coordinated around the feeling of caring can now be clearly witnessed in the responses from their customers and their NPS, which immediately increased after the new service identity was launched. The life insurance company thus achieved their goals and they can now prove it with straightforward data from the NPS. Also, the number of sales leads generated by customer service personnel increased significantly after starting to utilise new service identity which promoted more holistic and active customer service.

Top management buy-in

Our conversion analysis results were initially quite surprising for the managers in the client organization since they conflicted with their presumptions. Our previous experience shows that such a radical change would not have gained top management buy-in if the results were purely based on qualitative data e.g. interviews only, especially in this sort of traditional business field. The conversion analysis increased reliability of the outcomes and the evidence, based on a large amount of data, was harder to dismiss. This case study shows how combining machine learning with the service design process can help to increase the trust and buy-in of top management, especially if they are used to dealing with numeric data as the basis of decision making.

Conclusions

The case reported in this paper demonstrated how machine learning-based models can guide the design process to the right direction for the outset. When the assignment of the client company is as open as in this case, the conversion analysis is a promising tool, which provides focus for

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the initial customer interviews and the whole service identity of the organization. The new service identity provides the client company with an inspiring angle from which to invent new services. According to Dove et al. 2017, this case contributes to the least frequent type of machine learning in design, that is, the design team generating novel concepts utilizing machine learning.

From the perspective of a design agency, the most intriguing finding was that the conversion analysis successfully forecast the business impact of specific customer experience factors. Machine learning in general can thus be used by a design agency before formulating the design brief, and before making investment decisions on design projects. Since the feeling of caring was a solid basis for focusing the Double Diamond process, the impact of the design outcomes was greater and involved less effort, compared to the demands of starting the research with an open brief. Additionally, complementing a qualitative approach with a quantitative methodology increases the perceived credibility of the design suggestions by top management.

Limitations

It is reasonable to assume that there are numerous attributes that contribute to the customer experience on a personal level, which are not represented in the data we had available for the conversion analysis. Therefore, a different development focus could be identified by adding more variables in the analysis. However, our method is still valid in measuring the relative efficiency of the customer experience factors with respect to each other. For example, it is valid to interpret that improved feeling of caring is estimated to have two times more the NPS conversion compared to improved professional customer service. The absolute, actual conversion estimates should be interpreted critically.

The conversion analysis requires data, which is sometimes unavailable, or costly to acquire. The data has to represent the analysed phenomenon and be relevant for customer experience. Even an infinite amount of data does not provide insight if the data is irrelevant to customer experience. This case was a good example of how machine learning-based analysis can give direction for the design process, but more empathetic understanding and co-design is still needed to transform findings from Diamond Zero into desired actions to improve customer experience and NPS.

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Future work

We are experimenting with many other client cases to discover how machine learning can add value and upscale the designer's work. We do not believe that machine learning will replace a designer in future since humans have a much broader view and knowledge of the world, especially about signals that are not available in given data. Our goal is to create new machine learning-based tools for designers in order to combine empathy-based sense making skills of designers with quantified analysis of data. We hope in the next version of the design process, machine learning becomes an integral part of the actual Double Diamond design process e.g. as per our suggestion "Diamond Zero". However, there are also other ways of integrating machine learning with service design and customer experience, which we will explore and develop. Our goal in this endeavour is to increase the design process efficiency and the impact of its outcome.

Combining design process and machine learning technologies is still a weakly explored territory in academia, and we believe examples from real life are needed to foster meaningful dialogue around this topic between industry and academia. This is an exciting domain for the research community to tackle, with potential for high societal impact. Our future plans include the careful definition of the new "Diamond Zero", where machine learning and service design meet. We will provide multiple examples of "Diamond Zero" in practice where we have utilized various machine learning-based analyses.

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References

Antons, D. & Breidbach, C. (2018). *Big Data, Big Insights? Advancing Service Innovation and Design With Machine Learning*. Journal of

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Service Research, 21(17–39). DOI:
http://dx.doi.org/10.1177/1094670517738373

Blomkvist, J. & Holmlid, S. (2010). *Service prototyping according to service design practitioners.* Service Design and Innovation conference. Dec 2010. Linköping, Sweden.

British Design Council. (Accessed: 2019-10-13). *The Double Diamond: 15 years on.* https://www.designcouncil.org.uk/news-opinion/double-diamond-15-years.

Dove, G., Halskov, K., Forlizzi, J., & Zimmerman, J. (2017). *UX Design Innovation: Challenges for Working with Machine Learning As a Design Material.* Conference on Human Factors in Computing Systems. May 2017. New York, USA.

Towards a unified framework of service transformation elements

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Abstract

Service implementation has been receiving more and more attention in both academia and service design practice recently. In order to better study this topic of how services change over time, it is important to understand what different service transformation elements are as well as the flexibility of these service transformation elements. So far, different service transformation elements, such as touchpoints and institutions, have been addressed in research, but mostly in isolation. In this paper, I place these service transformation elements in relation to each other in a framework for service transformation. Such a framework is helpful for both researchers and practitioners, because it helps to articulate the kind of service transformation that is in focus in scholarly and practical service design work as well as to set expectations in terms of what transformations can be realised or studied given the time span of a project.

Keywords: service transformation, service implementation, service design

Introduction

Banking services have been around for centuries, but while some of the principles of the service have remained over time, other aspects of the service have changed. For instance, the bank teller has in many cases been replaced by websites and smartphone applications. This is one example of how different aspects of services change over time. In this paper, I refer to these different aspects of a service that change as service transformation elements. The rate at which a service transformation elements changes depends on how flexible the service transformation element in question is. To compare it to legislation, the constitution of a country seldom changes, but local laws and regulations change more often. In other words, the constitution is less flexible than legislation regarding specific topics.

In service design research, the topic of service transformation has so far been addressed by looking at specific service transformation elements, such as touchpoints (Clatworthy, 2011), service interfaces (Secomandi and Snelders, 2011), routines in a service (Akama, 2014), as well as institutions in organisations (Kurtmollaiev et al., 2018). In service marketing and management, the concept of the service delivery system has been used to address the service transformation elements that are required for the delivery of specific service concepts (e.g. Goldstein et al., 2002). These works address different service transformation elements, but these service transformation elements have not yet been addressed in relation to each other. Therefore, the aim of this conceptual paper is to begin the development of a framework that addresses service transformation from a holistic perspective by placing service transformation elements in relation to each other, in terms of their degree of flexibility. For the development of the framework I have drawn inspiration from the concept of *shearing layers* (Brand, 1994), which describes how different elements of buildings change at different paces, depending on their relative flexibility. Having a framework that relates different service transformation elements to each other helps those who work with service transformation as researcher or practitioner to be aware of which aspect of service transformation they address. Furthermore, it contributes to successful service innovation because it helps to set realistic expectations in terms of what parts of a service can be changed as part of a service innovation project; which service transformation elements are flexible enough to be transformed.

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Background

Service transformation is a prerequisite for successful service innovation. In service design research, service transformation has been addressed in different ways. That which is seen as the object of service design is also what is (intended to be) transformed. As such, service transformation has been discussed in relation to service visions as a whole (Almqvist, 2018) but also to individual service transformation elements, such as the interface of the service (Secomandi and Snelders, 2011), the touchpoints of a service (Clatworthy, 2011) and service encounters (Snelders et al., 2014).

Yu and Sangiorgi (2014) posited that the *service delivery system* defines how service concepts are implemented. The concept of the service delivery system has been developed in service marketing and management literature. It describes the service transformation elements that define how a service concept is delivered, including structure, infrastructure and processes required to deliver the service concept (Goldstein et al., 2002; Roth and Menor, 2003; Ponsignon et al., 2011). Once these components have been specified and realised, a new service concept can be delivered to service customers. In order to realise service transformation through the assembly of a service delivery system, the requirements for the service delivery system that follow from the service concept need to be compared to the existing service system in order to determine whether the organisation can successfully perform the service transformation (Tax and Stuart, 1997).

Other authors have addressed changes in the habits and routines in a service as a way to transform services (Akama, 2014). Routines can change due to external causes, but the source of change can also lie in the routine itself. The field of routine dynamics studies these internal dynamics of routines (Feldman et al., 2016). Although routines were first considered as relatively stable and a way to create regularity in work, they are currently framed as performative actions that can vary over time (Howard-Grenville and Rerup, 2017). Routines are only stable in the short term; maintaining a routine requires effort from those involved in it (Feldman et al., 2016; Feldman et al., 2019). The abstract notion of a certain routine provides guidance for performing the routine and actions in that performance can confirm those structures or be a cause for changing them (Feldman and Pentland, 2003). There is thus a duality of structure and agency in routines (ibid., 2003), which allows room for adaptation, improvisation, creativity and flexibility in routines (Feldman et al., 2019).

Such variations can lead to changes in the routines, but they can also remain a one-off deviation (Feldman et al., 2016).

This view of services transforming as a result of changes in routines is related to the notion of service transformation through changes in the roles of different actors in a service (e.g. Peltonen, 2017; Overkamp and Holmlid, 2017). In this paper, I consider roles from a network perspective, as a position in a social structure (see e.g. Baker and Faulkner, 1991), such as *doctor* or *parent*. As defined in Role Theory, such roles come with expectations, which are drivers for the behaviour of those who occupy a certain role (Biddle, 1979). These expectations can be placed on the person who occupies a certain position (external expectations) or can be held by the person who performs the role (internal expectations) (ibid. 1979). Roles may transform as a result of role strain: pressure on a certain role for an extended period of time (Thomas and Biddle, 1966). Role pressure can come occur if expectations for those who perform a role are conflicting, too ambiguous or if there are too many expectations for a certain role (Biddle, 1979). Roles only change if the tension in the role is experienced by many and if the conditions for role change are met (Turner, 2001).

In service science, service transformation is considered to take place through institutional work of service actors (Koskela-Huotari et al., 2016 Vink, 2019). Institutions are socially constructed rules, values and norms (Friedland and Alford, 1991). Institutional work is the actions of individuals to create, maintain or disrupt these institutions (Lawrence and Suddaby, 2006). The institutional logics of an organisation, or organisational logics (Spicer and Sewell, 2010), are affected by the institutional logics of the (professional) field that the organisation is part of (Lawrence and Suddaby, 2006). For instance, institutions on the level of a professional field affect what roles are considered legitimate within a certain practice (Hampel et al. 2017). Institutions and institutional work can also be used at the level of organisations to talk about how the (institutional) logics of an organisation change. An example of such research in the context of services is the work by Kurtmollaiev et al. (2018), which studied institutional work at a telecommunications company.

So far, the service transformation elements discussed above have been addressed mostly individually. The aim of this paper is to develop a framework that relates these service transformation elements in terms of how flexible these different service transformation elements are and thus how much effort is typically involved in changing them. To do this, I build on the concept of *shearing layers* (Brand, 1994)*,* which describes how

different layers of a building change. Brand (ibid.) called these layers *stuff, space plan, services, skin, structure* and *site*. These different layers change at different paces, depending on how easy or hard it is to make changes to the architectural elements in the layer (i.e. how flexible the elements of a specific layer are). The *stuff* changes quickest and the *site*, the "geographical setting, the urban location, and the legally defined lot" (ibid., p.13) is considered most stable over time. The *structure* of the building refers to the foundation of the building and other load-bearing elements. Since it is expensive to change them, they are rarely altered. *Skin* refers to the outside of the building, which changes, for instance, as a result of a focus on, or desire for, better insulation. The *services* of the building are the plumbing, wiring, communication, heating, ventilation, air conditioning. The penultimate layer, the *space plan*, includes the ceilings, floors and doors of the building. These elements may change quickly if users of the building substitute one another in quick succession and have significantly different demands for the space plan. Finally, *stuff* refers to everything that can easily be moved around, such as furniture and appliances that are not built-in. The *shearing layers* concept has also been used to address adaptability and flexibility in the built environment beyond individual buildings (Estaji, 2017).

Service transformation framework

In this section, I introduce the service transformation framework consisting of four layers of service transformation elements: *Regimes*, *Roles*, *Routines* and *Interfaces*. In the framework I have placed the service transformation elements that were introduced in the previous section in relation to each other in terms of their flexibility, *Regimes* being the least flexible and *Interfaces* being the most flexible (see Figure 1). I elaborate the different layers below.
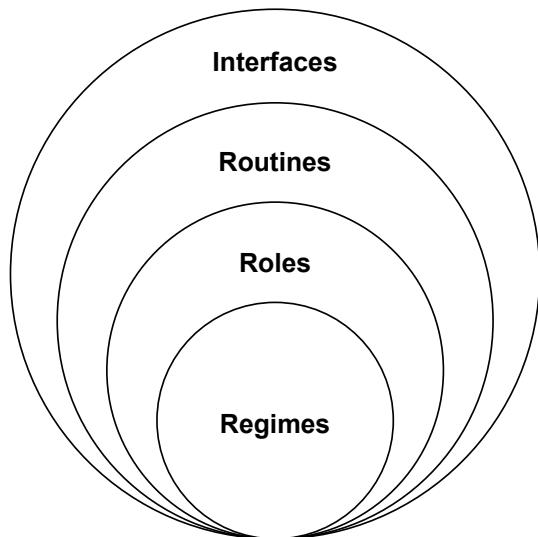
Figure 1 – Service transformation framework consisting of four layers of service transformation elements

Regimes

The first layer in the transformation framework contains the structural service transformation elements that shape a service practice: institutions as well as technological and economical regimes that shape the actions of actors in the service system. An example of such a transformation is the transition from a product-oriented organisational logic to a service-oriented one—also known as *servitization* (Baines et al., 2017) or a transition from transactional to a relational economic model. By transforming the *Regimes*, the structure of service practices is transformed. *Regimes* are located on a societal level and require the engagement of a large group of people to be transformed, which makes them inflexible.

Roles

The second layer concerns roles of the actors in the service. This includes changes in the participants that are involved in the service, as part of the service delivery system. Roles are defined by the institutional logics of a field or organisation; what roles are considered a legitimate part of the (service) practice (Hampel et al., 2017). For instance: if an organisation changes from a product-oriented logic to a service-oriented logic, a sales role that focuses on product sales may no longer be required. Instead, employees need to focus on providing solutions that fit the customer's practice. This new role can be enabled by changing the reward structure from bonuses for exceeding sales targets to a metric that is customer-centric instead. Service transformation elements in this layer are related to

roles that are determined for professions. These professions are part of a society and are therefore more localised than service transformation elements in the *Regimes* layer, making them also easier to transform.

Routines

The third layer addresses the processes, or routines in a service. The structure of routines is provided by institutions; they motivate and explain the actions of service actors (i.e. the performative part of routines). Due to the sociomaterial nature of routines (Feldman et al., 2019), technology that is part of the service also affects the actions of service actors. This layer includes service transformation elements related to *processes* in the service delivery system. Routines relate to service processes in a specific organisation, which makes them easier to transform than roles, which are shaped as part of a profession as a whole.

Interfaces

The last layer of service transformation elements involves the interfaces in a service. Interactions take place at the interface between service provider and customer. Such touchpoint can be digital, such as websites or software applications, but also physical, relating to the physical facilities of a service delivery system. These touchpoints and the content of the interactions at these interfaces are the most flexible service transformation elements and can be changed relatively easily. Interfaces are part of specific services and the most localised of the service transformation elements, which gives service actors more control over them than over the elements in the other three layers of the framework.

Discussion

So far, service transformation has been discussed by addressing different service transformation elements, such as touchpoints, service processes or institutions, in isolation. My aim with this paper is to begin developing a framework for service transformation that puts these service transformation elements in relation to each other. This service transformation framework is inspired by the concept of *shearing layers* (Brand, 1994) and categorises service transformation elements in terms of their degree of flexibility.

By addressing different service transformation elements, this framework highlights the plurality of service transformation: service transformation

contains many different aspects and can take place in many different ways. In the framework, service transformation elements that have been addressed in previous research have been integrated: on the *Interfaces* layer, service encounters (e.g. Snelders et al., 2014), touchpoints (Clatworthy, 2011; Secomandi and Snelders, 2011), and physical parts of a service delivery system (Tax and Stuart, 1997; Roth and Menor, 2003; Ponsignon et al., 2011), such as the servicescape (Bitner, 1992) are located. The *Routines* layer contains processes as part of service delivery system (Goldstein et al., 2002; Ponsignon et al., 2011) and routines in services (Akama, 2014). Changes in the positions in networks of service actors are part of the *Roles* layer, such as who the participants in the service are (Tax and Stuart, 1997). The *Regimes* layer contains structure of the service practice, such as institutions (Koskela- Huotari et al., 2016; Vink, 2019) and technology (Ponsignon et al., 2011). These structures enable and limit actions of actors in the service practice. For instance, the choice for a certain technology has a lock-in effect in the sense that future services will need to be built on it (Ehlhardt, 2013). The framework reflects also the individual level (*Interfaces*), organisation delivery process level (*Routines*) and network/ecosystem level (*Roles*, *Regimes*) at which service design can contribute to service transformation (Prestes Joly et al., 2018). Furthermore, the framework leaves room for both a reductionist and pluralistic view on services and service actors (Agid and Akama, 2018), as well as different perspectives on service transformation, such as assembling the prerequisites for service delivery or shaping value co-creating relationships (Overkamp, 2019).

For researchers, the service transformation framework presented in this paper provides support for more precise discussions about service transformation. It shows the plurality of service transformation and how different service transformation elements are related. The framework helps researchers to point to where their research is related to and contributing to service transformation literature. Furthermore, the framework provides starting points for future research, including further development of the framework itself. The framework presented in this paper is a first version and there is thus room for further development. This includes elaborating the content of the different layers of service transformation elements and their boundaries, testing the framework using service transformation case studies and exploring the factors that affect the flexibility of service transformation elements in a specific layer. For instance, long-term contracts may limit the possibilities for actually making changes to touchpoints, even though on paper the change seem relatively easy to make.

Practitioners can use the service transformation framework to address what kind of transformation they are aiming at. Firstly, this helps to set realistic expectations in terms of what service transformation elements can be addressed in a service innovation project. The notion of different levels of flexibility of service transformation elements helps designers to develop an understanding of the effort that is required for changing the different transformation elements and to set realistic expectations for themselves and the organisations they work for or with, in terms of what can be changed: if the intended service transformation is related to *Regimes*, it will likely take more effort to realise the service transformation than if it is related to *Interfaces*. This helps to prevent tension between the ambitions of a service innovation project and the resources that are available for realising the service transformation. Secondly, outlining different service transformation elements helps designers to plan the ways in which they can best support the intended service transformation. Service designers can contribute to service transformation in different ways (Overkamp, 2019) and being aware of these different roles helps designers to adjust their role to best support the service transformation efforts.

Conclusion

In service design literature, service transformation has so far been discussed mostly by addressing service transformation elements in isolation. In this paper, I have made a start in synthesising these discussions into a holistic service transformation framework, putting the different service transformation elements in relation to each other in terms of their flexibility. This framework contributes to research in service design and service innovation, as it provides guidelines for a structured approach to studying different aspects of service transformation in future research. For service design practitioners, the framework helps to set realistic expectations in terms of which service transformation elements they can realistically change and adapt their role to best support the intended service transformation.

References

Agid, S., & Akama, Y. (2018). Dance of designing: Rethinking position, relation and movement in service design. In *ServDes.2018 Proof of Concept; Proceedings of the Sixth Service Design and Innovation*

conference (pp. 800-811). Milan, Italy, 18-20 June. Linköping, Sweden: Linköping University Electronic press.

Akama, Y. (2014). Passing on; Handing over; Letting go - The Passage of Embodied Design Methods for Disaster Preparedness. In *ServDes.2014 Service Future; Proceedings of the fourth Service Design and Service Innovation Conference* (pp. 173–183). Lancaster, United Kingdom, 9-11 April. Linköping, Sweden: Linköping University Electronic press.

Almqvist, F. (2018). Service design in the later project phases: Exploring the service design handover and introducing a service design roadmap. In *ServDes.2018 Proof of Concept; Proceedings of the Sixth Service Design and Innovation conference* (pp. 666-678)*.* Milan, Italy, 18-20 June. Linköping, Sweden: Linköping University Electronic press.

Baines, T., Ziaee Bigdeli, A., Bustinza, O. F., Shi, V. G., Baldwin, J., & Ridgway, K. (2017). Servitization: revisiting the state-of-the-art and research priorities. *International Journal of Operations & Production Management*, 37(2), 256–278.

Baker, W. E., & Faulkner, R. R. (1991). Role as Resource in the Hollywood Film Industry. *American Journal of Sociology*, 97(2), 279–309.

Biddle, B. J. (1979). *Role Theory: Expectations, identities and behaviors*. Academic press.

Brand, S. (1994). *How buildings learn: what happens after they're built*. New York, NY: Viking Penguin.

Clatworthy, S. (2011). Service Innovation Through Touch-points: Development of an Innovation Toolkit for the First Stages of New Service Development. *International Journal of Design*, 5(2), 15–28.

Ehlhardt, H. (2013). Product Evolution Diagram; A Systematic Approach Used in Evolutionary Product. In *DS 76: Proceedings of E&PDE 2013, the 15th International Conference on Engineering and Product Design Education, Dublin, Ireland* (pp. 8–13), Dublin, Ireland, 05-06 September.

Estaji, H. (2017). A Review of Flexibility and Adaptability in Housing Design. *International Journal of Contemporary Architecture "The New ARCH"*, 4(2), 37–49.

Feldman, M. S., & Pentland, B. T. (2003). Reconceptualizing Organizational Routines as a Source of Flexibility and Change. *Administrative Science Quarterly*, *48*(1), 94–118.

Feldman, M. S., Pentland, B. T., Adderio, L. D., & Lazaric, N. (2016). Beyond Routines as Things: Introduction to the Special Issue on Routine Dynamics. *Organization Science*, *27*(3), 505–513.

Feldman, M. S., D'Adderio, L., Dittrich, K., & Jarzabkowski, P. (2019). Introduction: Routine Dynamics in Action. In M. S. Feldman, L. D'Adderio, K. Dittrich, & P. Jarzabkowski (Eds.), *Routine Dynamics in Action: Replication and Transformation* (pp. 1–10). Bingley, UK: Emerald Publishing Limited.

Friedland, R., & Alford, R. R. (1991). Bringing Society Back In: Symbols, Practices, and Institutional Contradictions. In W. W. Powell & P. J. DiMaggio (Eds.), *The New Institutionalism in Organizational Analysis* (pp. 232–263). Chicago, IL: University of Chicago Press.

Goldstein, S. M., Johnston, R., Duffy, J., & Rao, J. (2002). The service concept: The missing link in service design research? *Journal of Operations Management*, *20*(2002), 121–134.

Hampel, C. E., Lawrence, T. B., & Tracey, P. (2017). Institutional Work: Taking Stock and Making It Matter Institutional Work: Taking Stock and Making It Matter. In Greenwood, R., Oliver, C., Lawrence, T. B., & Meyer, R. E. (Eds.) *The Sage Handbook of Organizational Institutionalism* (2nd edition, pp. 558–590). Thousand Oaks, CA: Sage Publications.

Howard-Grenville, J., & Rerup, C. (2017). A Process Perspective on Organizational Routines. In A. Langley. & H. Tsoukas (Eds.), *Sage Handbook of Process Organizational Studies* (pp. 323–339). London, UK: Sage Publications.

Koskela-Huotari, K., Edvardsson, B., Jonas, J. M., Sörhammar, D., & Witell, L. (2016). Innovation in service ecosystems-Breaking, making, and maintaining institutionalized rules of resource integration. *Journal of Business Research*, 69(8), 2964–2971.

Kurtmollaiev, S., Fjuk, A., Pedersen, P. E., Clatworthy, S., & Kvale, K. (2018). Organizational Transformation Through Service Design. *Journal of Service Research*, *21*(1), 59–74.

Lawrence, T. B., & Suddaby, R. (2006). Institutions and Institutional Work. In S. R. Clegg, C. Hardy, T. B. Lawrence, & W. R. Nord (Eds.), *Handbook of organization studies* (pp. 215–254). London, UK: Sage.

Overkamp, T. (2019). *How Service Ideas Are Implemented: Ways of Framing and Addressing Service Transformation.* PhD Thesis. Linköping University.

Overkamp, T., & Holmlid, S. (2017, 15-17 June). *Evolutions of Service Actor Roles Towards Future Service.* Paper presented at Nordes 2017: 7th Nordic Design Research Conference: Design + Power.

Peltonen, S. (2017). Changing roles. Role theoretical approach to customer involvement in industrial service development. *The Design Journal*, *20*(sup1), S2605–S2615.

Ponsignon, F., Smart, P. A., & Maull, R. S. (2011). Service delivery system design: characteristics and contigencies. International Journal of Operations & Production Management, 31(3), 324–349.

Prestes Joly, M., Teixeira, J. G., Patrício, L., & Sangiorgi, D. (2018). Service designers, unite! Identifying shared concerns among multidisciplinary perspectives on service design. In *ServDes.2018 Proof of Concept; Proceedings of the Sixth Service Design and Innovation conference* (pp. 1141-1161). Milan, Italy, 18-20 June. Linköping, Sweden: Linköping University Electronic press.

Roth, A. V., & Menor, L. J. (2003). Insights Into Service Operations Management: a Research Agenda. Production and Operations Management, 12(2), 145–164.

Secomandi, F., & Snelders, D. (2011). The Object of Service Design. *Design Issues*, *27*(3), 20–34.

Snelders, D., de Garde-Perik, E., & Secomandi, F. (2014). Design Strategies for Human Relations in Services. *ServDes.2014 Service Future; Proceedings of the Fourth Service Design and Service Innovation Conference* (pp. 133–142). Lancaster, United Kingdom, 9-11 April. Linköping, Sweden: Linköping University Electronic Press

Spicer, A., & Sewell, G. (2010). From National Service to Global Player: Transforming organizational logics in a public broadcaster. *Journal of Management Studies, 47*(6), 913–943.

Tax, S. S., & Stuart, I. (1997). Designing and Implementing New Services: The Challenges of Integrating *Service Systems. Journal of Retailing, 73*(1), 105–134.

Thomas, E.J. & Biddle, B.J. (1966). Basic Concepts for the Variables of Role Phenomena. In B.J. Biddle & E.J. Thomas (Eds.), *Role Theory: Concepts and Research* (pp. 53-63). John Wiley & Sons, Inc.

Turner, R. H. (2001). Role Theory. In J. H. Turner (Ed.), *Handbook of Sociological Theory* (pp. 233–254). New York, NY: Kluwer Academic.

Vink, J. (2019). *In/visible: Conceptualizing Service Ecosystem Design*. PhD thesis. Karlstad University.

Yu, E., & Sangiorgi, D. (2014). Service Design as an approach to New Service Development: reflections and future studies. In *ServDes.2014 Service Future; Proceedings of the fourth Service Design and Service Innovation Conference* (pp. 194–204). Lancaster, United Kingdom, 9-11 April. Linköping, Sweden: Linköping University Electronic press.

How to be Considerate: Adapting service design for use beyond the design studio

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Abstract

This study shows the role Service Design can play in addressing social issues, explored through the topic of women and fear in public space. Due to the fear of sexual violence reinforced by society, women are constantly monitoring their movement within cities. This research aims to develop a response to this issue without inflating this fear or placing responsibility on women.

Co-design and Service Design tools were used to offer balance to the research and to neutralise tensions within the topic area. This led to an educational campaign that establishes the responsibility that allies have in reducing fear in public space, on a general public level, and also on a professional level, specifically those involved in designing public space.

The research and project's outcomes demonstrate how Service Design tools could be used in other disciplines (beyond traditional design studios) to develop empathy as well as addressing and solving social issues.

Introduction

Women and access to public space is a societal issue that furthers gender inequality through the lack of awareness and consideration to inherent gender bias when designing public space. Attempts to address poor spatial design and public safety issues, including lighting and CCTV, do not prevent crime, and can also lower perceptions of comfort in space – that is, we feel more unsafe in those spaces (Kalms, 2019). To highlight the tensions experienced in public space, Phadke (2005) suggested designing with comfort; "...one possible way to radicalise the demand for greater access to public space is to forsake the category of 'safety' and to focus instead on 'comfort'... Comfort suggests not just the absence of violence, but an active sense of belonging." (Phadke, 2005, p. 57)

The 'How to Be Considerate' project explored the tensions around public space, analysed the current interventions, and developed educational tools to address the lack of design consideration given to poorly designed, uncomfortable public space. Through a literature review, the utilisation of co-design tools to gather primary research, and service design tools to analyze the primary research, this project identified an under-recognised group of actors within the user groups of public space.

Labelled as 'Strangers', this group of actors may not realise their actions can negatively affect perceptions of safety in public space, and thus they undermine women's desire for use and access. This led to Part 1 of the project, 'How to be a Considerate Stranger', an intervention that encourages positive behavioural change to help lower fear women may experience in public space. Part 2, 'How to be a Considerate Professional', then uses service design-based tools to introduce considerate design decisions into professional areas beyond the design studio.

This paper documents the development of the 'How to Be Considerate' project. The project demonstrates how service design tools can be amended and used in other disciplines to help address social issues, and highlights the importance of incorporating comfort as a project outcome when designing for public space and safety.

Method

This project addresses a complex social problem. By engaging with an iterative design approach, and embracing the challenges and reflections into the project's development, a robust outcome was delivered. To deliver this iterative approach, service design partnered with co-design methods and tools were used to find gaps within the topic's contradictions and complexities.

The project commenced conventionally with a literature review. During this time the researchers immersed themselves in public conversation, participating in workshops, talks, and discussions that established a wide range of views and opinions on the topic. This was followed by primary research utilising a co-design methodology, holding workshops with stakeholders and users of public space. Service design tools were then used to analyse the primary research. When combining these two methodologies, to ensure quality, the researchers engaged in short sequence iterations of the tools used. This enabled rapid prototyping and testing of the tools to ascertain the best approach. Feedback and guidance from key stakeholders and expert opinions also guided the evaluation of the methods and tools' effectiveness. It was this combination of methods in an iterative approach that allowed for key project insights to be generated and informed a unique perspective on a highly topical issue. Garth (2017) expresses the value of collaboration when addressing social innovation challenges, viewing co-design as a method in which designers can establish "relationships that form a foundation to meet future challenges" (p. 42). The final project outcome demonstrates how this focus on collaboration, both within user groups and methods, can produce viable social innovations.

Literature Review

A design research literature review is pooled from several different studies, an interdisciplinary approach, with research from areas such as criminology, psychology, and anthropology providing theories and models for understanding the social problem (Blessing, 2009). Understanding theories surrounding women and fear of public space, and how this has informed opinions and perspectives on solutions, allowed the design researchers to develop a well-rounded understanding of the issue. This is particularly crucial for understanding Phadke's (2005) call for "comfort" as

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a direction for design, a call that addresses the concept of the 'Female Fear'. The 'Female Fear' is an inflated fear that exists in addition to basic fight or flight, created through gender-based violence or harassment, and the societal rhetoric around women and public space (Vera-Gray, 2018). This fear controls behaviour in public space, furthering gender inequality, and access to public life.

The process of completing a literature review in the initial stages of the project allowed the researchers to gain an understanding of the community of practice that currently exists to manage female safety in public spaces. By building an understanding of the current interventions in the space, such as the numerous safety apps, the researchers were able to identify the limitations of current interventions and the opportunities for new interventions. Furthermore, by engaging in critical analysis and reflection of the current interventions, the researchers were able to identify that apps such as this may add to the 'Female Fear', and made it an objective to produce an outcome that did not inflate this fear. By developing a comprehensive understanding of the community of practice through completing a literature review, the researchers were able to build a comprehensive criteria to guide the development of the project and the resulting outcome.

Co-design in Service Design

Co-design is a participatory design method that is often used in empathic design methodology, where the line between design researcher and the user is blurred (Mattelmäki, Vaajakallio, & Koskinen, 2014). Users are invited to go through the design process, their expertise in their lived experience helping to define the design problem and develop solutions (Sanders & Stappers, 2008).

Co-design as a research tool is popular within the design field of safer public spaces as demonstrated through the multiple co-design sessions that have occurred across Melbourne. These include workshop collaborations such as that between XYX Lab and Plan International Australia involving a range of stakeholders in developing concepts for more gender-inclusive cities (Kalms, 2017). Perhaps the most important aspect of these workshops is that large stakeholders, such as Melbourne City Council, can see how to incorporate and embed women's opinions and perspectives in their decision making, through often realistic and actionable design proposals.

Co-Design was utilised within this research project in two capacities: firstly, as a method of immersion in public discussion, with the Researcher as Participant in a workshop run by XYX lab and, secondly, with the Researcher as a Workshop facilitator, investigating and tailoring co-design and service design tools for this research project.

An observation when participating in the XYX lab workshop was the dominance of women as participants. Women are experts in their lived experience, and we as designers must listen to and incorporate their expertise in our designs to create places that women are comfortable in. However, this dynamic also left an uncomfortable gap of male participation in the workshop. Recruitment for this workshop was open to whoever responded to the promotional flyers. The lack of male participation was not intentional, but it did highlight a common participation outcome when dealing with gender issues. By incorporating targeted invitations into the recruitment strategy for workshops run for this project, the researchers ensured that men were equally involved. This provided a space for men to not only understand and listen to women's experience of public space but also to be part of developing solutions to the problem.

The co-design workshops were run using a generative approach, which aims to "...facilitate or trigger the user's imagination and expressions with tools provided by design researchers, while the analysis is left to the experts" (Mattelmäki, Vaajakallio, & Koskinen, 2014). This approach was used due to the complex nature of this topic, leaving the researchers with the responsibility of using their knowledge from the literature review, and understanding of tensions within this review, to guide participants in possible directions for the project development.

Figure 1 – Participants bridging the gap between the current situation and ideal situation in the researcher facilitated co-design workshop

Service Design Tools for Analysis

Service design tools were used to analyse this qualitative data generated from the co-design workshops. The first tools used were personas. As the key actors targeted when designing for safety in public space materialised (primarily women, predators, and bystanders), this prompted reflection on the missing group of participants in the XYX Lab workshop the researcher participated in.

Upon reflection on this group, and their absence from developing and being part of solutions, the researcher identified them as a new and underutilised actor within the project space. The design researcher labelled this group 'strangers', a different form of bystander or ally, predominantly a male in a public space that is unaware of the fear they may be causing.

Once this group of actors was identified, journey mapping and scenario-building tools were engaged with, to play out the effect this actor might

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have on perceptions of safety. By changing the behaviour of the 'stranger' ever so slightly, the researchers realised this could reduce the inflated perceived fear women experience in public space. As this shift in the design process meant a focus on behavioural change, the researchers went back to the literature review and engaged with ethicists to guide the outcome (identifying methods of intervention) and enrich the personas of potential users. The outcome for this research materialises these 'levers' of behavioural change back to the user, through objects that measure and then communicate the differences in how women can experience public space.

A barrier that presented itself both during the research and testing stages, was challenging biases. During the co-design workshop, the challenge was encouraging participants to explore new solutions, rather than falling back on solutions that change women's behaviour. These biases were then challenged again with the outcome, flipping the responsibility of safety away from women, and onto "the stranger". In both these stages, the iterative approach to the design process allowed the researchers to engage with these barriers as useful parts of the process, rather than as roadblocks.

Outcomes

This research project produced two distinct but connected outcomes.

1. How to be a Considerate Stranger

The first outcome is an educational campaign in the form of a supporting guide and tools targeting the identified group of 'strangers'. This guide explores the scenario of a stranger walking behind a woman at night and how this may increase fear, identifying the responsibility of the stranger to change their behaviour in three sections:

The environments in which it occurs and why people may have a heightened fear in these environments.

Methods of handling this situation, along with "add-ons" which can help make the person feel even safer.

Methods that should not be used or can increase fear.

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The purpose of this guide is to educate people, particularly men, about how women experience public space. It does this by using a scenario that is commonly experienced. Secondly, it aims to show that men have a responsibility to lower the fear women experience in public space, by giving them options when responding to the scenario.

The guide is designed to go alongside educational material focused on bystander intervention and "call it out" style campaigns. The guide is downloadable through the 'How to Be Considerate' website, to allow for amplification of this message.

It is anticipated that if people discuss this topic, through this particular scenario, it can have an impact on fear in public space. This scenario happens daily and if men respond to this stimulus, taking on its message, this provides us with a way of lowering the impact of sexual violence and creating a more inclusive and understanding society.

Figure 2 – The 'How to Be a Considerate Stranger' guide

2. How to be a Considerate Professional

'How to be a Considerate Professional' is an educational workshop, exploring the importance of men understanding their role in the scenario analysed in 'How to be a Considerate Stranger'. It further expands the conversation about women and predators in public space, exploring how others can aid this situation – specifically those involved in designing public space.

The design outcomes for this part of the project are workshop materials that support participants to analyse designs and observe how design impacts fear in public space. The materials created include:

Interactive Journey Mapping

Considerate Calculator and Fear Mapping

Interactive Journey Mapping

These bespoke materials help communicate the tool journey mapping, a technique primarily used within service design, to a more general audience. Journey mapping tools are usually used to analyse how a customer might experience a service and potential pain points. This tool uses magnets to recreate journey points exiting a Melbourne train station. The magnet set includes one-point perspective frames and various physical feature magnetic pieces, that participants can piece together to recreate the journey through key physical design features.

This is a reflective process, one that encourages the participants to notice and break down the specific design decisions within the space, and prompts them to start discussing how these decisions may impact fear.
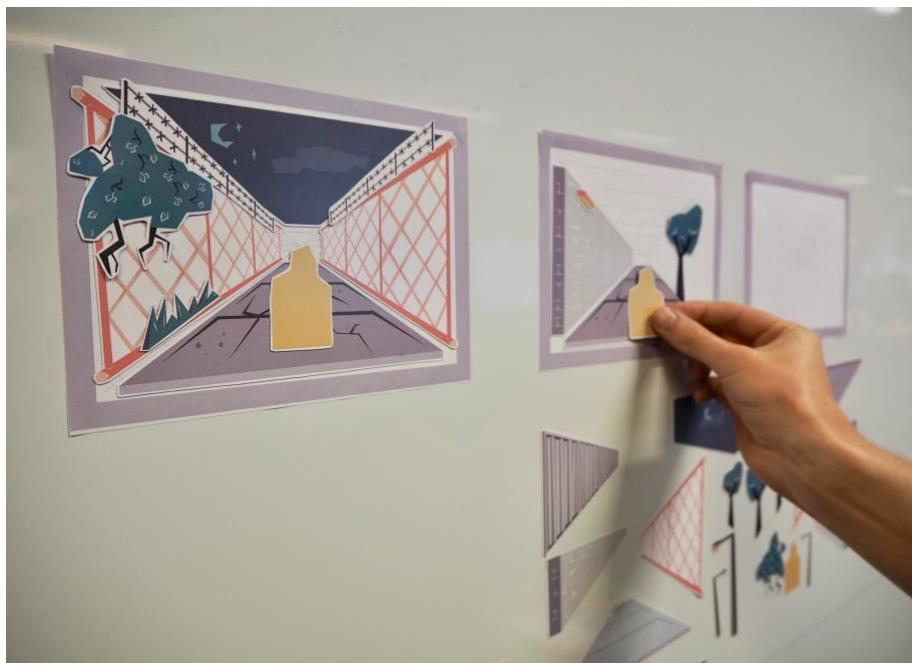
Figure 3 – Journey Mapping tools

Calculator And Fear Mapping

The 'Considerate Calculator' is a tool designed to help participants apply their newly acquired knowledge regarding physical aspects that increase fear, to analysing Victoria Park Station in Melbourne, Australia. By getting participants to calculate how "bad" each design aspect is within the space from 1 to 5, it establishes the primary design aspects that influence fear, giving context to their discussion around why this location creates fear at the beginning of the workshop.

Participants then plot the results from the Considerate Calculator on the Fear Map. This Fear Map consists of an x and y-axis stating the 'journey stage', linking these calculations back to the very human experience of fear through the 'heart rate' on the x-axis.
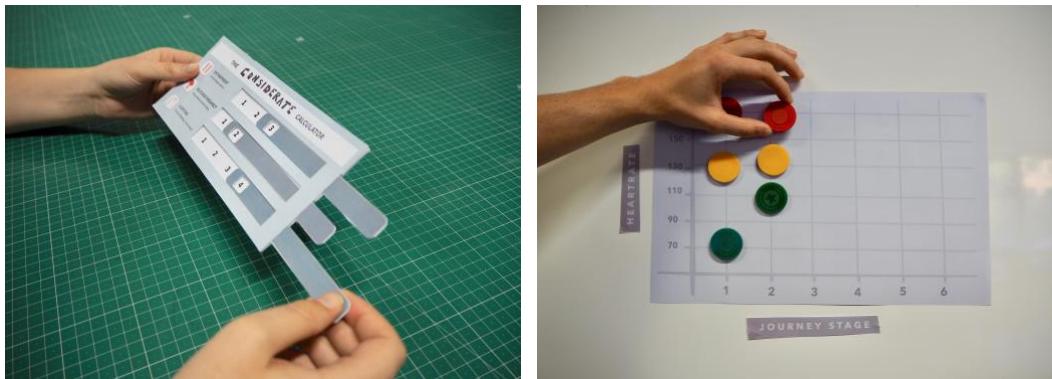
Figure 4 and 5 – The 'Considerate Calculator' and Fear mapping

By using this tool to plot the experience of this design, participants can see the entire journey from a new perspective. This illustrates the objective of this workshop – that fear in public space can be predictable and influenced if you pay attention to design aspects that increase fear.

For the development of the final workshop and tools, the researchers engaged with architecture students for testing. This was crucial in developing co-design tools that were transferrable to other disciplines, but primarily influenced the usability of the workshop tools. The students commented that they were not taught to view their designs from the user's perspective in this way, especially from the angle of fear, nor were they encouraged to consider how gender might influence the experience of their designs. The participants found this new perspective, looking at their work through the female perspective, to be a valuable and meaningful way of analysing their work.

Discussion

'How to Be Considerate' is a project that explores and communicates the overlooked and unspoken issues around how women experience public space. For the researchers, it highlighted two significant areas, discussed below.

1. For a topical issue such as women's safety in public spaces, immersion in public discussion proved to be a critical success factor. However, the utilisation of service design and co-design tools working together highlighted assumptions and gaps, offering an opportunity for a design intervention.

The iterative process engaged with for this research demonstrated how integral different opinions are for designing interventions for social problems, as it was developed through constant discussion with a range of people, from peers to professionals. This immersion in public discussion resulted in the researchers generating key insights, shaping the project, and highlighting assumptions made which were incorrect.

Service design tools and codesign can be used to analyse social issues, giving the design researchers techniques to explore the social tensions found through the literature review.

Rather than co-design directly resulting in an "outcome" for this project, it helped explore the topic and possible design opportunities, offering an engaging and productive format for primary research. However, without service design tools to analyse the outcomes from the co-design workshops, primarily personas, the value of the activity would not have been harnessed. Interestingly in the case of this research, it wasn't necessarily a lack of interest from a particular stakeholder group, but rather an area overlooked by other researchers. As such, we were able to use the combination of co-design and service design tools to identify this inactive participant.

2. Service design tools can be used outside of the design profession but a process of making them legible to non-designers needs to be engaged with.

The use of service design tools within other professions to help develop empathy has gained in popularity, with service design moving into a transdisciplinary toolset utilised by numerous other professionals, not just trained designers. This project offered an opportunity to explore how low-fi, educational solutions can be developed which could have a broad range of impact outside of the design field.

The outcomes of this project target two significant groups of people - those curious to improve themselves and their actions in public space; and those that could have an impact on how public space is created and used. Despite these groups of people being involved in the day-to-day lived experience of public space, they haven't stepped back to consider the space as a whole. This posed the question: How could service tools be used in other disciplines (beyond traditional design studios) to address and solve social issues and develop empathy.

A variety of mechanisms were used:

By approaching this issue with humour, a tongue-in-cheek approach, openness, and understanding of other people's opinions, the project harnesses a broad appeal for numerous demographics and beliefs. The message is communicated through an inclusive and non-aggressive aesthetic, adding to this playfulness that can often be missing, especially when it comes to education on social issues.

The project outcomes move away from the classic printable service design tools with which designers are so familiar with, to make the tools more interactive and scenario-specific. This made the tools legible to non-designers as it materialised the space, allowing the user to play with different design interventions and see the direct impact they could have on perceptions of fear and lack of comfort in public space.

By making the service design tools legible, the researchers resolved some of the tensions around designers holding the tools and being the keepers of them, which can feel isolating for stakeholders engaging in the process. Further to this, these service tools can be fed back into co-design workshops as mechanisms to measure and reduce tensions in public space.

Next steps for this project

This study shows the role Service Design can play in addressing social issues, through developing a response to women and violence in public space without further inflating fear or placing responsibility on women. Now that the design phase is complete and associated materials produced, the next step is for this project to be rolled out publicly. For the first part of the project, a grassroots campaign on how to be a considerate stranger, establishing partnerships with universities and youth engagement initiatives such as YMCA, will provide a platform for its launch. For the second part of the project, a service design kit for professionals, a partnership with local councils will be forged, offering internal training in a workshop form to build capacity for addressing women's safety in public space and space design.

References

Blessing, L.T.M., & Chakrabarti, A. (2009). DRM, a Design Research Methodology. London: Springer London.

Garth, B. (2017). Co-design and Social Innovation: Connections, Tensions and Opportunities (Routledge Studies in Social Enterprise & Social Innovation). Taylor and Francis.

Kalms, N. (2017). Digital technology and the safety of women and girls in urban space: Personal Safety Apps or crowd-sourced activism tools? In H. Frichot, C. Gabrielsson, & H. Runting, Architecture and Feminisms: Ecologies, Economies, Technologies (pp. 112-121). London: Routledge.

Kalms, N. (2019, May 28). More lighting alone does not create safer cities. Look at what research with young women tells us. The Conversation. Retrieved from https://theconversation.com/more-lighting-alone-does-not-create-safer-cities-look-at-what-research-with-young-women-tells-us-113359

Mattelmäki, T., Vaajakallio, K., & Koskinen, I. (2014). What Happened to Empathic Design? Design Issues, 30(1), 67-77.

Phadke, S. (2005). 'You Can Be Lonely in a Crowd': The Production of Safety in Mumbai. Indian Journal of Gender Studies, 12(1), 41-62.

Sanders, E., & Stappers, P. (2008). Co-creation and the new landscapes of design. CoDesign, 4(1), 5-18.

Vera-Gray, F. (2018). The right amount of panic: How women trade freedom for safety. Bristol; Chicago, IL: Policy Press.

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Undo-Replay: re-scripting unsustainable toy consumption through value transference

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Abstract

This paper presents an account of the design of the Undo-Replay project:
a combination of strategies from design for sustainability and product,
service system design aimed at redirecting plastic toys from entering
waste streams at the end of their use lives. Aimed at equipping children
and adults alike with opportunities to participate in their own transferences
of value, the Undo-Replay project uses gameplay and narrative to create
new cultures of repair and re-making that are critical in a transition towards
sustainability. The authors offer an analytical account of the socio-material
systems that underpin toy consumption and waste practices, and discuss
how designers might build new constructive social experiences to foster
more sustainable behaviours. In considering how the project unsettles
existing relations to transfer value, this paper fleshes out the tensions of
environment, material, and consumption at play for designers committed
to notions of sustainable redirection.

Introduction: Toy Consumption, Waste, and the Need for Redirection

For millennia, toys and games have been vital to childhood. They play a critical role in how children learn, and the worldviews they come to adopt. In pre-industrialised civilisations, toys were usually created by children from found things – such as knuckle bones or dolls made from rags and painted sticks (Cross, 2001). The past two centuries have seen a rapid shift from this mode of production into serial production, and then to mass-manufacturing for global markets where each phase has transformed the nature of toys. Toys are now fast-paced, trend-seeking, often defined through licencing agreements with media companies, and drivers of the development of consumerist tendencies in children (Clark, 2007). Enabled by adults –as the procurers, producers and designers of toys – modern toys propel the early scripting and habitation of unsustainable consumption practices (Fry, 1999).

This scripting of consumption follows a particular pattern. Current toy trends are amplified through their relationships to social media and digital worlds, where the physical toy becomes the key to accessing new online televisual social worlds (Fry, 2003), embedding unsustainable materialism through digital consumption. The now popular "Big Reveal" and tactile/sensory toys tend to be framed by a social media presence, with many unboxing and "satisfaction" videos found on YouTube and Instagram. New toy formats such as "Wearables for Children" resemble digital smart-devices and demand endless attention, simulating the wearable-tech devices of adults, gathering data for toy companies through use, and pre-figuring particular object-user relationships (Afshar, 2014). Toys geared towards parents are similarly activated and are promoted through younger parents' tendency to "share" through online platforms. With a rise in social media use by children, toys are increasingly linked to online platforms, adding drama to the physical toy through online animation, narratives, personalisation and other mechanisms that underpin notions of exclusivity. Consequently, the once material-semiotic and kinetic value proposition of toys is now changed (Li, 2016) and made

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subservient to a new digitally-mediated visual and social excitement – a factor now crucial in their marketability (Holloway & Green, 2016).

Purchased with increasing frequency, mass-manufactured and low-cost children's toys are damaged in use, out-grown, and seldom maintain their value, rendering them a rapidly disposable consumer product. Despite the ubiquity of these types of toys, solutions to their unsustainability tend to revolve around strategies that avoid any direct questioning of their increasingly short use lives and the hyper-consumption that contemporary toy design practices produce. Conventional design approaches in this domain include material substitution, eco-redesign and the design of sharing-oriented service systems such as toy libraries. Redistribution strategies, through social and familial networks, private resale, and donation to charities, while more common, require used toys to be in good condition and simply delay their eventual trajectory towards landfill. Often not recycled, due to complex and mixed material assemblies, toy waste is rarely reprocessed into raw materials for other uses.

As the consumer market for toys has expanded, the lifespan for any single toy has decreased to an average of only six months. This increased rate of production and consumption and an accelerated path to end of life is in part made possible by petrochemically-derived polymers. The toy sector is one the largest users of polymers in the consumer product domain: globally, approximately ninety percent of modern toys are now made from plastics (UNEP, 2014). These materials, including polyolefins (polyethylene, polypropylene, EVA, etc.), styrene derived polymers (PS, ABS, SB, etc.) and plasticized PVC, are non-renewable and have substantial rates of embodied energy for applications that are very short-lived. These materials do not break down well, if at all in meaningful terms, and disrupt the natural ecosystem as they enter waste systems (Garcia, Martinez and Reche, 2016). Solutions to the problems of plastic overuse and waste often place the onus of responsibility onto the consumer who, often uninformed of more sustainable alternatives, is caught between the relentless push for re-consumption by dominant producers, and insufficient waste recovery systems. "Degradable", "biodegradable" and "compostable" plastics are increasingly deployed as a solution by big toy manufacturers (Lamontagne, 2018) and are often sold with the implication that they will decompose quickly, without impact to the environment. Yet these newer forms of plastics require different inputs, often from agricultural production, and very specific temperatures and conditions to decompose, while emitting harmful greenhouse gases into the atmosphere

as they do. "Degradable" plastics are particularly deceptive. Virtually indistinguishable by the average consumer from plastics marked as "biodegradable", they are comprised of the same polymeric materials as traditional plastics but are combined with degrading agents to break down quickly into micro-plastics that remain in natural ecosystems for thousands of years (Mannix, 2018).

Plastics recycling is popularly discussed as a sustainable solution. It has many benefits when deployed on a large scale for industry applications that can make use of the material near to its sites of consumption and re-processing. However, conventional approaches are ill-suited to the recycling of comparatively lower volume, short-lived products comprised of multiple polymer types such as toys. Marginal value is gained between the loss of its embodied energy (as a toy) and the energy required in collection, recycling and re-manufacture into a new product [see fig. 1]. Even if the economics of recycling plastic toys could be negotiated towards better outcomes, plastics cannot endure infinite cycles of recycling and demand a continual feedstock of virgin materials to enter the system if rates of consumption are to remain unchanged.
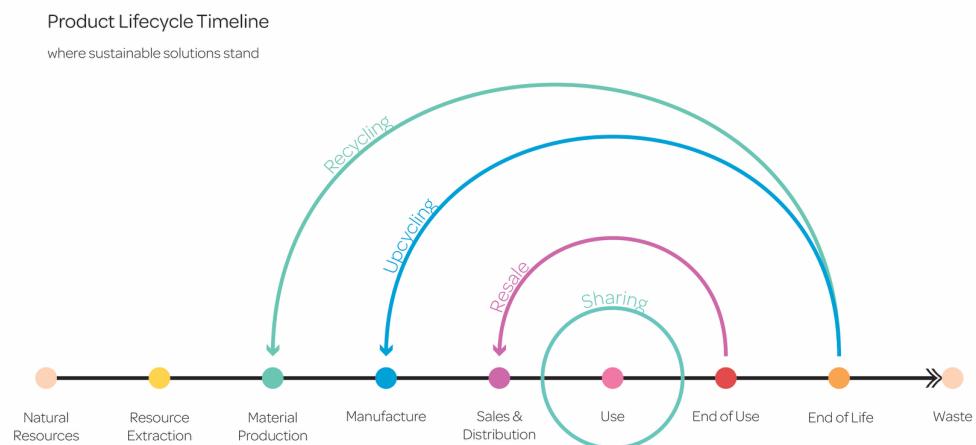
Fig. 1: A product timeline illustrating the different methods of sustainable re-consumption of products before they reach the "waste" stage. Smaller closed loops are preferable when designing for the environment as they require less repeated processing and consumption of energy.

Where toy recycling has been activated, it often comes at a substantial cost to consumers. For example, U.S. recycling company Terracycle's Zero Waste Toy boxes cost about $225.00 AUD for a small box ("Toys

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Zero Waste Box", 2019), and while made from recovered waste toys, presents a barrier to accessibility due to cost and the fact that it (perhaps ironically) simply serves as a storage container for other toys that will very soon become waste too. Most "eco-toy" companies tend to have much higher price points for their products than conventional mass-manufactured toy brands and are rarely stocked at major retail chains or advertised as widely. While choosing such toys over cheaper, mainstream options may appear less environmentally problematic, it proves to be a luxury that few parents can afford and is often only targeted at pre-school aged children. As children get older and begin to develop a capacity for voluntary attention, they require more complex toys and stimulus (Wallon, 1981) in ways that the products of most eco-toy companies do not offer.

The Undo-Replay Project

Undo-Replay is a design project aimed at facilitating a redirection of toy waste away from landfill (or the marginal advantages of conventional recycling) by positioning toys as bankable hazards that are not an environmental risk until they are physically disposed. This waste is typically benign in use and retirement, and at the end of its use-life able to be leveraged for new value through particular strategies. Undertaken through a series of design observations: stakeholder and expert engagements; product, service and instructional design activities; prototyping and user testing, the project sought to use design to enable new capabilities that might lead to a plausible transference of value. Undo-Replay is framed around the notion that the typical path to landfill for toys can be disrupted. This intervention focuses not only on material interference or financial revalue, but also on the creation of new and meaningful social experiences. By placing consumers in control of their own object interference, the project aims to activate each of these paths to maximise the reassignment of service value to waste objects through a particular strategy of socio-material engagement.

The Waiting Zone

To understand the typical path that toys go through from procurement to waste, the designer conducted a series of semi-structured interviews with parents to build a picture of typical play behaviours, toy lives and disposal habits. The data collected provided the basis for a temporal service-mapping of toy life cycles and the human practices that surround them.

This mapping showed that used toys in good condition are often not directly disposed of by parents but retired, stored and incrementally gifted to friends or family, or donated to second-hand or charity stores when the child has outgrown them. While these practices do stall the path to disposal, many of these toys then remain unsold or unused – to eventually end up in landfill. Retired toys often accumulate in the home until the child outgrows the perception of needing them or when parents determine they have no residual value. These realisations are very often arrived at in moments of domestic change, such as spring cleaning or moving house, at which point the toys are discarded in bulk (Alix, & Zacharewicz 2012). The period between when children stop playing with their toys and when they are disposed of was identified as a key period of vulnerability in this path and is referred to in this paper as "The Waiting Zone" – a period that offers a prime opportunity to intervene through the design of new object-user relations.

Object-user Relations and the Transference of Value

Like many personal objects, toys are discarded once their perceived value is lost, their excitement factor wanes, they are replaced, or when their original play patterns are outgrown. This point offers an opening for design to intervene and enable a transference of value to extend the lifespan of otherwise unwanted objects: where the toy object can be re-cast in a vygotskian (Edwards, 2011) manner as a key subject of multiple activities, beyond simple notions of servicing the needs of childhood play, to being a key actor in a particular set of transgenerational, developmental, consumptive and obligation generating activities. Centred on notions of repair and re-use, there are many adult-centred creative communities that utilise children's toys such as dolls, action figures, trains and cars, and indeed all manner of mass-manufactured products to build new values (Gobert, Allais & Deroubaix, 2019). Adult hobbyists collect second-hand toys, often with damaged or missing parts, and transform them into detailed works of art. This process is therapeutic for some, and for others, gratification comes from outcomes fitting into a larger narrative (Graham, 2007) and the social worlds to which such practices provide access. Known as "modding", these practices have the potential to create intense bonds between object and user as they become a creator of new and valued objects. In product modding communities, new object-user relationships often develop through shared experiences and social narratives (especially when linked to a user's memories of childhood)

where modding constitutes a form of resistance to the dominance of consumerist structures (Mitchell, 2018).

Fig. 2: The physical elements of the Undo-Replay product system: Top Left: The Toy Surgeon's Handbook, Middle Left: The Toy Surgeon's Vice, Top Right, Middle Right and Bottom Left: Undo-Replay (tabletop game).

The gamification of the modification process of toys at the brink of their end of life, in a way that is accessible and engaging for older children, adolescents and adults, pushes these otherwise waste materials into a process of value transformation with radically altered lifespans. To enable this the Undo-Replay project offers a toolkit to deconstruct toys and build new characters and forms to promote a new material, social and environmental consciousness. Working from the precept that construction-style toys, such as Meccano, tend to have long lifespans, the project effectively re-scripts the object-user relations of redundant toys with particularly narrow play narratives (such as action figures) by deconstructing them into parts imbued with new, and perhaps greater, values. Beyond their material affordances, these toy parts serve as components for the construction of new in-game and socially constructed narrative-based play, mediated by the creation of unique "franken-toys" and stories to accompany them.

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Deconstructing old toys (in order to make new and meaningful things) requires the development of new and transgressive play-skills (Møller, 2015) which similarly bring new values. Harvesting toy parts in this way opens the door for children and adults to develop new pro-environmental values of care, repair and repurposing. Undo-Replay introduces children to the activities of adult toy hobbyist communities in a way that is accessible and approachable through a series of elements including "The Toy Surgeon's Handbook",

"The Toy Surgeon's Vice", "The Toy Surgeon Society" Instagram profile, and "Undo-Replay" – a tabletop game [fig. 2]. These elements present a variety of activities that are designed to appeal to children with different interests and skillsets, for both solo and social play contexts [fig. 3].

UNDO-REPLAY

Product Service System Map

Solo Play

"Waiting Zone" toys enter the system as they reach their end of use lives.

The Toy Surgeon's Handbook teaches users deconstruction and modification techniques.

The Toy Surgeon's Vice aids users with deconstruction and safety.

Deconstructed toys are used for both solo and social play systems.

The Toy Surgeon Society Instagram platform transitions users into self-directed participation in the hobby.

Social Play

Undo-Replay utilises remaining unwanted toy parts, user-made creations and scrap material in a tabletop game. Designed to inspire creative thinking and hands-on making for a broader audience, the game uses narrative based prompts to create a sentimental social play experience.

Fig. 3: The Undo-Replay PSS theoretically banks all toy parts in the home with a reassigned value, and thrifting or "rescuing" second-hand toys is encouraged by the community as an affordable and accessible way to get toy parts.

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Creating Toy Surgeons and Agents for Waste Recovery

The Toy Surgeon's Handbook [fig. 4] is a pocketbook that guides users through basic toy deconstruction and modification practises. The book is aimed at children aged 10+ whose toys are in, or approaching, The Waiting Zone. As the design project developed, conversations with experts in the field of toy modding and miniature hobbies (from action figure modders to miniature train collectors) were conducted to delve deeper into the practice and motivations behind the modification of toys and found objects. Given the toy modding community is significantly dispersed across various subcultures and toy categories, we identified that a lack of compiled resources makes it difficult for newcomers to easily engage. This led to a participatory approach to the design of the Undo-Replay prompt cards, game structure, and Handbook.

Fig. 4: A spread in *The Toy Surgeon's Handbook* covering types of hinge joints commonly seen in figure-based toys.

Detailed explorations of online modding forums and tutorials showed that most toy modification techniques could be performed exclusively using common household items, with the only specialised tool recommended for beginners being the Toy Surgeon's Vice designed for the safe

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deconstruction of plastic toys. Engaging in the Undo-Replay process entails toys being deconstructed by users at home following tutorials listed in The Toy Surgeon's Handbook. Dismembered parts are then used as pieces for the tabletop game Undo-Replay, where players are prompted to create characters and build narratives based on their creations [fig. 5]. While the gameplay for Undo-Replay aims to encourage children to experiment and build social narratives, it has limitations in terms of creating high-value object outputs due to its timed nature. The Toy Surgeon Society Instagram profile [fig. 6] fills this gap and provides a communal platform for toy hobbyists of different niches and abilities to come together and find inspiration, share resources, and develop strong sentimental bonds to the craft itself.

Fig. 5: One of the creations from a test-run of the Undo-Replay gameplay: a participant's response to the challenge "Make the most annoying character".

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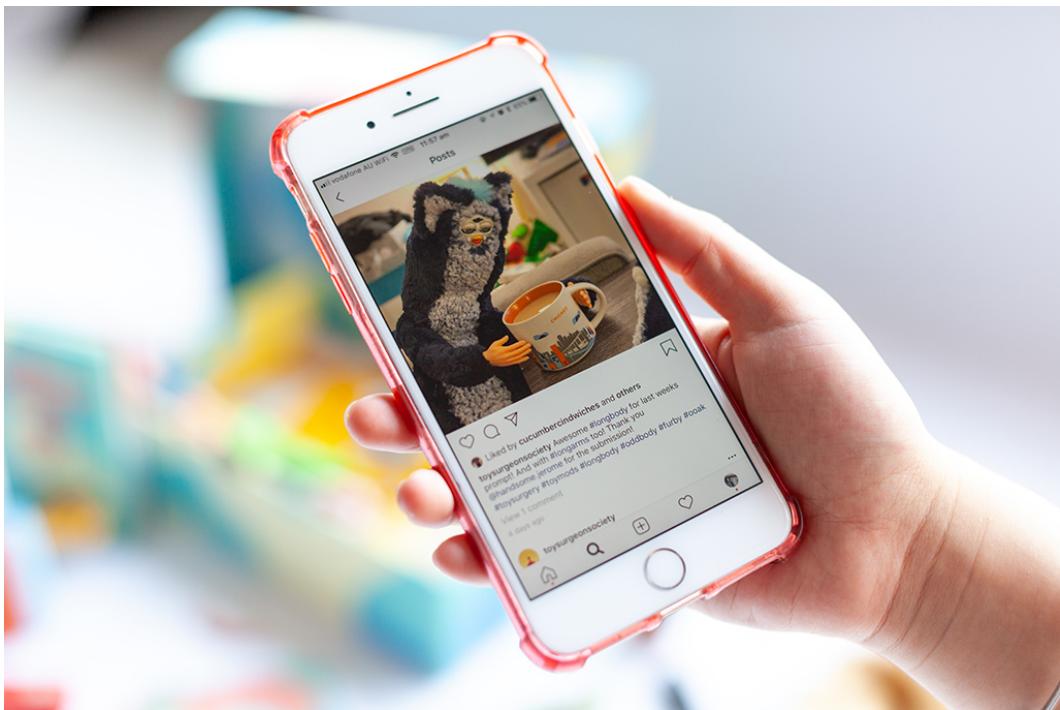
Fig. 6: A post by *The Toy Surgeon* Society Instagram profile, promoting work by other creators across toy and miniature hobbyist communities that respond to a weekly prompt released by the account.

Evaluation of the Undo-Replay product system involved many iterations of collaborative workshop and user testing with groups varying in age from six to sixty. Due to its interactive nature, the workshop structure proved an effective tool for both testing and co-designing the Undo-Replay gameplay. All participants, regardless of age, found the game engaging, enjoyable and simple to learn. Some older participants initially expressed hesitation in their ability to get involved in the game, but later shared that their concerns diminished as they played each round. A similar phenomenon was observed with participants who had limited English skills and participants younger than the targeted age demographic. The combination of character and narrative-building prompts saw adults actively engage in a form of play that is typically outgrown by adolescence. Participants also stated that some loss was felt when discarding characters between rounds, showing an increase in sentimental attachment after only a short period of interaction with the structure.

The efficacy of the Toy Surgeon's Handbook in facilitating guidance for solo play was also evaluated via workshops and user-testing throughout the design and refinement process. Participants were observed to immediately explore constructive play after learning disassembly techniques, and remained engaged with the activity for over three hours with minimal assistance. Long term sentimental bonds between toys and "surgeons" are expected to develop as users explore the hobby, mimicking the behavioural patterns of existing adult toy collectors and hobbyists.

The significance of the impact that the Undo-Replay PSS has on the environment is directly related to levels of user engagement. In this way, a widespread and continual activation of the system appears crucial. As a largely user-run, explorative practice, limitations as to what can be created with these waste materials only exist until new opportunities are found and shared. As the number of users discovering the hobby increases, so too will the volume of accessible information, resources and awareness of the practice. The Toy Surgeon Society Instagram profile aims to be the first of many high-traffic and scalable platforms dedicated to this new hobby, providing for the sharing of such content through various interactive and passive forums, in multiple languages.

While not an explicit aim, testing the design proposition through a workshop format revealed it to be well-suited to an interactive public event, where participants learn to safely deconstruct their toys, or play the

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constructive Undo-Replay game. Such an event was recently run for Melbourne Design Week 2020 [fig. 7], where the game structure again proved to be engaging for all participants regardless of age or creative skill. As a platform for outreach, the project offers toy hobbyists a structure to run public workshops and presentations that extend participants to niche realms of toy modification while simultaneously encouraging the hobby as a means of critical engagement with the un-sustainability of conventional toy consumption.

Fig. 7: One of the creations from the public workshop "Plastic Surgery", run for Melbourne Design Week 2020. A participant's response to "make the best climber". Other participants' responses can be seen in the background.

Conclusions

There are many opportunities for design to tackle issues of sustainability beyond the material, by interrogating object-user relations and approaching the task of design in a particular material-semiotic manner (Fennessy, 2016). Service design methods provide a valuable means of "seeing" opportunities for change in complex socio-technical and relational

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systems, but in undertaking the project the authors realise the centrality of the material, practical and social attributes critical to effective service thinking for design. This paper describes a project of unsettling object-user relations to transfer the value of waste toys and to build new capabilities and cultures of repair and re-making that are critical for a transition towards sustainability. As intricately fabricated as many plastic toys now are, the project co-opts them into the service of sustainable behaviour change without the need for any energy-intensive processes. In this way, the project recalls the earliest forms of toy design and production: children making their own toys from things collected in nature and repurposed waste or objects at home as a socially-defined creative practice.

In making value transference into a social and playful process, the project creates a direct shift in perspective: toys that previously held value only in their complete and undamaged condition become more valuable as collections of parts – as meaning-rich components that enable customised high-value re-creation and facilitate social experience. The project transforms users into creators through transgressive acts of repair and alteration that both strengthens sentimental bonds to objects, and encourages people to find new value in unwanted and broken objects. Such a transference of value comes to function as a tangible pro-environmental, social and material practice that consciously re-positions users in control – and where the activity of repair and re-making is at once practical, pedagogical and political. Undo-Replay uses principles of gamification to achieve this kind of capacity development, solidifying object-user relationships through creating meaningful social experiences with creative and competitive rewards. By giving privilege to notions of repair, creation, risk, resourcefulness and thrift, the project offers an example of how individual agency toward sustainable change can be scripted through design – and how design can be recast in the service of sustainable redirection.

Acknowledgement

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References

Afshar, M. (2014). Understanding Possession Attachment in the Era of The Internet of Things: A Comparative Analysis of the Nature, Motivation and Strength of Attachment to Material Objects Versus Meta Objects. Retrieved June 15, 2019, from https://pdfs.semanticscholar.org/dbcb/c0e952ee37d3455062079674ea249d0e9da1.pdf

Alix, T. & Zacharewicz, G. (2012). G-DEVS based simulation of toy industry client behavior in PSS (WIP). TMS/DEVS 12(24)

Clark, E. (2007). The real toy story (1st ed.). Great Britain: Black Swan.

Cross, G. (2001). Kids' Stuff (2nd ed.). Cambridge: Harvard University.

Edwards, A. (2011). Cultural Historical Activity Theory, British Educational Research Association online resource. Retrieved April 15, 2019, from https://www.bera.ac.uk/wp-content/uploads/2014/03/Cultural-Historical-Activity-Theory-CHAT.pdf?noredirect=1

Fennessy, L. (2016). All Together and at Once the Practice: Towards a Pedagogy of Implication for Australian Industrial Design/ Doctoral Thesis. RMIT, School of Architecture and Design

Fry, T. (1999). A new design philosophy: an introduction to defuturing. UNSW Press.

Fry, T. (2003). Televisual Designing: Defuturing and Sustainment. Design Philosophy Papers, 1(3), 111-118.

García, A. I., Martínez, A., & Reche, A. S. (2018, March 20). Biodegradable Materials In The Toy Sector. Retrieved March 15, 2019, from https://knowledge.ulprospector.com/1361/pe-bioplastic-materials-toys/

Gobert, J., Allais, R., & Deroubaix, J. F. (2019, October). Repair and reuse initiatives: which interactions between stakeholders. Retrieved from https://hal-enpc.archives-ouvertes.fr/hal-02329857

Graham, M. (2007). Action Figure Modders Aren't Just Toying Around. Wired. Retrieved from https://www.wired.com/2007/08/action-figure-modders-arent-just-toying-around/

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Holloway, D., & Green, L. (2016). The Internet of toys. Communication Research and Practice, 2(4), 506-519.

Lamontagne, N. D. (2018). 'Tis the Season for More Earth-Friendly Plastic Toys: Sustainability is a rising concern for consumers and toymakers alike. Plastics Engineering, 74(10), 32-37.

Li, F. (2016). Research on Application of Children's Behavior Pattern in Toy Design. ICADCE, 552-554. https://doi.org/icadce-16.2016.128

Mannix, L. (2018, March 02). Watchdog whacks Woolies for allegedly false biodegradability claims. Retrieved March 22, 2019, from https://www.smh.com.au/national/watchdog-whacks-woolies-for-allegedly-false-biodegradability-claims-20180302-p4z2h5.html

Mitchell, S. (2018). Narratives of Resistance and Repair in Consumer Society. Third Text, 32(1), 55-67.

Møller, S. J. (2015). Imagination, Playfulness, and Creativity in Children's Play with Different Toys. American Journal of Play, 7(3).

Toys Zero Waste Box. (2019). Retrieved from https://www.terracycle.com/en-AU/zero_waste_boxes/toys

UNEP. (2014). Valuing Plastics: The Business Case for Measuring, Managing and Disclosing Plastic Use in the Consumer Goods Industry. UNEP.

Wallon, H. (1981). A evolução psicológica da criança' [in Portuguese- The Psychology of the Child], Lisboa: Edições 70,144.

Embedding transparency on digital services: A case study of the food sector

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Abstract

Transparency is one of the principles to promote sustainable provision of services, being the ability of a service to communicate social, environmental and economic practices and performance. Digital technologies are continuously expanding the possibilities to increase the level of transparency across all stakeholders associated with service profession. However, while transparency has been pointed to as a key priority in innovation agendas in various sectors, there is still lack of knowledge on its practical implications for service design. The food sector is one of the most critical in terms of addressing transparency, due to the global need for transformations in food production and consumption systems, in order to become more inclusive, sustainable and healthy. This research conducted ex-post-facto case studies, followed by an Action Design Research carried out within a small company of organic food delivery. The paper presents the outline of a framework to diagnose the state of transparency on a service that can also be used on the creative phase of the Service Design process.

Keywords: transparency, digital services, food sector, sustainability

Introduction

The term transparency may have a different meaning depending on the context, being applied in many areas such as business management, marketing, production management, law and government, among others (Schiefer & Deiters, 2013). In general, for organizations to be more transparent, it implies greater communication and information openness, requiring accountability. As organizations become more transparent, they will also become more reliable and accountable (Rawlins, 2008).

According to the World Economic Forum (2018), fostering transparency and trust is key to creating responsible models of consumption for the benefit of business and society. It is an emerging theme with opportunities to address more significant contributions from research on the integration of transparency in digital services for business facing increasing demand from consumers for greater control, understanding and participation in decision making and the evaluation of practices associated with the service delivery (Wognum et al., 2011; Schiefer et al., 2014; Ostrom et al., 2015; World Economic Forum, 2018).

The food sector is at the forefront of the global efforts to enhance transparency (Tapio et al., 2016). In part, theses efforts have been pushed by scandals related to animal maltreatment, toxin contamination, pesticides, fraud, among others. Such events have contributed to enhance concerns among consumers regarding food quality and safety and, consequently, rising awareness about the impact of production practices on communities and on the environment (Wognum et al., 2011).

The design community has already formed a field of study called Food Design, which proposes to apply knowledge, methods and strategies to improve our relationship with food (Latin American Food Design Network, 2017). Yet, despite such efforts, the available knowledge regarding the heuristics, tools and methods associated with the use of transparency on the Design of Services directed towards the food sector, is still rather absent. There is clearly a great amount of tacit knowledge among practitioners but the emerging digital technologies are providing affordances for transparency that are yet to be explored.

Reflections on the theme points to the research opportunity of exploring more user-centered approaches for enhancing transparency on digital food services, which does require the development of heuristics and tools that support the role of Designers. In this paper the authors report and investigation on the theme carried out via ex-post-facto case studies

followed by and Action Design Research applied on a local organic food delivery company. The objective was to contribute to the practice of Service Design with a framework to diagnose the state of transparency on a service that can also be used on the creative phase of the Service Design process.

Digital services

The everyday activities and routines such as food shopping, urban mobility, entertainment, education and medical treatment, are all being strongly influenced by new technologies, especially the digital ones (Celaschi, 2017; Penin, 2017). Indeed, in the food sector, for instance, there is already an intense use of Food Sensors, Internet of Things (IoT), Mobile Applications and Internet Connectivity Platforms, Big Data, Advanced Analytics, Artificial Intelligence and Blockchain as well as other emerging digital technologies (World Economic Forum, 2018).

Digital innovations can help transform global food systems, shaping consumer diets, consumption behaviors and promoting value-chain linkages and stimulate further collaboration among stakeholders (Celaschi, 2017; World Economic Forum, 2018). In such context, Service Design can play a fundamental role because, despite technological evolution, the relational social aspects and the integration of so many different touchpoints into a coherent experience, requires the competencies of Designers to develop meaningful innovations (Verganti, 2008; Penin, 2017).

The term *digital enabled services* has been used to refer to all services based on information and communication technologies, where the degree of digital dependency may vary according to technology, market and business adoption (Penin, 2017). There is an array of possibilities for those involved in designing services in this emerging context. In this respect Hartwig & Billert (2018) have proposed a service typology, where services are categorized according to the interaction between service provider and the customer and, also, the use of information technology and communication (ICT). Conventional services are characterized by a physical interaction between the service provider and customer (person-to-person), e.g., financial advice provided on the branch of a Bank. In contrast, a digital service can be characterized by a direct customer interaction with the service through digital touchpoints. In this case, the

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digital touchpoint (typically a website or mobile app) acts as a mediator for the service delivery, e.g., online banking and online shopping.

Digital service touchpoints and channels not only influence customer perceptions of a company's value propositions but, in the case of digital services, is the main channel to influence the meanings that consumers depict throughout their journey (Bitner & Wang, 2014; Vorhees et al., 2017; Penin, 2017). Design can strongly influence individual and group behavior in ways that restrict or support customer and employee service experience, which is a direct opportunity to promote more sustainable patterns of consumption and production.

The study reported on this paper focuses on the digital services applied on the food sector. Besides of the lack of research on the theme on the literature, the motivation also came from the fact that digital services in the Brazilian food sector were still scarce at the time of the research. The situation was in contrast with the global landscape in which services are delivered and experienced, where profound changes have derived from digitalization (Ostrom et al., 2015).

Transparency in the food sector

Transparency in the food sector can be defined as the ability of a product, service or process to communicate relevant and accurate information about food safety, quality and integrity, as well as social, environmental and economic practices and performance required to deliver it (Wognum et al., 2011; Schiefer & Deiters, 2013). Besides the aspect of information visibility, from a controlling perspective, food transparency can also have a pro-active role on developing awareness and competences about sustainability, both on the customer as well as on the stakeholders.

The most common approaches to improve transparency for the customers in the food sector, focuses on the communication about product technical attributes in a more business-driven perspective, following the requirements imposed by regulations (Wognum et al., 2011; Schiefer & Deiters, 2013). It can also be observed with the use of certification logos and product labelling. However, although these conventional approaches are replicable in digital contexts, the emerging digital technologies have open new opportunities for more efficient and effective transparency (World Economic Forum, 2018). It allows, for instance, customization of transparency according to the customer needs and, with technologies

such as Blockchain, a service provide highly reliable information in real time to all stakeholders. Indeed, digital information can be captured from different sources and stages, processed, delivered and used from and for different stakeholders. Indeed, digital information can be captured from different sources and stages, processed, delivered and used from and for different stakeholders, with an unprecedented level of interactivity and accuracy.

Method

The study adopted a systematic and non-systematic literature review on the theme, in order to build up a theoretical framework. One of the focus was on previous studies that have investigated service transparency in the food sector. Subsequently, the research involved the investigation of a set of ex-post-facto (or after-the-fact) case studies (Yin, 2001). The selection of the cases considered solutions based on emerging digital technologies, typically from food tech companies. The selection criteria also considered the selection of companies with at least 2 years of existence and, also, services that attempt to influence consumption decisions in the direction of a healthier and/or more sustainable choice.

Finally, in order to conceive and test a proposition of a framework for assessing transparency on digital services, the research included an Action Design Research, conducted in partnership with a local organic food delivery company. This Action Design Research did involve the use of digital ethnography with customers of the partner company, in order to understand their consumption behaviors, perceptions and, very importantly, their expectations regarding food transparency.

Participants were recruited based on socio-demographic characteristics and food consumption styles patterns that, were described using three persona profiles: a) Conventional Consumers, whose food choices are driven by convenience and price; b) Health Consumers who prioritize health care in food consumption and c) Sustainable Conscious Consumers whose food attitudes towards sustainable consumption. The field work involved a total of six participants.

The assessment of the level of transparency of the existing service as well as the development of new propositions, was carried out through co-creation workshops with the company directors. That included a discussion about the strategic implications of enhance transparency on the

digital service of the partner company. The main result of this experience is a framework for assessing / creating service transparency, combing the literature review, the empirical research findings obtained on the ex-post-facto cases and the proposition tested on the Action Design Research phase.

Key research findings

The literature review pointed to five categories of transparency practices. Despite being predominantly product-oriented, the authors concluded that these categories could be extended to a service perspective: a) environmental; b) social and ethical; c) production process; d) information handling and e) consumer education.

Critical analysis of the ex-post-facto cases allowed the identification of eight categories of solutions, grouped according to four clusters, as shown in Table 1.

Name	Description	Key transparency practices
Farm to table food delivery		
CASE01 UK	Online commerce grocery with a focus on ethically sourced food from local producers. - Powered by Data Analytics	- Easy to know the people behind the food and trusted suppliers - Customers can visit the producers - Click to harvest and follow the food - Recipes to help on how to cook - Rich content about sustainable practices
CASE02 Brazil	Online commerce platform as a service for community gardening - Powered by Data Analytics	- Customers can visit the plantations - Customers can choose what to grow - Customers can share and sell produced food - Online monitoring of the growing food
Food supply chain traceability		
CASE03 USA	General mobile app that provides insights based on food labels from different brands. - Powered by Blockchain, Data Analytics and Big Data	- Easy and instantaneous access to food attributes information - Comprehensive view and insights on ingredients, allergens, additives and claims - Information on how products are produced and how ingredients are sourced
CASE04 France	Mobile app owned by a supermarket chain that provides product label-based data, - Powered by Blockchain, Data Analytics and Big Data	- Easy and instantaneous access to information - Information on how products are produced and how ingredients are sourced - Information about key dates (eg.: when food was harvested or packed)

Healthy eating (nutrition and meals)		
CASE05 USA	Mobile app that offers personalized nutrition solutions based on user's self-reported data. - Powered by Artificial Intelligence, Data Analytics and Big Data	- Personalized health indicators - Personalized food shopping recommendations based on dietary plan - Health coach with insights, goal setting and accountability in a gamified way - Recipes to help on how to cook - Rich content about health practices
CASE06 Brazil	Online subscription meal kit delivery allowing users to cook their own. - Powered by Data Analytics and Big Data	- Meal preferences setup and customization - Chef-dietitian-approved meals by third parties - Certified organic handler and all organic ingredients clearly labeled on delivery - Easy to know people behind the food and trusted suppliers - Rich content about sustainable practices - Recipes to help on how to cook
Farming as a service		
CASE07 German	In-store farms, that provide individual modules that grow herbs, lettuce, fruits and all types of vegetables. - Powered by Data Analytics, Big Data and IoT	- Placed in restaurants, grocery stores, where customers can directly see the production - Employees visit in-store farms twice a week to harvest mature plants and seed new ones - Customers have access to the plants at their freshest points, still alive with their roots - Introduce more varieties of plants
CASE08 German	Smart compact vertical farming system for home. - Powered by Data Analytics, Big Data and IoT	- Online assistance and monitoring of the growing food - Easy and instantaneous access to information about the plantation - Introduce to more varieties of plants - Showroom visits to experience before buy

Table 1: Example of transparency practices drawn from the multiple case studies

Combining data from the theory and the practical cases, it was possible to identify the most recurring transparency topics, as well as the least noticeable. The main practices identified are related to transparency about production processes, information handling and consumer education. Transparency regarding information about food through the supply chain, as well as customer's personal and usage information, had the greatest replicability between the cases.

From the ethnographic research, it was possible to identify key insights about the different user needs and perceptions about food consumption and transparency, when referring to the experience with a local service. The user's transparency requirements encompasses: a) information

handling; b) credibility; c) guidance on service activities;
d) personalization; e) relationship with food powered by the service and f) food conscious consumption powered by the service.

The Healthy Consumers, expect that a more transparent service is supposed to enable a level of personalization and empowering the relationship with the food and an interface for personal care. The informational behaviour of the Health and Conscious Consumers, are similar, both are more open to access and interact with more detailed information about food, processes and producers. But the Conscious Consumers needs more information-checking for service credibility and trust.

Service transparency dimensions

Based on a critical review of the literature, on the ex-post-facto cases and on the Action Design Research carried out on a food service provider, a framework for assessing digital service transparency is proposed (Lomba, 2020), structured according to three key dimensions (Figure 1). These dimensions guides service transparency diagnose, interventions on an existing service or, alternatively, to conceive new service concepts focused on a more transparent food service in which it is possible to describe how 'Design for Transparency' could intervene on the food service experience.

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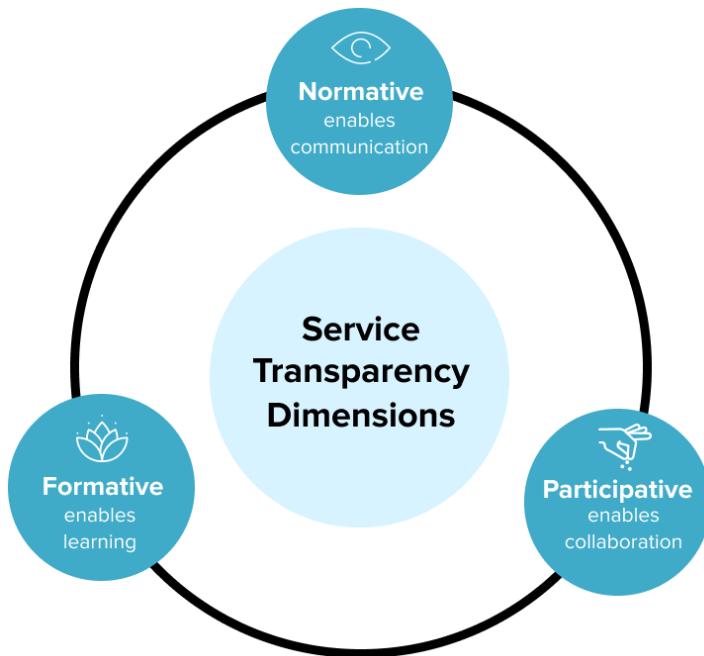
Figure 1: Service Transparency Dimensions

Theses proposed dimensions of service transparency are described below, according to their impact on transparency as well as the implications for the service provider.

Normative transparency

This dimension allows the visualization of data or information required to comply with sector-specific norms and regulations. It is usually the first transparency strategy adopted by organizations. CASE03 and CASE04 approached normative transparency with the use of mobile applications in retail, such as the use of an augmented digital label based on the traceability enabled by blockchain. They offer a larger volume of data regarding food security, quality and integrity to the consumers, like nutritional composition, ingredients, food allergy alerts, food origin, processing methods, environmental, animal and social impacts, etc. Hence, on this dimension services can expand their transparency beyond mandatory information about food attributes, exploring the communication of other elements of the service delivery, such as the activities and stakeholders involved, highlighting information on the practices that contribute to a more sustainable consumption.

Formative transparency

This dimension deals with the empowerment of the customer so that transparency is more effective. It emphasizes the development of competencies (knowledge, skills and attitudes) that will enable accurate interpretation of information and its conversion on better customer's decision making. CASE01 and CASE06 have approached formative transparency with the use of mobile social applications and web content platforms with supported artificial intelligence. Those technologies contributes to develop customers competencies related to healthy eating (eg.: culinary recipes and indications for consumption) and sustainable consumption (eg.: the people behind the food, the selection criteria for organic producers and how the service minimizes the impact on the environment).

Participative transparency

This dimension deals with solutions on transparency that increase the engagement of the customer (as well as all stakeholders involved in the service), allowing a level of transparency in which customers can personalize (for themselves) and contribute (to the community) the continuous improvement of the service experience and its performance in relation to sustainability. In general, participative transparency is the last dimension presented on the investigated studies, including the company involved on the Action Design Research. It is clearly more likely to occur on user-centered services. CASE05 and CASE08 have approached the participative transparency with the use of mobile applications equipped with artificial intelligence, IoT and contextual interactions. The emphasis is on instrumenting engagement of customers by all relevant stakeholders, in all aspects of a service, thus allowing the customer to choose, exchange or sell, evaluate, among others forms of collaboration.

Conclusion

In this paper we highlighted key implications of applying the principle of transparency on digital food services focused on the consumer perspective. It was identified that depending on the organization objective related to transparency, it may be necessary to intervene in the service channels and touchpoints, or even in the reformulation of the service's value proposition. Also, embedding transparency on digital services can contribute to induce customers to adopt more sustainable behaviors,

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reducing the cognitive nearsightedness that often affect customers when making choices about food consumption.

In an age of constant connectivity, companies may enable a more systematic transparency level, across different digital channels and touchpoints, opening space for customer cooperation within the food sector and food infrastructure (Schiefer et al., 2014). However, embracing emergent technologies as building blocks for the future of food requires careful reflection since an overly technology driven approach carries the risk of creating other problems instead of helping customers (Celaschi, 2017). On the other hand, these technologies can enable an expanded perspective on transparency and its role for sustainability, with the possibility of a non-antrophocentric scope of information provided to the customer.

The authors understand that the proposed Service Transparency Dimensions are the building blocks for a framework to enable the implementation on Service Design. The heuristics associated with this framework are already known and will be the subject of future publications.

References

Bitner, M. J., & Wang, H. S. (2014). Service encounters in service marketing research. In Handbook of Service Marketing Research. Edward Elgar Publishing Ltd.

Celaschi, F. (2017). Advanced design-driven approaches for an Industry 4.0 framework: The human-centred dimension of the digital industrial revolution. Strategic Design Research Journal, 10(2), 97-104.

Hartwig, K. & Billert, M. S. (2018). Measuring Service Quality: A Systematic Literature Review. In: European Conference on Information Systems (ECIS). Portsmouth, UK.

Latin American Food Design Network (2017). Organic Charter. Buenos Aires, Argentina. Retrieved from https://www.lafooddesign.org.

Lomba, M. N. (2020). Modelo para Diagnóstico da Transparência em Serviços Digitais para o Consumo mais Sustentável de Alimentos (A Framework for Diagnosing Transparency in Digital Services for Sustainable Food Consumption). Master's Dissertation. Curitiba: Federal University of Paraná.

Marcella Lomba, Aguinaldo dos Santos
Embedding Transparency on Digital Services: a Case Study of the Food Sector
Linköping University Electronic Press

187

Ostrom, A., Parasuraman, A., Bowen, D., Patrício, L. & Voss, C. (2015). Service Research Priorities in a Rapidly Changing Context. Journal of Service Research, 18 (2), 127–159.

Penin, L. (2017). An Introduction to Service Design: Designing the Invisible. London: Bloomsbury Publishing.

Rawlins, B. (2008). Measuring the relationship between organizational transparency and employee trust. The Public Relations Journal, 2 (2).

Schiefer, G. & Deiters, J. (2013). Strategic Research Agenda on Transparency in the Food Chain Towards 2020. International Center for Food Chain and Network Research. Bonn: Universität Bonn-ILB Press.

Schiefer, G., Reiche, R. & Deiters, J. (2014). Transparency in Food Networks - Where to Go. International Journal on Food System Dynamics, 4(4), 283–293.

Tapio, P., Saarimaa, R. & Vinnari, M. (2016). Editorial: Futures for food. Journal of Futures, 83, 1–3.

Verganti, R. (2008). Design, meanings and radical innovation: a meta-model and a research agenda. Journal of Product Innovation Management, 25(5), 436-456.

Voorhees, C., Fombelle, P., Gregoire, Y., Bone, S., Gustafsson, A., Sousa, R. & Walkowia, T. (2017). Service encounters, experiences and the customer journey: defining the field and call to expand our lens. Journal of Business Research, 79(1), 269-280.

Wognum N., Bremmers H., Trienekens J.., Van der Vorst, J. & Bloemhof J. (2011). Systems for sustainability and transparency of food supply chains - Current status and challenges. Journal of Advanced Engineering Informatics, 25(1), 65–76.

World Economic Forum (2018). Innovation with a Purpose: The role of technology innovation in accelerating food systems transformation. Retrieved from https://www.weforum.org/reports/innovation-with-a-purpose-improving-traceability-in-food-value-chains-through-technology-innovations.

World Economic Forum (2018). Operating Models for the Future of Consumption: Shaping the Future of Consumption. Retrieved from

Marcella Lomba, Aguinaldo dos Santos
Embedding Transparency on Digital Services: a Case Study of the Food Sector
Linköping University Electronic Press

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https://intelligence.weforum.org/topics/a1Gb00000038oKCEAY?tab=
publications.

Yin, R. K. (2001). Case Study: Planning and Methods. Porto Alegre:
Bookman.

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Abstract

Digitalization is a strong enabler to increase the productivity of existing
services and develop innovative services. Meanwhile, the ethical and
societal concerns about the negative impact of digital technologies are
also growing. In addition to the principles and guidelines for development
and use of digital technologies, there is a need for a design methodology
to integrate them in services in a harmonized manner.

In this study, we suggest a conceptual design framework for digital
technology assisted service systems (DSS). This framework is based on
several theoretical foundations including service system design, scenario
design, value sensitive design and institutional theory. Our framework
illustrates DSS with four layers (value, actor, digital and institution) and its
transition in order to clarify required design elements for socially-conscious
development and integration of digital technologies.

Keywords: digitalization, service system design, social and ethical concern

Introduction

Digitalization has become a global phenomenon. Recent digital technologies such as Internet of Things (IoT), bigdata analysis and social robotics are becoming more applicable to various types of services compared to traditional ICT. There have already been a number of application cases of digital technologies in the field of mobility, healthcare, tourism and hospitality services. They are expected to increase service productivity and create new types of services.

Meanwhile, the ethical and societal concerns about the application of digital technologies are also growing (Winfield & Jirotka, 2018). Issues such as human autonomy, privacy and bias are being discussed by policy makers, nonprofit organizations (NPOs) and scholars from multiple perspectives such as technology ethics, sociology, psychology and informatics. Various principles and guidelines for the development and use of digital technologies, especially machine-learning based Artificial Intelligence (AI), big data and social robots are proposed (Whittlestone et al., 2019).

Compared to the aforementioned research communities, there are fewer discussions from design research on this matter. While general principles and guidelines regulating the development and use of digital technologies are important, these technologies need to be embodied in a specific context, which requires a methodological investigation on how to harmonize digital technologies in the context (Morley et al., 2019). In particular, the impact of digital technologies can reach multiple stakeholders. The multi-actor consideration is an issue which is often addressed in the research on service system design (Spohrer & Kwan, 2009). Some researchers of service science and service system design have already discussed how to implement digital technologies in service systems (Medina-Borja, 2015; Pekkala & Spohrer, 2019). However, the consideration of social and ethical impact of digital technologies therein is still an emerging issue.

In this study, we propose a conceptual framework for designing digital technology-assisted service system (DSS) in a socially-conscious manner. This framework includes four layers, specifically focusing on the wide and long-term impact of digital technologies implemented in a service system.

In the next section, we overview the discussion on the social impact of digital technologies. Then we illustrate the research challenges in DSS design and theoretical foundation to tackle them. Based on this, we propose a framework and discuss its potential for future study.

Social and Ethical Concerns toward Digital Technology

Rapidly evolving digital technologies, especially machine learning-based AI and social robotics, are attracting more attention about its potential usages and threats. Filter bubbles (Pariser, 2011) and data biases in machine learning are concrete examples of concerned issues in Internet services. The malicious use of robots, such as killer robots is another example. AI ethicists specifically warn about the threat of autonomous intelligent agents, which might become harmful beyond the human control (Dignum, 2017).

In response to the growing needs for actions toward evolving technologies, active discussion is being conducted about how to guide and regulate the development and use of such technologies. Various types of principles and guidelines for development and use of digital technologies have already been proposed. One of the most famous principles is the Asilomar principles for AI (Future of Life Institute, 2019). National governments, international organizations like UNESCO, NGOs and academic societies such as IEEE and JSAI have already announced their own principles and guidelines. In addition to the aforementioned principles, concrete methods and mechanisms for regulation and governance are also being proposed. For example, the check list to clarify the trustworthiness of AI services has been proposed (Arnold et al., 2019). A third party certification to verify the trustworthiness is another idea being considered (Davenport, 2018). Several policies for the social implementation of digital technologies have also been discussed (Winfield & Jirotka, 2018).

Design Challenge and Theoretical Foundation

When we consider actual development and integration of digital technologies, most of the discussion about AI principles is highly conceptual (Whittlestone et al. 2019), and rarely takes care of actual situations of technology use. While we consider general principles and

guidelines important, it is necessary to investigate how to contextualize digital technologies in an actual use setting. We consider that this is an issue worth tackling in the field of design research.

Several scholars on service systems (Watanabe & Mochimaru, 2017; Barile et al., 2019) emphasize a human-centered view in the design of digital technology, the role of which is assistive for value creation among actors, irrespective of whether the technology is autonomous or not. Based on the concept of technology-assisted service system (Watanabe & Mochimaru, 2017), we study a design methodology of digital technology-assisted service system (DSS) (Watanabe et al., 2020). In order to better understand the positive and negative impacts of introducing digital technologies to the service system, DSS contains four aspects to be considered in design, which are: 1) multi-actor interaction; 2) diverse value; 3) long-term influence and 4) institutional difference as shown in Figure 1. Below, we introduce corresponding theoretical foundations to tackle these ideas.

1) Multi-actor interaction

Unlike the traditional Human-Computer Interaction, the impact of current digital technology is not limited to dyadic relations. The interactions with technology occur among multiple actors, directly with physical interactions or indirectly through data transactions. Therefore, multi-actor perspective is a key. The concept of service system, in which multiple stakeholders interact to create value is a suitable framework to capture the role of digital technology in multi-stakeholder interactions (Spohrer & Kwan, 2009; Watanabe & Mochimaru, 2017). The development and use of digital technologies is also an important topic in service system design as emphasized in the research on smart service systems (Medina-Borja, 2015) and concrete design methods have been also proposed (Pekkala & Spohrer, 2019). This can be an effective approach to illustrate the adequate role of digital technology among stakeholders.

2) Diverse values

The social impact of digital technologies has not been widely discussed in the existing service system design research. However, concerning the assessment of service systems, there have been several methods. For example, Shimomura et al. (2003) proposed a modelling scheme to

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represent the influence of services with parameters of the service receiver's state. Using this method, diverse influences of multiple actors are represented, though it does not focus on digital technologies and their impacts. In the innovation research, multi-actor, multi-criteria framework is effective for multi-faceted assessment of service systems (Hyytinen, 2017). However, this has not been directly connected to design processes. The other relevant study is Value Sensitive Design (VSD) (Friedman et al., 2013). This approach focuses on stakeholders' values, especially social values in ICT design. This approach is considered as an effective approach in the research on AI and ethics (Stahl & Wright, 2018). This will also be the basis of this study.
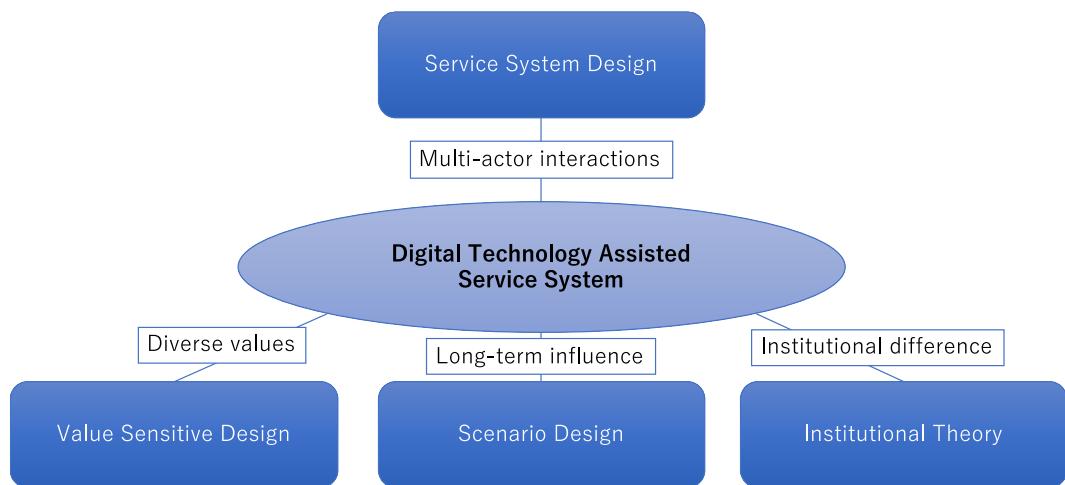
Figure 1: Theoretical foundations for the design of DSS

3) Long-term influence

Another aspect to be considered is the long-term influence of digital technology and its evolution. Service system evolves through the continuous use and dissemination of digital technology (Watanabe & Mochimaru, 2017), and its impact also changes. The design approach needs to adapt to this evolution process, which has not been tackled by existing studies. Scenario design is a relevant approach to this issue (Kishita et al., 2017). For example, a forecasting approach is effective to understand how digital technology will be accepted in the service system

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of the future. By integrating such an approach, the development and integration of digital technology can be adaptable to the evolution process.

4) Institutional difference

The acceptance of technology and values for actors to be cared about depends on institution including norm, rules, regulation, policy and culture. Institution also affects human behavior. Institutional theory clarifies the features and categorization of institution and its impact in organizational behaviors (Scott, 2013). This has been applied to the service system concept also (Vargo & Lusch, 2011). The existing research exemplifies how the same digital technology is accepted in a different way in other countries (Watanabe & Niemelä, 2019). Institutional difference is an important factor especially when disseminating digital technologies internationally.

Four-Layer Model

In this paper, we propose a four-layer model as a conceptual design framework of DSS. The layers of DSS in Figure 2 include value layer, actor layer, digital layer and institution layer.

1) Value layer

Value layer consists of values for actors. The definition of value here is "what a person or group of people consider important in life" based on VSD research (Friedman et al., 2013).

In this model, social and ethical values are described as comparable with the other types of values, such as functional, psychological and financial values. This does not mean that social values are trivialized, but rather are considered as a directive element in combination with other values. Both positive and negative values are represented in this layer. In the design process, values in the layer are compared to evaluate how the service system affects actors therein. In addition, what kind of values actors have is affected by the institution layer.

2) Actor layer

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Actor layer represents multiple actors interacting with each other. Their interactions are also represented in this layer. The interactions are mostly physical, but financial and emotional transactions are also described. Digital technology is represented in two ways in actor layer. One is to represent it as an independent entity interacting with actors. The other is to represent it as a part of an actor cooperating in DSS. Actors are correlated to values in the value layer, describing the influence of interactions. Actors also belong to a certain institution which influences actors' behavior and their values.

3) Digital layer

Digital layer represents data flow and operation among digital technologies allocated in the actor layer. Digital technology is described as a digital entity corresponding to the actor layer. This entity collects data from actor layer, processes data, transacts with another entity, and triggers actions in the actor layer.

4) Institution layer

Institution layer includes institutions affecting actors and their values. As discussed above, different types of institutions such as normative, regulatory, and cultural institutions are included (Scott, 2013). Institutions in DSS are the underlying factors for actors' behavior and their value. With the exception of some of regulatory institutions such as local rules and policies, institutions act as the presumption for DSS design. However, normative and cultural institutions may also change through the transition of DSS, as discussed later. Therefore, the long-term evolution process of DSS needs to be designed in consideration of changing institutions.

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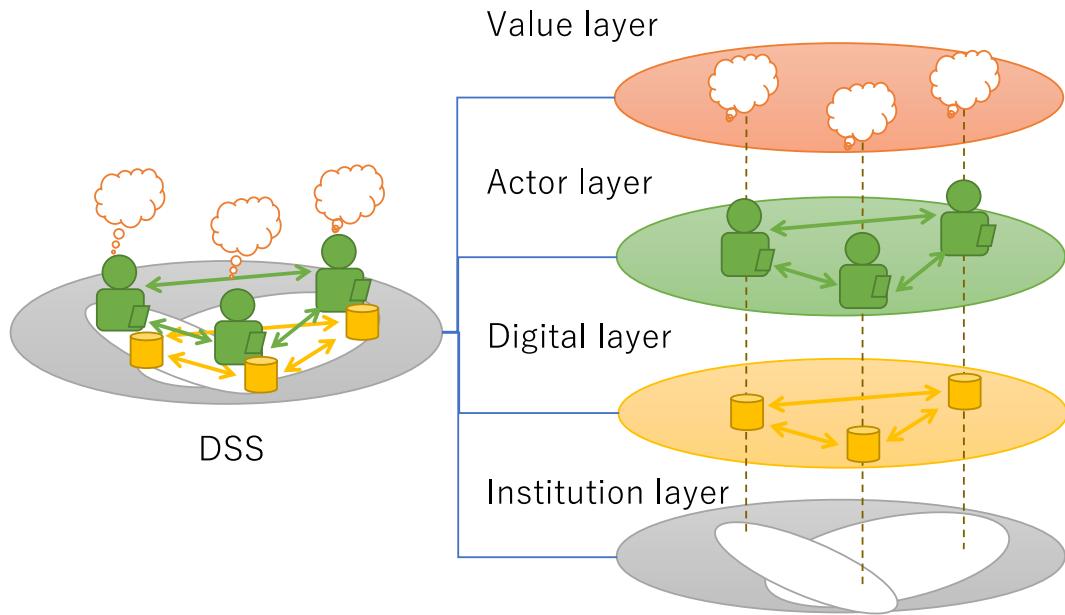
Figure 2: Four-layer model

Layer	Value	Actor	Digital	Institution
Element	Value (functional, social, ethical, financial, psychological, etc.)	Human - Individual - Organization Technology (physical) - Independent - Dependent Interaction - Human-human - Human-technology	Technology (digital) Interaction - Technology-technology (digital)	Institution - Norm - Rule/regulation - Culture/custom/habit

Figure 3: DSS elements in the model

Moreover, when a certain DSS is applied to a different country for example, DSS should be adapted to its local institution. Institution is specifically important for internationalization of DSS (Watanabe & Niemelä, 2019).

Figure 3 shows the structural relations among elements in the four-layer model. Elements are mutually correlated not only within each layer but

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also across layers. How to rearrange correlated elements, especially in alignment with values and institutions, is a fundamental challenge in DSS design. A home-monitoring service using a social robot is a good illustrative example. A social robot brings comfort for its user through affective interactions. However, when implementing a monitoring function, an ethical dilemma among values such as safety and privacy could arise. This also relates to family culture such as the social expectation for children to take care of their older parents. The balance between values needs to be considered, taking such an institution into account, and then the composition of actors and digital devices should be configured.

Transition of DSS

In describing the evolutionary process of DSS, we adopt the concept of 'transition' between DSS models as shown in Figure 4. DSS is dynamic in nature and unintentionally changes. However, our intention is to plan and guide the transition of DSS towards a desirable future by the design approach. Drivers and inhibitors which are derived from the change in DSS affect the transition and its speed. For example, if the value for a certain actor may become worse through the transition, it will be an inhibitor of the transition. Big change in actors' interactions can also become an inhibitor because of actors' status quo bias. Institution is another factor affecting transitions. Based on these factors, the transition process should be designed to increase drivers and decrease inhibitors for a desirable DSS. A scenario design approach will be applicable. For example, a backcasting approach to create future vision will be applicable to design DSS after transition. It is important to develop a transition plan based on the scenario.

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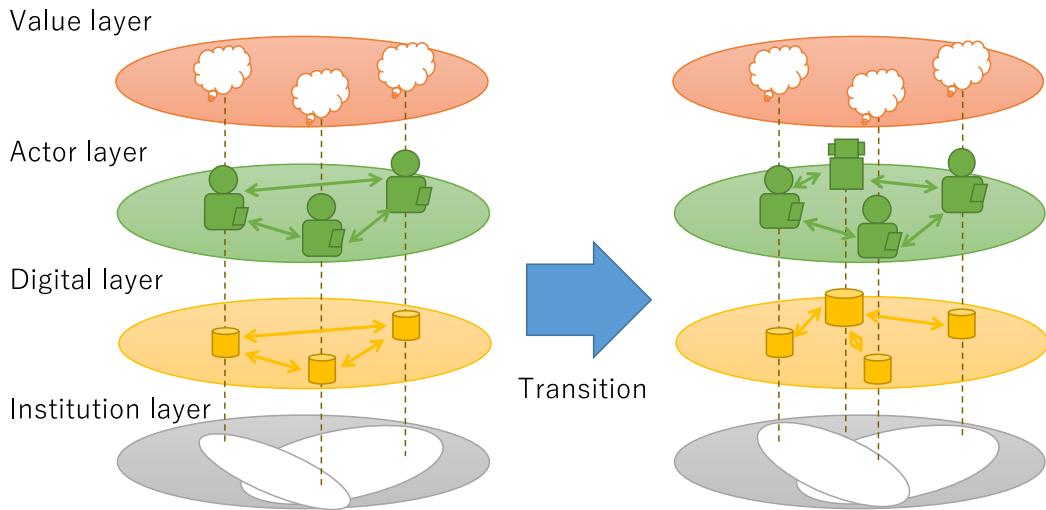
Figure 4: Transition of DSS

Concluding Remarks toward the Design of DSS

In this paper, we proposed a conceptual design framework for DSS aiming at the socially-conscious development and integration of digital technologies for value creation. Considering the characteristics of digital technology and its evolution, we illustrate the features of design for DSS including multi-actor interaction, diverse value, long-term influence and institutional difference. The proposed framework with four layers and transition covers these features based on the corresponding theoretical foundations. This framework provides a basic structure to develop a concrete design methodology for DSS.

Based on the proposed framework, several research topics are being studied (Watanabe et al., 2020). Firstly, a modelling method of DSS is under development. This method represents elements and relations of DSS to analyze and develop it. In addition to the four layers, the transition plan also needs to be formalized. Secondly, the design process is being developed as an iterative process specifically focusing on values of actors. This process should correlate to the modelling method to clarify required information for DSS design. In addition, the design process should be continuously applied to promote the evolution of DSS. Finally, the assessment method should also be concretized based on the proposed framework. Value is an important factor for the assessment of DSS. The

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comparison of DSSs before and after transition will be a basic approach. How to assess the transition process should also be considered.

Acknowledgement

References

Arnold, M., Bellamy, R. K. E., Hind, M., Houde, S., Mehta, S., Mojsilovi´c, A., Nair, R., Natesan Ramamurthy, K., Reimer, D., Olteanu, A., Piorkowski, D.,Tsay, J., & Varshney, K. R. (2019). FactSheets: Increasing Trust in AI Services through Supplier's Declarations of Conformity. IBM Journal of Research and Development, 63(4-5), 6:1 - 6:13.

Barile, S., Piciocchi, P., Bassano, C., Spohrer, J., & Pietronudo, M. C. (2019). Redefining the role of Artificial Intelligence in wiser service systems. In T. Ahram (Ed.). Advances in Intelligent Systems and Computing, 787, Springer.

Davenport, T. H. (2018). Can We Solve AI's 'Trust Problem'? MIT Sloan School Management Review, Winter, 2019.

Dignum, V. (2017, August). Responsible autonomy. Proceedings of the 26th International Joint Conference on Artificial Intelligence, 19-25 August, 2017, Melbourne, Australia, IJCAI, pp. 4698-4704.

Friedman, B., Kahn, P. H., Borning, A., & Huldtgren, A. (2013). Value sensitive design and information systems. In N. Doorn, D. Schuurbiers, I. van de Poel, & M. E. Gorman (Eds.). Early engagement and new technologies: Opening up the laboratory. Philosophy of Engineering and Technology, 16 (pp. 55-95). Springer Dordrecht.

Future of Life Institute, Asilomar AI Principles. https://futureoflife.org/ai-principles/ (last accessed on April 30, 2020).

Hyytinen, K. (2017). Supporting service innovation via evaluation: A future oriented, systemic and multi actor approach. Aalto University

Kentaro Watanabe, Yusuke Kishita, Kaito Tsunetomo
Conceptual design framework for digital technology assisted service system
Linköping University Electronic Press

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Publication Series Doctoral Dissertations, 14, 2017, VTT Science 146.

Kishita, Y., McLellan, B. C., Giurco, D., Aoki, K., Yoshizawa, G., & Handoh, I. C. (2017). Designing backcasting scenarios for resilient energy futures. Technological Forecasting and Social Change, 124, 114‑125.

Medina-Borja, A. (2015). Editorial column−Smart things as service providers: A call for convergence of disciplines to build a research agenda for the service systems of the future. Service Science 7(1), ii‑v.

Morley, J., Floridi, L., Kinsey, L., & Elhalal, A. (2019). From What to How. An Overview of AI Ethics Tools, Methods and Research to Translate Principles into Practices. arXiv preprint. arXiv:1905.06876.

Pariser, E. (2011). The Filter Bubble: What the Internet Is Hiding from You. London: Penguin Press.

Pekkala, D., & Spohrer, J. (2019). Digital Service: Technological Agency in Service Systems. Proceedings of the 52nd Hawaii International Conference on System Sciences, 8-11 January, 2019, Maui, HI.

Scott, W. R. (2013). Institutions and organizations, 4th edition. Thousand Oaks, CA:Sage.

Shimomura, Y. et al. (2003). A proposal for service modeling. Proceedings of the Third International Symposium on Environmentally Conscious Design and Inverse Manufacturing, 8-11 December, 2003. Tokyo, Japan, IEEE, pp. 75–80.

Spohrer, J., & Kwan, S. K. (2009). Service science, management, engineering, and design (SSMED): an emerging discipline—outline and references. International Journal of Information Systems in the Service Sector, 1(3), 1-31.

Stahl, B. C., & Wright, D. (2018). Ethics and Privacy in AI and Big Data: Implementing Responsible Research and Innovation. IEEE Security & Privacy, 16(3), 26-33.

Vargo, S, & Lusch, R. (2011). It's all B2B…and beyond: Toward a systems perspective of the market. Industrial marketing Management, 40, 181-187.

Kentaro Watanabe, Yusuke Kishita, Kaito Tsunetomo
Conceptual design framework for digital technology assisted service system
Linköping University Electronic Press

201

Watanabe, K., & Mochimaru, M. (2017). Expanding Impacts of Technology-Assisted Service Systems Through Generalization: Case Study of the Japanese Service Engineering Research Project. Service Science, 9(3), 250-262.

Watanabe, K., & Niemelä, M. (2019). Aging and Technology in Japan and Finland: Comparative Remarks. In M. Toivonen & E. Saari (Eds.) Human-Centered Digitalization and Services (pp. 155-175), Singapore: Springer Nature.

Watanabe, K., Kishita, Y., Tsunetomo, K., & Takenaka, T. (2020). Socially-Conscious Service System Design in the Digital Era: Research Agenda. Proceedings of the 7th International Conference on Serviceology, 13-15 March, 2020, Osaka, Japan, Singapore: Springer, pp. 266-274.

Whittlestone, J., Nyrup, R., Alexandrova, A., & Cave, S. (2019). The Role and Limits of Principles in AI Ethics: Towards a Focus on Tensions. Proceedings of the 2nd AAAI/ACM Conference on AI Ethics and Society, 27-28 January, 2019, Honolulu, HI.

Winfield, A. F. T., & Jirotka, M. (2018). Ethical governance is essential to building trust in robotics and artificial intelligence systems. Philosophical Transaction 376(20180085).

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Designing for informal services: a participatory approach to prevent sexual violence within a university

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Abstract

Universities, alongside many other public and private organisations, are beginning to grapple with the issue of preventing sexual violence and providing effective services to survivors within their context. This article describes a unique participatory design-research project conducted to better understand staff and student perspectives of sexual violence within a university and how to better design services. One of the key findings of this research was the general distrust of formal services and reliance on informal services provided by both the organisation's staff (employees) and students (users or customers). This provides unique insights into designing services for challenging social issues within an organisation and raises key questions about how service design can better support informal services and the co-production of services by employees and users.

Keywords: informal services, informal networks, co-production of services, value co-creation, preventing sexual violence, university service design.

Introduction

The prevalence of sexual violence including in university settings

The issue of sexual assault and sexual harassment (broadly referred to as sexual violence) has come into the spotlight as a broad societal issue as survivors began to publicly speak out following the #MeToo movement, which was founded in 2006 (Me too, 2019) and gained momentum as a viral campaign in 2017 (Bennett, 2017). Young people, particularly women between the ages of 18 and 24, are at increased risk of experiencing sexual violence within our community (Australian Human Rights Commission, 2017). This means that universities that cater for this cohort play an important role in ensuring safe environments and establishing social norms and practices where sexual violence is not accepted.

In 2016, the Australia Human Rights Commission conducted a national survey of students to understand the nature, prevalence and reporting of sexual violence at the request by Universities Australia (Australian Human Rights Centre, 2017). Following a response from more than 30,000 university students across Australia, the resulting Change the Course report (Australian Human Rights Commission, 2017) concluded that sexual violence is far too prevalent in university settings, there is significant underreporting and universities need to do more to prevent and respond to these issues.

The Change the Course report, along with multiple other reports from student unions, activists and academics, contain recommendations for Australian universities to better understand and prevent sexual violence in their contexts. These focus on the development of appropriate services comprising proactive education and communication campaigns to help people understand and prevent sexual violence (known as primary prevention) or response services focussed on university counselling services and reporting mechanisms that support survivors and hold perpetrators to account (known as tertiary prevention). Universities Australia initiated a campaign named Respect.Now.Always to encourage the prevention of sexual violence that Australian universities are also implementing.

UTS participatory design research and the importance of informal services

The University of Technology Sydney (UTS) along with many other universities, established a senior working group as part of its local *Respect.Now.Always* campaign to examine its existing prevention and response services and look at how these could be improved. In late 2017, UTS took an additional step of engaging the UTS Design Innovation Research Centre (DIRC) to conduct research to gain a deeper understanding of first the student and then the staff experiences around sexual violence within their organisational context to better inform the design of services. DIRC are now moving into a phase of more deliberate co-design or co-production of services with these staff and students.

One of the key findings emerging from this comprehensive research project was the general distrust of formal support and reporting services, and an alternative reliance on informal support services. This informal support generally takes the form of conversations with trusted staff and students who are not in recognised support positions, who a student or staff member would seek out to disclose an incident of sexual harassment or assault and to ask advice. This 'informal support person' or 'first responder' may then assist the student or staff member to engage with formal university services.

Understanding organisational services

Organisations provide services both internally (through leadership, training, rewards and penalties to its staff) and externally (as products and services to its customers or users) (Bowers and Martin, 2007). Organisations tend to focus their efforts on the design of these services when they are explicit – intentional, visible and with a clear service provider and service recipient. I use the term 'formal services' to define these types of services within this paper, drawing on the culture change and service design definitions below. This contrasts 'informal services' which are taken to mean unintentional, less visible services where there is no clear provider or recipient.

Formal and informal networks

Culture-change specialists, particularly those who embrace the complex nature of organisations, describe two levels of structure where services are performed within organisations. This comprises the formal or legitimate network which is designed by those in authority to create predictable, regular patterns of behaviour and collaboration to achieve the organisation's functions (Stacey, 1996; Bryan et al., 2007). Alongside this is a more spontaneous informal structure that arises when people within the organisation exert free will and choose whether to follow formal rules or enact their own way of doing things (Stacey, 1996). Blackhall and Pearl (2019) elaborate that informal networks are comprised of trusted peers with high emotional intelligence (not necessarily senior leaders or experts) and that they have a high degree of influence on the organisation's culture and behaviour. Informal networks may go by names such as peer groups or communities of practice or may not be explicitly recognised at all (Bryan et al., 2007).

FORMAL NETWORKS   INFORMAL NETWORKS
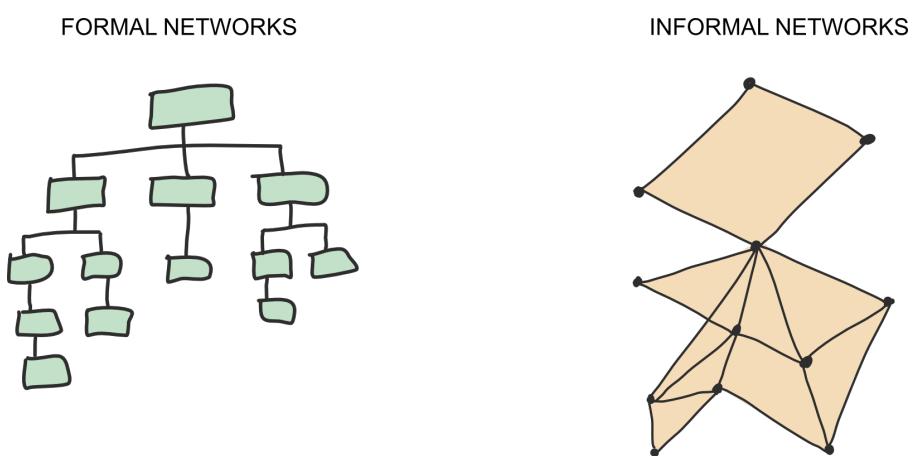
Figure 1: Visualisation of formal networks compared to informal networks within organisations, adapted from Bryan et al 2007

Co-production of service

The emerging field of service design also highlights a powerful shift in perspective when it comes to formal and informal services. The traditional and still-dominant institutional theory frames services as a transactional exchange where a proactive service provider develops and delivers a service to meet the needs of a passive consumer (Kimbell, 2014; Lusch &

Vargo, 2014). This is equitable to the idea of 'formal services' which are intentional, visible and resourced within an organisation. Service design authors (including Kimbell, 2014; Lusch & Vargo, 2014; and Sangiorgi, 2011) content this limited view by highlighting that people (actors) continually seek out resources and capacities through personal and community connections, public services and private companies to resolve issues and create wellbeing in their own lives. In this model, the value of a service is not defined at its consumption, but is co-produced through the resources and capacities of actors over time. This is equitable to the idea of 'informal services' which could between any actors, at any time and will not necessarily be visible or controlled by an organisation. Sangiorgi (2011) highlights how this service logic calls into question the roles of service-provider employees and their customers, users and citizens when all actors are co-producing value.
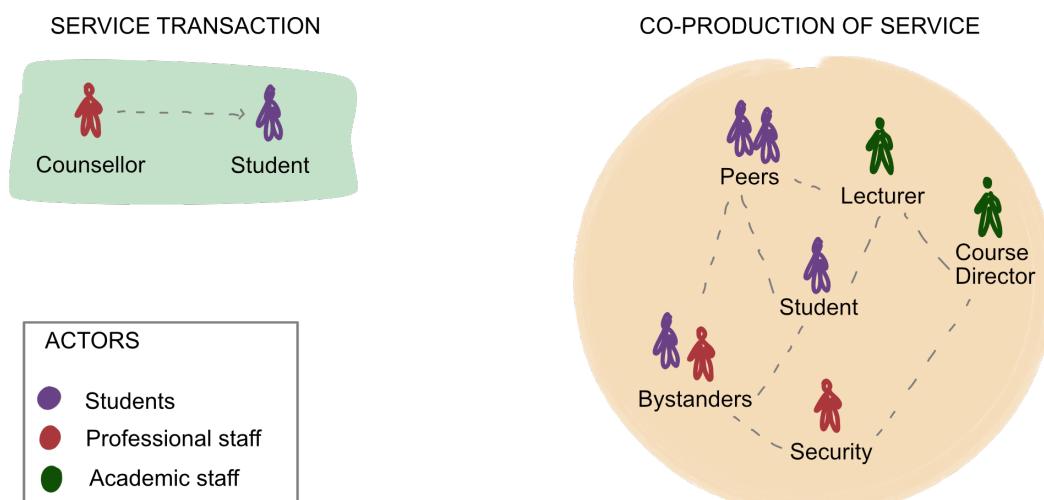
Figure 2: Different perspectives of providing 'emotional support' services following an incident of sexual assault or sexual harassment at a university

Implications of informal co-production of service

Reconceiving the idea of service in organisations and the importance of informal services highlights a number of implications for the actors, organisations, and design of services.

Providing human-to-human services involves significant exposure to emotions, specifically in such a sensitive context as sexual violence

response. Lara Penin (2018) highlights how emotional labour, or psychological effort of service workers, is often invisible and can implicate women more predominantly due to prevailing gender roles and expectations. Without sufficient recognition and support, the burden of emotional labour can significantly impact the actor and have flow on effects to the broader organisation.

When many actors within an organisation co-create a service, this impacts factors that an organisation may perceive are within the control of the formal system, such as organisational reputation and trust. As Zeithaml et al (1985) emphasise, the nature of an interaction between an individual employee (or actor co-creating a service) will still be taken to represent the nature of the broader organisation itself by the actor experiencing the service. This means that organisations need to consider how to design conditions, structures and support to facilitate valuable informal services that build factors like organisational trust.

Designing services within organisations where there is a high level of co-production amongst actors also requires specific and more developed skills for the designer. This includes involving actors in broader participatory or co-design processes so that they can provide input into the design of services that they are implicated by, and a greater focus on the design of relationships and interactions between actors within informal networks (Carla and Manzini, 2009; Sangiorgi, 2011). Sangiogi (2011) argues that this type of design requires designers to expand their skills and knowledge towards theories of human behaviour and organisational culture to be able to make effective, ethical and empowering interventions.

This paper will now briefly summarise the research conducted as part of UTS' Respect.Now.Always program by the DIRC. It will highlight key results that relate to the participation in formal and informal services that contribute to our understanding of how to design for these types of organisational services.

Research methods

DIRC conducted its research throughout the engagement of the Respect.Now.Always program, which comprised of two main design

projects. This research combined social research methodology including desktop research and interviews (Gomm, 2004) with participatory design research, including activities at community engagement events and co-design workshops (Spinuzzi, 2005). Participatory design research provided more opportunities to elicit tacit or invisible perspectives from participants and to increase the focus on action from both the researchers and the participants, through utilising results directly improve experience within the UTS community (Spinuzzi, 2005).

1. The Student Voice project

The research objective of this project was to understand the student experience in relation sexual assault and sexual harassment to better inform the design of UTS' services and campaigns.

Research methods included:

- Desktop research to understand the general background of sexual violence prevention within the university

- 13 semi-structured one-hour interviews with students, recruited through online media and including various service prototypes to elicit responses

- Interactive research activities held at UTS Respect.Now.Always community engagement stalls during orientation to introduce new students to the program. These stalls involved staff and student volunteers and several thousand student participants (attractors included free ice-cream and merchandise as part of the 'wanna spoon, ask first' campaign)

- A co-design workshop with staff and students to interrogate research findings.

Overall, nearly 3000 students and 200 staff participated in the Student Voice project – the majority through light-touch participation at the community engagement stalls, and a smaller group through more intensive interviews and workshop activities.

2. Strategic Framework project

This project focussed more broadly on understanding UTS' community recommendations to generate more sustainable cultural change to prevent sexual violence and to understand the experience of staff as key actors within the service system.

Research methods included:

- Desktop research to better understand the nature of sexual violence and cultural change theories to contribute to its prevention

- 25 semi-structured interviews with staff and student leaders

- Interactive research activities held at community engagement stalls during orientation including volunteers and several thousand participants

- A co-design workshop with staff and students to interrogate research findings and develop opportunities for cultural intervention.

Overall more than 2000 students and 200 staff participated in the Strategic Framework project – the majority through light-touch participation at the community engagement stalls and with some repeat participants from the earlier project.
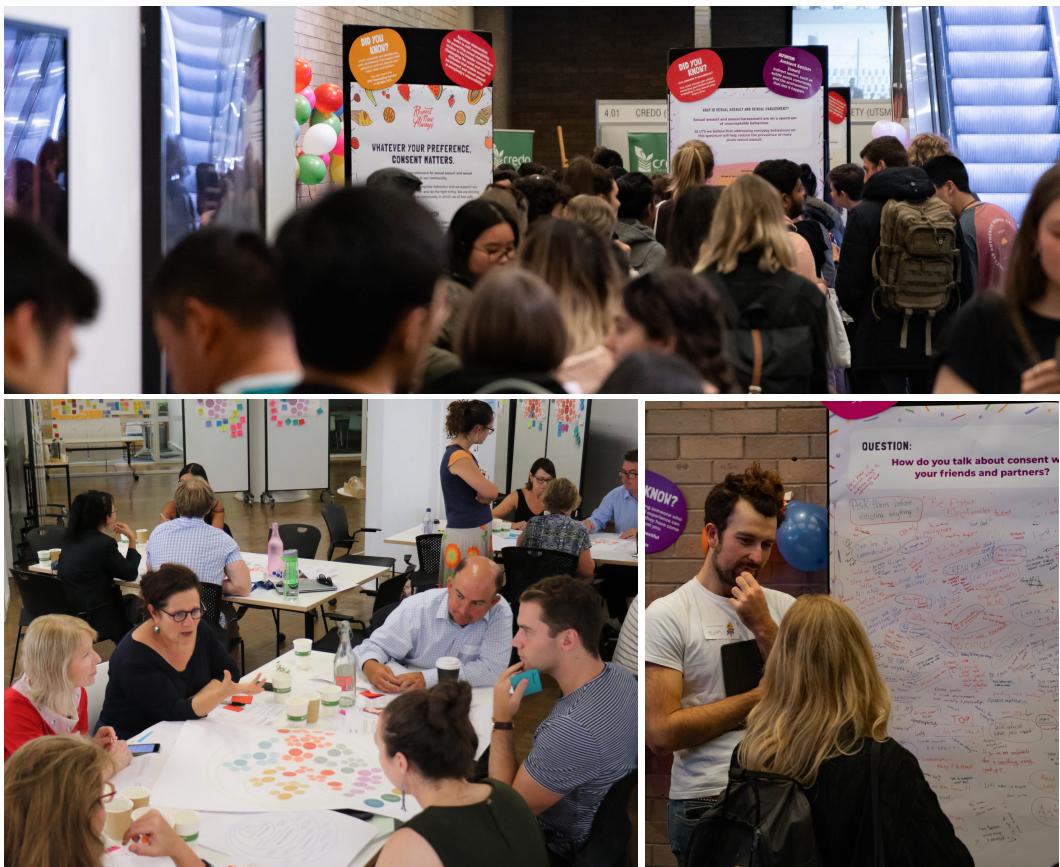
Figure 3: Students lining up to attend a community engagement stall at student orientation

Figure 4: A DIRC researcher engaging a student in an interactive research activity

Figure 5: UTS staff and students identifying opportunities for intervention in a co-design workshop

Data analysis

The research data was first analysed by the design team using a physical (post-it note) analysis to identify broad themes which were tested for validity with broader stakeholders in the co-design workshops. The research data was then interrogated more deeply by the research team and one senior academic external to the project, through a full grounded theory analysis. This identified and coded relevant perspectives and statements from the interview data, ultimately coding over 500 illustrative quotes using a database spreadsheet to further develop the findings. These findings were further compared with insights resulting from the

participatory design research activities to create a comprehensive understanding of both the community experience around sexual violence, and their recommendations for change. The full results of this study are published in [UTS' Respect.Now.Always Strategic Framework report](#).

Results

Distrust of formal systems

A key paradox emerged in the findings: that although the AHRC recommendations to the issue of sexual violence and initial responses from UTS focussed on the improvement and increased awareness of formal services (counselling and reporting processes), students and staff are wary and distrustful of these services. While some of these views appeared to be based on direct experience (such as long wait times between making a report and receiving a response), other were based on perceived narratives which may include the often-negative treatment of survivors in public media and court cases, e.g.

> "We know the penalties for victimisation are stronger than the penalty sometimes for the original complaint." [Female fixed-term professional senior staff member]

> "The culture of silence is not actually a culture of silence, most people, although they do not formally report, do informally report and have discussions with people, most of whom discourage them from taking formal action." [Female fixed-term academic staff member]

This aligns with literature on organisational trust, where expectations of an organisation's behaviour are based on perceived levels of competence, benevolence, integrity and predictability and this perception may take time to shift through new behaviours which would need to be consistently performed (Dietz and Hartog 2006).

Reliance on informal systems

Although there was a reluctance to immediately engage with formal systems, there was strong evidence of staff and students seeking support through trusted peers, teachers and colleagues. For example:

> "I will get help from some of my friends…Some other sources other than just going through the formal way of launching a complaint …and all the other protocols that go with it… I think opening up to them would be more comfortable." [Male international master's student]

> "I need something which says, "When a student discloses a sexual assault to you in the middle of the class this is what you need to do". Because that happens to me a lot...[Female academic staff member]

It is also clear that informal support is preferable to many people because of the frequency that women experience low-level sexism or sexual harassment and the lack of clarity about what constitutes sexual violence perceived to be 'serious enough' to seek formal support.

> "…you almost feel like you have to have the worst of the worst case to want to access the services, a lot of people feel that way I think…I think you can have this internalised attitude that like, 'Okay, I'm fine. It's not the worst, I'll get through it, I don't need to access the services." [Female PhD student]

As part of the Student Voice research project, we also conveyed some of the stories we heard of support-seeking through trusted staff and students in anonymised journey maps which helped the project stakeholders better understand these experiences. One of the journey maps (shown below) conveys a PhD student seeking advice from an academic staff member and friend before seeking support from UTS' formal counselling service.
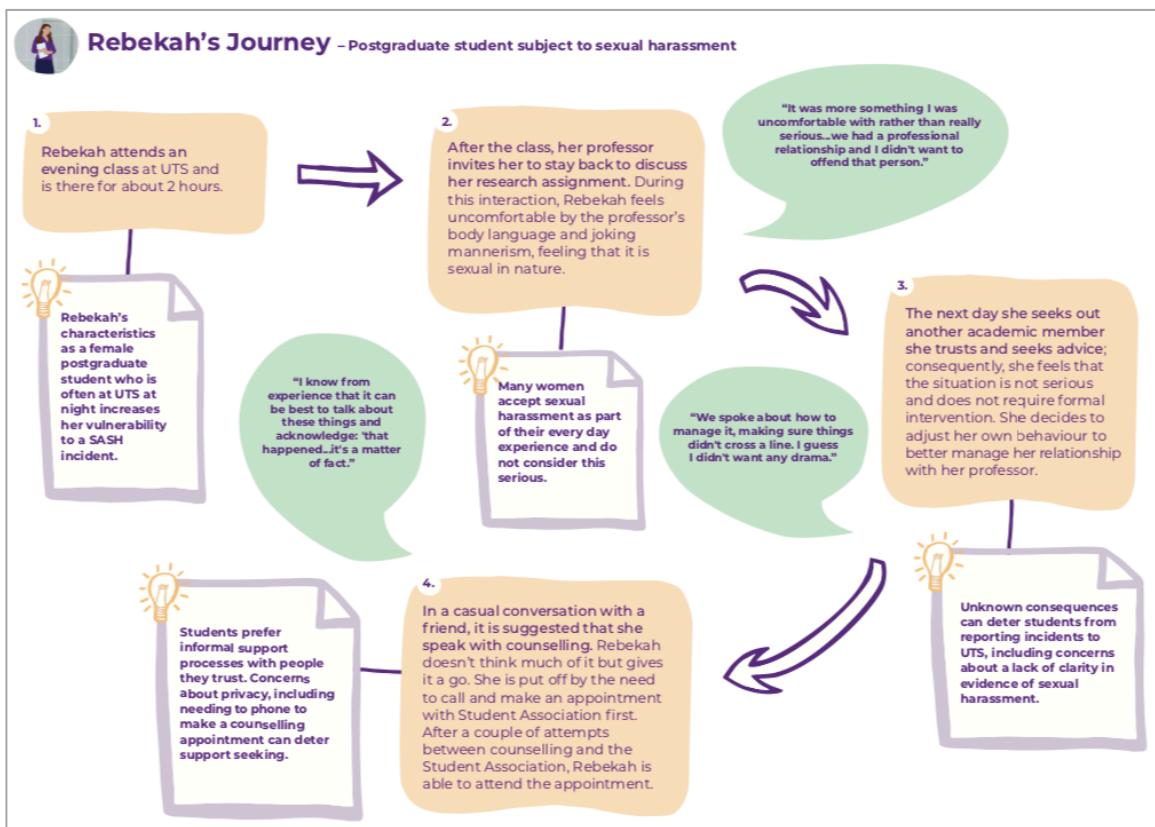
Figure 6: Student Voice project journey map

Individual agency in informal services

UTS responded to the AHRC report with a number of enhanced policies and controls, including mandatory reporting when staff receive disclosures of sexual violence. DIRC's research findings also indicated instances where staff utilised individual agency within an informal network to provide value they deemed most appropriate to the situation, even though this may have been differed from organisational policy (or formal service guidelines). E.g.

> "I probably was meant to tell my boss, was meant to go up the line, but I just needed an intervention here straight away and I don't care really about the policy. I needed to intervene and I think we need to have permission to do that if it's necessary." [Female academic staff member]

This implies the need to understand the motivations, attitudes and capacities of people providing informal services and design with these in mind, as only designing through control mechanisms will not necessarily achieve the intended outcomes.

Personal consequences to people providing invisible services

Many of the people (particularly student-facing staff) who we spoke to reported instances of providing informal support to students or other staff members, and although they were generally willing to offer this, they identified personal consequences including increased time and effort in addition to core job responsibilities.

> "I make myself available I say until 10 p.m. at night if you need me. Weekends as well, if you need me, I will answer my phone. I may be asleep after that but if you need me you can ring me. I just think if I'm presenting and supporting [subject matter that may raise emotional responses] I have to be available." [Female academic staff member]

Providing these kinds of services becomes invisible emotional labour (Penin, 2018) that often fall to women, and those who meet the characteristics of being trusted peers with high emotional intelligence that form our informal networks (Blackhall and Pearl, 2019). If this level of co-production of services by staff and students is not recognised and rewarded by those managing the formal systems, this additional labour may impact individual wellbeing performance, progression and the ability for the organisation to maintain a productive and vibrant community (Penin, 2018).

Designing and training for co-production of services

Staff frequently identified the need for more support to be able to deal with potential disclosures of sexual violence, particularly if informal support seeking increases through messaging in the Respect.Now.Always program.

> "I am not aware of any support particularly for staff. I mean, we have information sheets and online training and things, but I think that they do not do all the work to support staff". [Female, academic, permanent staff member]

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Accepting that staff and students perform an important support service also means accepting and designing for risks around this service, including that these people need to have the skills and competency to adequately respond, as well as being able to care for their own wellbeing. In addition, as highlighted by Sangiorgi (2011), if stakeholders become co-producers of services, they should also be part of the design of these services.

Conclusion

This case study provides a tangible example of the challenges of designing services to address complex social issues within organisations. It highlights the importance of informal services and the challenges that arise when services are co-produced by diverse actors who may face emotional burden and need increased recognition and support. It highlights the need for designers to carefully consider how service is performed within an organisation, and to include actors who provide less visible services in the design processes. It also highlights the need for designers to increase their knowledge and skills in the areas of relationships and culture change in order to effectively influence they spontaneous yet influential aspects of service.

In current phases of the Respect.Now.Always program, DIRC are working with actors to co-design and implement change, including specifically working with the identified informal support networks. Future research may include questions such as how to improve the trust of formal systems which are still necessary but are negatively influenced by broader distrust around the treatment of sexual violence survivors and how to create more effective interfaces between formal and informal support services to ensure that survivors get the support they need.

References

Australian Human Rights Centre. (2017). On Safe Ground: Strengthening Australian university responses to sexual assault and harassment.

Australian Human Rights Commission. (2017). Change the course: National report on sexual assault and sexual harassment at Australian universities.

Bennett, J. (2017). 'The 'Click' Moment: How the Weinstein Scandal Unleashed a Tsunami', The New York Times, 5 November.

Blackhall and Pearl. (accessed 10 February 2019). Culture is Local. https://blackhallpearl.com/insights/culture-is-local/.

Bowers, M & Marti, C. (2007). Trading places redux: Employees as customers, customers as employees. Journal of Services Marketing, 21(2), 88-98.

Bryan, L., Matson, E., & Weiss, L. (2007). Formalizing a company's ad hoc peer groups can spur collaboration and unlock value. Retrieved from https://www.mckinsey.com/business-functions/organization/our-insights/harnessing-the-power-of-informal-employee-networks

Cipolla, C. & Manzini, E. (2009). Relational Services. Knowledge, Technology & Policy, 22(1), 45-50.

Dietz, G. & Hartog. (2006). Measuring trust inside organisations. Personnel Review, 35(5), 557-588.

Gomm, R. (2004). Social research methodology. New York: Palgrave Macmillan.

Kimbell, L. (2014). The Service Innovation Handbook: Action-oriented Creative Thinking Toolkit for Service Organisations. Amsterdam, Netherlands: BIS Publishers.

Lusch, R., & Vargo, S. (2014). Service-Dominant Logic: Premises, Perspectives, Possibilities. Cambridge, UK: University Printing House.

Penin, L. (2018). Designing the Invisible. London, UK: Bloomsbury Publishing.

Sangiorgi, D. (2011). Transformative Services and Transformation Design. International Journal of Design. 5(1), 29-40.

Spinuzzi, C. (2005). The Methodology of Participatory Design. Technical Communication, 52(2), 163–174.

Stacey, R. (1996). Complexity and Creativity in Organizations. Gerret-Koehler.

Zeithaml, V., Parasuraman, A. & Berry, L. (1985). Problems and strategies in services marketing. Journal of Marketing, 49(2), 33-46.

Practice notes on designing for change

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Abstract

Service Design Projects often require organisations to undergo significant changes in the way they operate. The conditions driving this need for change often create an environment where those people required to under go it have the least capacity for that change, impeding the implementation of re-designed services. Applying a designerly approach to people's capacity to engage with change offers a unique way to overcome these barriers. These practice notes identify ways design interventions including compassion practices might help organisations engage successfully in a change process.

Keywords: service design, organisational change, compassion

Introduction

As a practicing Service Designer I've found that I rarely design services. I actually spend most of my time redesigning services that are not delivering the outcomes organisations desire. This means that in order to implement the new service there are inevitably changes required in how people on

both the front line and in the back office of service delivery operate. The ability for teams and individuals within an organisation to engage in this change process is a critical factor in whether the redesigned service will be successfully implemented. Having seen this change process fail multiple times within my career, I've become interested in exploring how Service Designers can better work with organisations in navigating change more effectively using a human centred design approach.

These practice notes aim to provoke a discussion amongst Service Designers around how we work organisations navigating change and propose some specific interventions, including compassion practices, that designers might consider in practice.

Organisations in distress: The tension between the need for change and the capacity to engage with change

In exploring the conditions in which organisations enter into a change process, either intentionally through a reform project, or unintentionally through a service re-design that challenges the organisation's norms and values, I have become aware of a common organisational context of distress. This distress can take multiple forms but consistently underpins the barriers for both individuals and teams to engage with change processes. In two recent projects on which I've worked, there has been an observable moral distress arising from the fact that the very systems within which the organisations function present ethical challenges to individuals. In the case of a Justice project, an overwhelming workload and a high degree of public scrutiny, coupled with the high human impact of the work, compounded distress for all parties in the system leaving them with feelings of powerlessness and frustration. In a Humanitarian Services organisation, it was a series of international trends and policy changes that led again to an overwhelming workload and feelings of powerlessness leading to high levels of burnout. These distress contexts left the people operating within them in states of anxiety, anger and despair, leading to defensiveness, cynicism and/or disengagement.

These distress contexts are not unique to circumstances where the distress is moral. I worked in the telecommunications sector during and after the dot-com crash of 2001, commonly referred to within the technology sector as the 'tech wreck'. Conditions of extreme market distress saw profits plummet, capital withdrawn from the market and mass rounds of human lay offs as organisations tried to reign in costs in the face

of declining revenue. For individuals and teams going through this experience there was a sudden precarity around their work situation, as well as a dramatic increase in workload due to the loss of team members where similar states of anxiety, anger and despair were palpable. At the time when technology sector organisations most needed to fundamentally change the way they operated, the very conditions requiring this change had left them with a workforce unable to engage with that change.

The result of these distress contexts and the impact they have on the individuals and teams within them is a severely constrained capacity to engage in change, both in terms of cognitive and emotional capacity. The tension between an organisation's need for change and the capacity of her people to engage with it is a fertile space for a design intervention.

Human Centred change: A Design Intervention centred on the distressed individuals confronting change.

Traditional management science approaches have focused on building the skills and knowledge of a workforce to build capabilities in line with an organisation's changing needs. I often observed this through failed change attempts within the technology sector during the 'tech wreck', where skills training for new ways of working was thrown at teams with little capacity to process them. In my more recent projects there is still an observable tendency to want to throw capability building work at individuals and teams as part of the change process, with some capacity building work stapled onto the side. There are emerging trends within management science that are considering well-being and resilience in organisations alongside considerations of change readiness. The element that seems to be lacking is the way in which human wholeness is restored to people within the distress contexts that are driving the need for change.

In this gap lies an important opportunity for a design intervention. One of the strengths of human centred design is the way it addresses the whole human. As a result of this there are practices within design that come to fore. In my own move from business management into design, I was struck by the way designers intentionally cultivated practices, as opposed to a focus on professional knowledge and the acquisition of capability. My own practice has been greatly informed by intentionally crafting my own practices around showing up in a more whole, humanistic way. The impact this has had on me both professionally and personally has been pivotal in helping me transition as a practitioner. It is perhaps not

surprising that I seek to bring this approach to how I work with others undergoing change programs.

I have for several years been building a compassion practice, through Compassion Spirituality, Mindful Self-Compassion, and more recently Compassionate Witness. Through some recent encounters with care industries and examining cultures of care, I have become increasingly interested in the potential for Compassion Practices, and specificallyMindful Self-Compassion, to help individuals and teams build capacity to engage in change. Whilst there is some tentative engagement with mindfulness as a tool to help build organisational resilience and well-being, there has been limited discussion of compassion.

Using Mindful Self Compassion in coaching sessions with key project leaders, I have promoted the three faces of self compassion Neff (2003) laid out, namely: (1) self kindness – extending understanding rather than judgement to oneself; (2) common humanity – viewing ones experiences as connecting, rather than isolating from the larger human experience; and (3) mindfulness – holding painful thoughts in balance rather than over-identifying with them. These conversations usually don't arise in early coaching sessions, but rather after a trusted relationship has been built (which can be as quickly as the third or fourth coaching session depending on the openness of the client). As a practitioner, I'm acutely aware of my posture in these sessions. I am similarly aware of my space-holding, and my application of the three faces of self kindness, common humanity and mindfulness in discussions with the client before we actuallydiscuss this overtly. By firstly modelling this practice to create safety and to begin to build capacity to engage with change, I am then able to relate these principles to the client so that they have a visceral understanding of their power to build capacity for change in the rest of their team and other stakeholders. At this point I bring in a couple of key prompts for the client to use before entering any meetings or conversations about the project, along the lines of "look for the pain behind painful behaviours and respond with kindness", "dial-down judgement and seek out personal connection". I also encourage some light mindfulness techniques like pausing to assess where their energy is at, taking three centering breaths, then reminding themselves of the prompt. In subsequent coaching sessions where we evaluate the progress of implementing changes to the service ecosystem, I will often link back to this Mindful Self-Compassion practice when discussing barriers or failures along the way. I have found that this not only helps these key project leaders engage more willingly with the difficult

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aspects of change but also helps them lead their teams through the discomfort and build their own capacity to engage.

I have only recently begun to experiment with Compassionate Witness practices, drawing on the framework and tools developed by Shannon Weber (2018). I have begun running workshops around some key skills and rituals, including how to "create a container" to set boundaries around how to show up sustainably for others in the team as it navigates change and invests in resilience (Weber, 2018). This provides an alternative framing of self-care, to sustain individuals' capacity to continue engaging with their teams and the change process. Both of these rituals provide a simple structure for individuals to write down both their boundaries and resilience practices as a way of giving themselves permission to continue addressing their own needs, whilst maintaining engagement with their team and the change project. As an emerging element of my practice, I find that I am still calibrating how to build on these tools and to understand how they can best support individuals and teams in building and holding the capacity to engage constructively with change.

In my design practice I continue to explore ways of expanding a designerly application of compassion practices for individuals and teams, to help them grow the capacity to better engage with the changes that Service Design projects require of them. To be able to reflect on their work, to reconsider their roles and relationships within an organisation, and to be able to entertain different ways of working in the delivery of services. I believe there is a greater need for the Service Design community as a whole to interrogate the role designers play in driving organisational change as part of design work.

As an emerging area of my own practice, the cultivation of Compassion Practices has already positively impacted recent projects. This paper is an invitation for other practitioners to consider how they firstly cultivate their own compassion practices as part of their design practice, and secondly how they bring these practices into the workplace.

References

Neff, K. (2003). Self-Compassion: An Alternative Conceptualization of a Healthy Attitude Towards Oneself. Self and Identity, 2(2), 85-101.

Weber, S. (2018). Show Up Hard: A Roadmap for Helpers in Crisis. Independently Published.

Integration of service principles into the creative process of PSS: Application in an organizational case

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Abstract

The process of creating Product+Service Systems (PSSs) can be considered complex as it involves tangible products, typically qualitative and intangible services, integrated into a multi-actor system and variable touch points. In this regard, there is still a lack of methods and tools that adequately support the PSS's creative process. Given this context, a theoretical survey about PSS and Service Design creativity complexity was conducted, highlighting the heuristic principles considered relevant to enhance the creativity process. Then, a case study explored the integration of heuristic principles from the Servqual scale, into the creative process of a PSS in a Brazilian multinational company. This article intended to contribute to the theme's theoretical and practical basis, stressing the emphases and gaps in the use of heuristics for the design of PSSs in the organizational context.

Keywords: product-service system, service design, creative process, heuristic methods, servqual scale

Introduction

When considering the creative process of Product+Service Systems (PSSs) the attention of designers involved should be necessarily systemic due to the presence of multiple and complex variables involved whilst creating solutions. PSS Design is indeed an innovation strategy that shifts the focus from merely offering products to a broader design approach that systemically integrates product and services, focusing on producing structural changes in the way production and consumption systems are organized (Ceschin & Gaziulusoy, 2019).

The PSS, according to Baines et al. (2017), can generate social, economic and environmental benefits, such as:

- Differentiation of companies against their competitors, due to the offer of more complete systems directed to the consumer's demands;

- Environmental benefits, as the producer starts to think about different and more sustainable business models;

- Renting or selling the result of higher value added products, using less energy or material, thus reducing costs and environmental impacts.

In order to create integrated solutions in manufacturing industry contexts, thinking more closely on the user experience, the PSS approach can be combined with the Service Design approach, offering important and complementary perspectives (Costa et al. 2018).

Service solutions have the potential to enable greater value in use and increase the competitiveness of manufacturing companies. For Stacey and Tether (2014), the development of PSS should allow companies to better address customer experience and emotions. However, according to Morelli (2009) some PSS approaches lack the organizational network component that allows the operationalization of service concepts.

In this context, heuristics methods are recognized for having structures that meet complex demands and help in the generation of ideas encompassing the whole system (Chu et al., 2010; Tessari & De Carvalho, 2015). The use of heuristics can stimulate the creative process regardless of the spontaneous ability of those involved in the process (Forcelini et al., 2018), by proposing a standard developed based on the analogy of effective and high quality solutions already implemented previously (Kwon,

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Lee & Kim, 2015). This feature can assist the creative process in competitive environments, as all participants receive stimuli and similar external knowledge, with internal knowledge being relevant but not limiting.

This paper presents an attempt to integrate heuristics in a more direct and simplified way. After bibliographic research, the application of heuristic principles from the Servqual scale was conducted. The Servqual scale is recognized for its quality mainly in the evaluation of services. Therefore, it was assumed that consideration of heuristic principles within services may be useful for the initial transition of manufacturing companies to the systemic thinking proposed by the PSS model. It was intended to evaluate, through a case study, the limitations and contributions of the heuristic principles of Servqual in the creative process of PSS in the organizational scope.

PSS and Service Design

The PSS's strategic and systemic approach as applied to business innovation primarily aims to decouple value creation from increased resource consumption.The term PSS arises from the need for a new approach, which values the systemic discontinuity in the patterns of production and use (Vezzoli et al., 2018).

Vasantha et al. (2012), emphasize that the creative process of a PSS can be considered complex because it deals with interpolation of several elements such as: actors from different areas and with different levels of involvement in the PSS; environment variations with multiple touch points and interactions; user requirements and various activities at each stage of the PSS life cycle, among other elements. For the authors, the PSS ideation process is still limited, as PSS propositions and solutions are still fragmented and few PSSs are idealized from a holistic perspective that considers the entire life cycle.

Service Design, in turn, has a participatory multidisciplinary and human-centered approach (Meroni & Sangiorgi, 2011). Mager (2008) points out that service designers visualize, formulate and choreograph solutions to problems that may not yet exist. That is, service designers observe and interpret behavioral requirements and standards and turn them into potential future services.

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According to Costa et al. (2018), PSS and Service Design approaches offer complementary perspectives, but additional integration is required. For Boehm & Thomas (2013), PSS approaches rooted in cleaner production have led to a company-centered perspective focused on creating more efficient and environmentally sustainable product service system solutions that tend to ignore the customer/user experience.

Creating new PSS that take into account the systemic view of service is a complex task. Therefore, the following article highlights the importance of methods that properly integrate PSS and Service Design in order to create more consistent systems that consider the customer / user experience.

Heuristic principles and servqual scale

Chu et al. (2010) and Tessari & De Carvalho (2015) point out that among the existing creation methods, one that can be recognized for meeting complex demands and assisting in the generation of ideas, is that which involves more structured systems, such as heuristic methods. According to Tessari & De Carvalho (2015), the main objective of a heuristic is to assist problem solving, making the process more efficient by sharing previous experience to guide the generation of new solutions. The analogy of existing systems and their standards, as proposed by heuristics, is part of the main auxiliary means that results in improved solutions (Kwon, Lee & Kim, 2015).

Following this direction, it is believed that heuristic principles can stimulate the generation of ideas with greater potential for innovation. The process of generating solutions through the application of heuristic principles becomes more efficient due to the sharing of previous experiences that guide the creative process, increasing the potential for innovation (De Carvalho, Savransky & Wei, 2004).

The Servqual scale is identified as one of the significant heuristic tools and was selected to be applied in this case study as it has reference to heuristics in quality of services.

The Servqual scale was proposed by Parasuraman, Zeithaml & Berry in 1985, from the perspective of marketing, as an instrument for measuring customer-perceived quality of service (Cavalieri & Pezzotta, 2012). In order to understand how users perceived and evaluated the quality of services, Parasuraman, Zeithaml & Berry (1985) proposed a study involving twelve focus groups, with three groups targeting each one of the

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four different services investigated (retail, credit card, stock brokerage, repairs and maintenance).

In the research conducted by Parasuraman, Zeithaml & Berry (1985), the pattern found in the answers revealed evaluative criteria, considered in the following article as heuristic principles. Users can appropriate these principles for quality analysis, regardless of the service investigated. A list of heuristic principles was proposed by the authors:

- Tangibility: physical appearance of facilities, equipment, workforce and regulatory materials;

- Reliability: ability to perform the promised service reliably and accurately;

- Responsiveness: ability to help users promptly;

- Competence: appropriation of required skills and knowledge to perform services;

- Cordiality: politeness, respect, consideration and friendliness of workers;

- Credibility: trust, truth and honesty;

- Safety: no danger, risk or doubt;

- Accessibility: proximity and empathic contact;

- Communication: keep users informed in an appropriate language, and;

- Understanding: strive to understand the user and their needs.

These principles shape the Servqual scale and from each of them it is possible to measure the gap between the level of service quality desired by the user versus what is actually being delivered (Pena et al. 2013). However, the following article shows the application of such heuristic principles not in the evaluation phase of a service, but in the previous stages of gathering requirements and creative process.

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Case study: Designing meta-scenarios of PSS for a piping manufacturing company

The method for conducting this research follows a qualitative approach of an interpretative nature (Polaine et al. 2013), which involved an unsystematic literature review. The qualitative data assists the reflection of the subjective aspects of the research. Such interaction allows a greater understanding of the personal relationships and existing variables.

From the theoretical framework it was possible to structure the creativity process applied in a case study (Yin, 2015) with participant observation (Gil, 2011), that was performed by the authors. Regarding the observation technique, Gil (2011) points out that it allows a direct perception of reality, without any intermediation.

From the theoretical framework it was possible to structure the creativity process applied in a case study (Yin, 2015) with participant observation (Gil, 2011). This was then performed by the authors.

The case study took place in a project carried out between the Design and Sustainability Center of the Federal University of Paraná (UFPR) and a multinational company based in the Southern region of Brazil. In this case study the application of heuristic principles from the Servqual scale has been integrated into the creative process of PSS.

The project had five phases, which were carried out within a period of nine months between October 2017 and June 2018 (Figure 1). The project aimed to develop a Product+Services System (PSS) focused on water efficiency from solutions for: a) rainwater capture and reuse; and b) aerobic treatment of activated sludge. Due to confidentiality issues, the final results will not be described, but some methods and tools used by the Federal University team of designers will be presented.
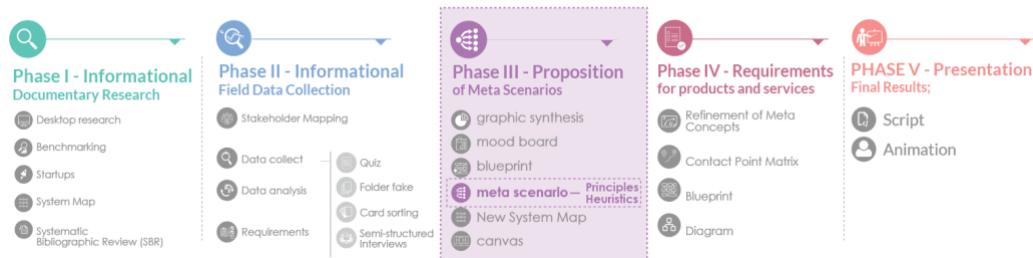
Figure 1: Methods and Tools applied in the project (UFPR Team, 2017)

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This research emphasizes mainly the phases II and III, because these phases use heuristic principles for field analysis, and for application in the process of creating PSS scenarios respectively. In Phase II, field research was carried out with the main actors of the system (builders, manufacturers and end users, among others) involved in some selected state capitals. The following data collection methods were applied: semi-structured interviews; fake folders and cardsorting. This study highlights the use of Servqual's heuristic principles (Parasuraman, Zeithaml & Berry, 1985) for the development of cardsortings applied during Phase II (Figure02).

Figure 2: Cardsorting developed with Servqual principles for field research application (UFPR Team, 2017).

In the dynamics of using cardsorting, actors were instructed to rank cards with the quality principles they considered more relevant to a PSS focused on rainwater collection and a wastewater treatment system. The application of heuristic principles in the form of cardsorting helped to capture, more interactively, the different perceptions of the actors.

In Phase III - propositions and meta-scenarios - the following tools were applied: graphical synthesis of contents from the informational and field phase; moodboards according to user requirements; blueprints for creating and defining interactions in the proposed concept; the design of PSS meta-scenarios; system maps and canvas.

Among the tools of Phase III, the dynamics adopted in the creative process stage of the PSS meta-scenarios can be highlighted. In addition to the proposition of the scenarios based on the literature and the requirements collected in the field, in this phase the heuristic principles proposed in the ServQual scale were also integrated, in order to stimulate

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the creative process of the UFPR team. This then enabled the presentation of the scenarios generated to the company's innovation team. The heuristic principles were of great relevance for the survey of reference cases, which inspired and illustrated the ideas created for each of the proposed scenarios.

The following image demonstrates the heuristic method used for the design and presentation of solutions by the UFPR team. Due to confidentiality issues, certain texts that represent the ideas created for the company are not readable (Figure 3).
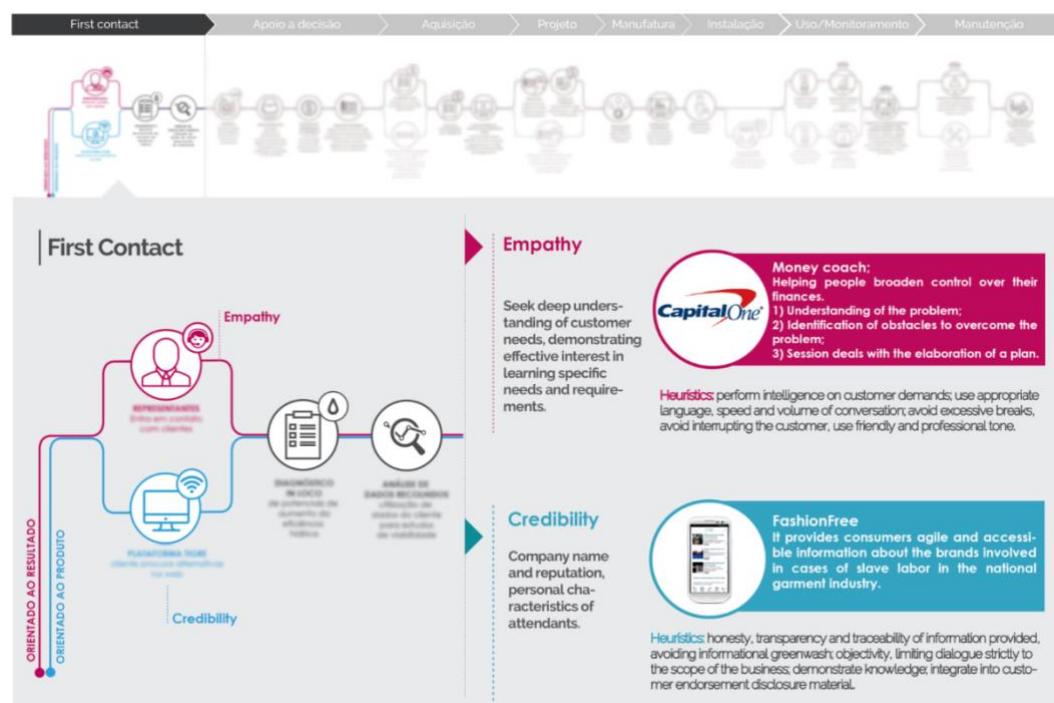
Figure 3: Business Journey Example with Principles Applied by Parasuraman et al.1985 (UFPR Team, 2017)

The use of heuristic principles occurred in an integrated way in the company/user journey. This stimulated thinking around each of the new PSS operating stages, resulting in a complete PSS scenario. As the previous image illustrates, the principles for first contact were "empathy" and "credibility". Examples of how other companies have sought to strengthen these heuristic principles were considered important in inspiring realistic solutions for the company.

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More detailed heuristic descriptions have been added to each Servqual principle to stimulate the design process. For example: "Empathy Heurists: perform intelligence on customer demands; use appropriate language; speed and volume of conversation; avoid excessive breaks; avoid interrupting the customer; use friendly and professional tone " and "Credibility Heuristics: honesty, transparency and traceability of information provided; avoid informational greenwash; objectivity; limiting dialogue strictly to the scope of the business; demonstrate knowledge; integrate into customer endorsement disclosure material."

Such descriptions helped to generate ideas of greater viability and quality, however it was important to stimulate the creative process so that they were also innovative and not copies of the proposed examples.

Final considerations

This article emphasized the complexity of the creative process of PSSs, highlighting the use of heuristic principles of service in order to improve the ideation process of PSS and connect the user and customer experience. This strategy was important for demonstrating an alternative to bridge the gap between PSS theory and Service Design, proving effectiveness in a practical application via a case study in a multinational enterprise.

According to the designers involved in the case study, the use of the Servqual heuristics proposed were very useful for both the initial collection of some requirements and to guide the generation of higher quality ideas. The heuristics stimulated creativity not only within the product range, but also within the service scope, creating thinking about the user experience.

The examples applied to the heuristics made the creative process more dynamic, and improved the interaction between the UFPR team and the company's team of innovation, standardizing shared knowledge and reducing the dependence on designers' spontaneous creative capacity. This corroborates the perception of Forcelini et al. (2018).

It should be noted, however, that even if the use of Servqual's heuristic principles has been considered important in broadening the view of manufacturing companies to the scope of service, other applications can be explored in future projects. An approach to be explored in future research would be to enable designers to create thinking systemically.

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That is, to go beyond creating product to services (and vice versa) and include new actors and even eliminate the need for certain products.

References

Baines, T., ZiaeeBigdeli, A., Bustinza, O. F., Shi, V. G., Baldwin, J., & Ridgway, K. (2017). Servitization: revisiting the state-of-the-art and research priorities. International Journal of Operations & Production Management, 37(2), 256-278.

Boehm, M., & Thomas, O. (2013). Looking beyond the rim of one's teacup: a multidisciplinary literature review of Product-Service Systems in Information Systems, Business Management, and Engineering & Design. Journal of Cleaner Production, 51, 245-260.

Cavalieri, S., & Pezzotta, G. (2012). Product–Service Systems Engineering: State of the art and research challenges. Computers in industry, 63(4), 278-288.

Ceschin, F., & Gaziulusoy, İ. (2019). Design for Sustainability (Open Access): A Multi-level Framework from Products to Socio-technical Systems. Routledge.

Chu, Y., Li, Z., Su, Y., & Pizlo, Z. (2010).Heuristics in Problem Solving: The Role of Direction in Controlling Search Space. The Journal of Problem Solving, 3(1), 3.

Costa, N., Patrício, L., Morelli, N., & Magee, C. L. (2018). Bringing service design to manufacturing companies: integrating PSS and service design approaches. Design Studies, 55, 112-145.

De Carvalho, M. A., Savransky, S. D., & Wei, T. C. (2004). 121 heuristics for solving problems. Lulu.com.

Forcelini, F., Varnier, T., Fialho, F. A. P., & Merino, E. A. D (2018). As técnicas de criatividade no processo de design. Temática, v. 14, n. 01.

Gil, A. C. (2011). Como elaborar projetos de pesquisa. São Paulo, 5(61), 16-17.

Kwon, J., Lee, M., & Kim, H. R. (2015). Does a creative designer necessarily translate into the creative design of a product? Exploring

factors facilitating the creativity of a new product. Creativity and Innovation Management, 24(4), 675-692.

Mager, B. (2008). Service design. In Wörterbuch Design (pp. 361-364). Birkhäuser Basel.

Meroni, A., & Sangiorgi, D. (2011). Design for services. Gower Publishing, Ltd.

Morelli, N. (2006). Developing new product service systems (PSS): methodologies and operational tools. Journal of Cleaner Production, 14(17), 1495–1501.

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1985). A conceptual model of service quality and its implications for future research. Journal of marketing, 49(4), 41-50.

Pena, M. M., da Silva, E. M. S., Tronchin, D. M. R., & Melleiro, M. M. (2013). O emprego do modelo de qualidade de Parasuraman, Zeithaml e Berry em serviços de saúde. Revista da escola de enfermagem da USP, 47(5), 1227-1232.

Polaine, A., Løvlie, L., & Reason, B. (2013). Service design: From insight to inspiration. Rosenfeld Media.

Stacey, P., & Tether, B. (2014). Designing emotion-centred product service systems: the case of a cancer care facility. Design Studies, 40, 85–118.

Tessari, R. K., & De Carvalho, M. A. (2015). Compilation of heuristics for inventive problem solving. Procedia Engineering, 131, 50-70.

Vasantha, G. V. A., Roy, R., Lelah, A., & Brissaud, D. (2012). A review of product–service systems design methodologies. Journal of Engineering Design, 23(9), 635-659.

Vezzoli, C., Ceschin, F., Osanjo, L., M' Rithaa, M. K., Moalosi, R., Nakazibwe, V., & Diehl, J. C. (2018). Designing Sustainable Energy for All. Sustainable Product-Service System Design Applied to Distributed Renewable Energy (pp. 1-208). Springer.

Yin, R. K. (2015). Estudo de Caso: Planejamento e métodos. Bookman editora.

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Human Centred Design and ancient Hindu philosophy in the context of embracing diversity and building coherent working environments

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Abstract

This is an on-going study which aims to explore the correlation between Human Centred Design (HCD) and Hindu philosophy and how it can be leveraged to create a more inclusive design practice by blending philosophy with contemporary design contexts and methodologies.

The social construct in India dictates that design that comes out of the West is a benchmark for excellence and I had followed this golden rule without realising that designs are meant for people and that their goals, emotions, challenges and aspirations change as per their contexts. As a designer, it is crucial to develop an understanding of how humans perceive the world, in what context and the relation between emotions and cognition, especially while designing for a larger world audience. The principles of HCD have a strong connection with learnings from ancient Hindu philosophy. This study intends to understand how we might take inspiration from ancient philosophy and embrace diversity to build coherent working environments.

Introduction

A designer's work is influenced by a lot of factors, like who they are as a person, their upbringing, values, culture and language. I've been brought up in an Indian household where I was exposed to ancient philosophy since a young age.

'Hindu' philosophy gets its name from 'Hinduism' because the religion is the philosophy and vice versa which emphasises the need for practical realisation of oneself and the world around through lived experience and is not a system of dogmas (Vohra & Sarma, 2014). Every designer has unique qualities and should have a design practice based on their own experiences, which is devoid of following any design standard blindly. It is important to take pride in one's roots and bring one's personal touch to HCD. This contribution is an attempt to find practical ways to recognize, accept and include diversity in design teams and work towards a common goal while safeguarding unique identities. This way of working could lead to discovering different dimensions of the same problems and therefore create an original approach. The Design Council's Double Diamond framework for innovation has been chosen as a basis to explore some of the principles of Hindu philosophy to build congruous design teams, since it provides a robust structure for a narrative to put forth ideas.

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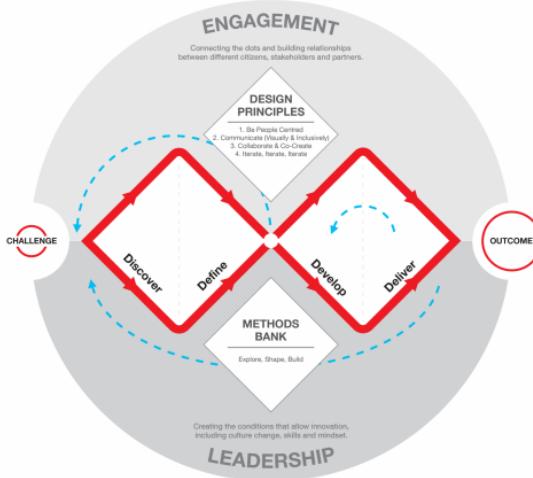
Figure 1: Design Council's framework for innovation

Introspection of self - Discover

The discovery stage involves empathising with the people who will be impacted by the design and understanding the 'real' them through keen observations. A lived experience enhances this process for a designer.

The moral character of Hindu philosophy is introspective in attitude and in its approach to reality. Philosophers sought answers to questions by undertaking their search within themselves rather than outside. The result was that the understanding of the world became identical with the understanding of the inward nature of man himself. It is this simultaneous projection of thoughts both outwardly and inwardly that resulted in the realisation of the identity of the external world and the internal 'self'.

The *Mahāvākyas* ('The Great Sayings' of the Upanishads) mention the Sanskrit aphorism *Aham Brahmāsmi* (I am divine). Swami Vivekananda explained this concept in one of his lectures delivered in London, 29th October, 1896. The universe we see through the limited capacity of our senses is our own view of the Reality. The early thinkers discovered that the external world is far away from a common ground where mental, moral, intellectual planes of existence meet. To take up only one view, and find a solution of the whole is impossible. Therefore, we need to find a centre from which all the other planes of existence start. This centre lies within us and a 'human' itself is the common ground to find a common

solution (Sharma, 1987). This teaching explains that any solution starts and ends with humans and forms the basis of human centricity.

However, philosophy urges one to go beyond humans and states that an individual can look at oneself as an element of the whole universe while having a part of the it within oneself and at the same time realise that the same divine element is present in other beings – animate or inanimate. This thought of the sense of oneness has been summed up in the Sanskrit concept '*Vasudhaiva Kutumbakam'* (The world is one family). The statement is not just about world peace and harmony among people but about how we are a part of a fragile ecosystem that we are all dependent upon and responsible for. With every disservice to another being, we harm a part of ourselves.

This concept is later also reflected in the Heidegger-influenced school of thought of object-oriented ontology that rejects the privileging of human existence over the existence of non-human objects.

Hindu philosophy challenges the plurality of 'self' but contrarily provides the flexibility that reality could be different for different beings and cannot be dismissed just because one fails to see it. It inspires and respects the diversity of thought rather than superficial differences.

There's a common tendency to brand people based on superficial appearances and this might even translate into using stereotypes while segmenting end users. But now the design community is opening up to not just accepting but also including people from all walks of life, even if they are so called non-conforming to standard ideologies.

Design teams with people from diverse cultures, genders and skill sets could be formed at the discovery stage of a challenge rather than waiting to account for diversity at a later stage. This would help bring out individual opinions and represent the end users more broadly. Participation from representatives of different departments would help bring in a technical viability and business feasibility angle to design early on. Forming complementary teams that fill one another's gaps rather than insisting on ideal employees would help us progress towards a common goal. This process of working would help understand the problems on a deeper level rather than making mere assumptions from individual perspectives.

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Jijñāsā (Curiosity), the desire to know - Define

Once the designer has formed a set of observations, the next stage is to define the design challenge into an actionable problem statement. The question that needs answering is why people face certain challenges and then these challenges need to be clustered into themes. Designers are expected to define the objective behind every decision they take by asking 'why'. The 'five why' technique developed by Sakichi Toyoda is a scientific approach that helps define the nature of the problem and takes this thought further.

The term from *Brahma-sūtra* (Verses on the summary of the *Upanishad*, 450 to 200 B.C.), *'Athāto brahma jijñāsā'* means 'now is the time to inquire about the absolute truth'. *Jijñāsā* or the desire to know, forms the very base of knowledge that leads to the understanding of the purpose of 'existence' through the removal of obstacles like ignorance, doubts and misconceptions, by asking the 'why' behind everything (Raja 1960). It is the beginning point of deeper knowledge (*aparoksha jñāna*). It asks to walk the path of self-reflection and analyse the phenomena around. It states that understanding the ultimate goal could be attained by legitimate logic and argument concerning cause and effect. In this quest, Indian philosophers wrote about ways to obtain cognition called *'Pramanas'*.

Modern-day thinking endorses mindfulness techniques to succeed as design leaders. One such meditative practice is a 'dyad'. A dyad is a pair-based meditation practice where one person needs to ask the same question repeatedly for a few minutes and must listen without judgement while the other gives different answers every single time. Intra-team dyads would help explore different dimensions to the same question: defining the 'what' and finding different solutions to the 'how'. Conducting a self-dyad would allow one to have a conversation with oneself as if one were another person, allowing objectivity. We often think of finding innovative solutions, but this process would help incorporate iterative questioning in practice.

A shift from asking 'why' to 'why not' could help a designer change their vantage point, thus building resilience towards failure, ambiguity and taking calculated risks. This would lead to broadening one's thinking process by asking contradicting questions to oneself.

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Answering the 'why' and 'why not' behind every decision and encouraging repeated focus on the same question would help design teams find and frame innovative questions first and then come up with effective solutions.

Means of cognition - Develop

In the development stage, designers think of ideas to solve the defined question. The goal is to generate a large number of ideas that potentially inspire newer, better ideas.

In order to understand the world, classical Hindu philosophy has defined six *Pramānas* which literally mean 'the instruments in the act of knowing'. They are:

- *Pratyaksha:* Direct perception (understood through the five senses) and things that fall out of the sphere of direct perception
- *Anumāna:* Mediate knowledge
- *Upamāna:* Metaphorical relation
- *Arthāpatti:* Presumption, implication and assumption
- *Anupalabdhi:* Awareness of the known and unknown
- *Sabda:* Subject matter expert's advice

The *Pramanas* are interconnected and are used at relevant times to seek knowledge. Things that come within the sphere of direct perception for one, may fall outside for others. In such cases, the former becomes 'the authority who passes dependable knowledge from the past' for the latter. Mediate knowledge is the process of reasoning when, by specifying the invariable relation between two things, a new type of knowledge is deduced. The metaphorical relation between a word and certain class of objects through the intermediary knowledge of similarity, dissimilarity or particular characteristics can be conveyed by a field expert. Presumption, postulation, supposition, implication and assumption is a process of assuming some unknown fact in order to account for a well-known fact which is otherwise inexplicable. It is critical to be aware of the absence of the object by means of non-perception or non-apprehension. It may seem absurd that the non-apprehension of a thing is the means to the acceptance of its non-existence but it helps in accounting for things in entirety.

The *Pramanas* could provide a framework for structured ideation – the one that helps the designer initiate ideas based on each of the *Pramanas*. Their inter-connectedness would help us look beyond the initial layers and dig deeper. HCD advocates the use of ethnographic-led methods, co-designing with people, undertaking them reflexively (Giacomin, 2014). A current-day research model based on a relevant interpretation of these methods would enhance a designer's understanding of the different stakeholders and create a unique and original approach to HCD that champions an Indian worldview. Through the framework of *Pramanas*, ideation would be devoid of the influence of external factors since it would be largely self-initiated and dependent on one another for postulation. Formulating a theory of cognition would help avoid personal biases, make assumptions, validate them, understand the world through different lenses and thus expand vision. Designers would then transition from the execution to facilitation.

The role of emotions - Deliver

Delivery involves testing out different solutions at small-scale, rejecting those that will not work and improving the ones that will (Design Council, 2004).

"Interaction Design is the creation of a physical and emotional dialogue between a person and a product, system or service manifested in the interplay between form, function, and technology as experienced over time" (Kolko, 2011).

Some social norms believe that cognitions derive their status as thoughts capable of rationality, because they have objects which represent the external world. By contrast, feelings are some of the non-representational and unstable attitudes one can have towards the objects of the representations of our thoughts. They regard emotions as an obstacle to rational thought because of their non-representational nature.

However, the *Shaivite* school of Indian philosophy talks deeply about putting value in emotions rather diminishing them as unstable. A chat with Sophie Gaur, Design Teacher, RMIT University, threw light on how one might create an emotionally and intellectually robust third space that addresses the more complex ideas around an aesthetic coherence in

cultural plurality. In Indian tradition, the works of *Bharathmuni* (5th century), have contributed greatly to the understanding of emotional experiences. There is a strong emphasis on the experiential aspect of emotions. The concept of *Rasa* (aesthetic relish) is central to this approach to understand *Anubhava* (affective experiences) as explained in *Bharathamuni's* treatise on drama and theatre, *Natyashastra* (11th century). It deals with all three components - physiology/behaviour, cognition and feelings - in detail. He describes eight *Bhavas* (aesthetic moods) corresponding to eight *Sthayibhava* (major emotions). Major emotions are innate and are considered as *Samskaras* (permanent mental traces). These, when accompanied with the object of emotion Vyabhicaribhava (transitory emotions) and experience, can give rise to emotion. Transitory emotions are not innate. They represent the day-to-day normal life and are experienced in changing situations. These theories are based on relishing the work of art by distancing oneself while experiencing or creating it and simultaneously staying true to the intrinsic permanent emotion or self. It is influenced by the *Vedantic* view (related to the end of *Vedas,* ancient texts that reflect a world view to leading an enriched life) - all experiences of pleasure and pain, satisfaction and dissatisfaction are due to the assertion of self. This system of aesthetic relish centres around staying in the process of creation and constant improvement by drawing a circle around things, rather than getting into specifics to obtain a multi-layered response as distinct from a singular one.

Accounting for emotions, of both the designers and users is vital because they govern the experience of a product or service. It is especially important for designers to view their ideas objectively in the testing phase to receive unbiased feedback and act on it. Emotional investment in one's work is natural but one should counter it with a sense of detachment to stay neutral. Several factors could affect morale, so, it's our responsibility to create safe working conditions for designers to discuss feelings and confront weaknesses.

This idea is further explained through phenomenology - the ability to look at a problem or journey in service design by zooming out and studying more contexts and the experiences of the people involved. This causes an overview effect, enabling one to see something in its entirety, working as a whole, creating a cognitive shift to help build vision for the future.

Designing 'for' a stereotypical audience would then shift towards designing 'with' a much larger diverse world group through methods like participatory design.

Reflections through the lens of design

The nature of Hindu philosophy itself is iterative. The *Rigvedas* (Ancient Sanskrit text of hymns on how to lead life) encourage rational and logical discussions from any person who wishes to challenge their authority. A new design-leadership model that is based on The Double Diamond and ancient Hindu philosophy could be thought of while building teams that accept an unstable state of knowing while maintaining the stability of one's state of mind. The following principles based on a blend of Hindu philosophy and contemporary leadership models could help build coherent teams that embrace diversity:

- Discover:
  Challenge the plurality of 'self', but in contrast provide the flexibility that reality could be different for different people and cannot be dismissed just because one fails to see it
- Define:
  Practice objectivity to frame questions based on assumptions
- Develop:
  Contextual selection of team members - creating a space where teams work towards a common goal with the freedom to safeguard their unique identity
- Deliver:
  Expanse of time and agility - building teams that make quick shifts from learning from past mistakes, to build mini stages of momentary utopia in the present to create a sustainable future

Ancient philosophy should not be dismissed as arcane but blended with contemporary contexts to create a third space that includes cultural diversity. Hindu philosophy sets the stage for an enigmatic paradigm by teaching practical life skills to attain an ultimate state of peace and stability. It demands a blend of staying within worldly boundaries to understand what lies beyond our purview. It accepts ambiguity to accommodate variables. A paradoxical arrangement of attached detachment to the 'self' could help us integrate diversity of thought yet stay

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true to who we are as designers. A designer thus needs to subtly oscillate between emotional experiences and logical explanations thereby creating a new dimension of working that includes the richness and variety of judgement.

In a speech about Hindu philosophy at the Parliament of the World's Religions, Chicago on 11th September, 1893, Swami Vivekananda beautifully summed up the idea of coherence and wholeness. He began with the salutation, "Sisters and brothers of America!" His words resonated with the audience and he received a spontaneous standing ovation from a crowd of seven thousand, which lasted for two minutes. I believe coherence stems from the inherent quality of oneness - a sense of belonging, as vividly described by ancient Hindu philosophy. We all possess it and it transcends superficial differences thus helping us embrace, respect and value diversity to build coherent work places.

Bibliography

The philosophical terms, concepts and teachings mentioned above are in Sanskrit and have been translated into English. I acknowledge that there are limitations to translations and they may not convey the exact meaning even if they are sourced from reliable places.

Mahāvākyas: The great sayings from the *Upanishads,* texts for searching answers to the internal spiritual quest

Vasudhaiva Kutumbakam: The world is one family

Jijñāsā: Curiosity or the desire to know

Brahma-sūtra: Systematic summary of the Upanishads (450 BCE and 200 CE)

Athāto brahma jijñāsā: In order to get out of the bodily conception, one has to increase inquiry about truth

Aparoksha jñāna: Recognizing the non-duality of 'self'

Pramanas: Means of knowledge

Pratyaksha: Knowledge gained through direct experience

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Anumāna: Inference through prior knowledge

Upamāna: Metaphorical explanation

Arthāpatti: The study of cause and effect

Anupalabdhi: Awareness of non-perception

Sabda: Words from the expert

Paroksha: Mysterious or something that falls out of direct perception

Vyapti: Knowledge of concomitance

Sadhya: Goal

Sadhana: Means of achieving the goal

Abhava: The quality of non-existence

Rigveda: Ancient Sanskrit text of hymns on how to lead life, rituals and ways to reach the ultimate

Shaivite philosophy: A dualistic philosophy that considers the grace of one power

Bharathmuni: Ancient Indian theatre and music expert who wrote *Natyashastra*

Natyashastra: Treatise on drama and theatre by *Bharathmuni*

Rasas: Moods/emotions influential in defining the nature of Indian art forms

Bhavas: The emotion or mood conveyed by a performer

Rasas (aesthetic moods)	*Bhavas* (major emotions)
Sringara (love)	*Rati* (erotic)
Hasya (comic)	*Hasa* (mirth)
Karuna (pathos)	*Soka* (sorrow)

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Raudra (furious)	*Krodha* (anger)
Vira (heroic)	*Utsaha* (energy)
Bhayanaka (horror)	*Bhaya* (fear)
Bibhasta (odious)	*Jugupsa* (disgust)
Adbhuta (marvel)	*Vismaya* (astonishment)

Sthayibhava: Innate or permanent emotion
Samskaras: Permanent mental traces

Vyabhicaribhava: Transitory emotions that rise and return to the innate ones

Anubhava: Affective experience

Vedantic: Related to the end of *Vedas,* ancient texts that reflect a world view to leading an enriched life

References

Kolko, J. (2007). Thoughts on Interaction Design. San Francisco CA: Morgan Kaufmann Publishers.

Giacomin, J. (December 2014). What Is Human Centred Design? The Design Journal, 17:4, 606-623, DOI: 10.2752/175630614X14056185480186

Raja, C.K. (c1960). Some fundamental problems in Indian philosophy. Delhi: Motilal Banarsidas.

Sharma, G.R. (1987). The Idealistic Philosophy of Swami Vivekananda. New Delhi: Atlantic publishers.

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Design performativity in cultural service for creating social impact

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Abstract

In the increasingly complex social context, service design shows its advantage in dealing with wicked problems and provoking social innovation through systematic thinking and public participation. Besides the innovation in the dimension of problem-solving, service design has the potential to play an essential role in creating social impact to lead a larger scale of social change. If we regard cultural service design as a sense-making activity, performativity is important in trying to magnify the sensitivity of visitors' experience. This paper adopts an interdisciplinary approach to transfer the knowledge from performance studies to enhance the ability of cultural service in sense-making and impact-creating. This paper conducts a preliminary review in order to understand service design as a sense-making activity, whilst exploring the potential of performativity in achieving social impact. After structure analogy and case analysis, an initial meta-design framework is proposed, enlightening a set of critical stages and elements in potential applied projects.

Keywords: design performativity, cultural service, social impact, performative cultural service

Introduction

In the increasingly complex social context, service design shows its advantage in dealing with wicked problems with systematic thinking. Meanwhile, it's becoming one of the main methods in social innovation, used to solve increasingly complex social issues. In *Design, when everybody designs*, Manzini (2015) divided design activity into two dimensions: problem-solving and sense-making. Besides innovative solutions, design for social innovation also requires social impact, which can lead to a larger scale of reflection, innovation and social change, thereby promoting the development of design culture. As a sense-making activity, cultural service design demonstrates its potential by fostering open participation, dialogue triggering, and relationship rebuilding. Cultural services could be a strategic approach in leading and promoting social communication, as well as the exploration of new possibilities from paradoxes in social reality.

If we regard cultural service design as a sense-making activity, the role of performativity is to magnify sensitivity for visitors to understand through interactive narratives (Figure 1), or making them become either witnesses or participants in the process of change. For example, Dialogue in the Dark is one of the world's most exciting life-changing experiences, where visitors are guided by blind guides in absolute darkness. Visitors are pushed out of their comfort zone into a world without pictures. Thus, a role reversal is created, whereby the sighted become blind and the blind gain sight. This experience generates empathy and advances social inclusion.

Figure 1: The relationship between cultural service and performative strategies

The nature of performance indicates its potential to achieve empathy, foster psychological cure, and provoke reflection through changing the role and perspective of spectators. It also suggests an intuitive way to communicate and demonstrate the tension between different elements

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and stakeholders. Meanwhile cultural services like museums, serve as a medium to connect people and communities. This ensures innovation in terms of time continuity, and thus generates a more significant impact. This paper presents an attempt to introduce knowledge from performance studies into the field of service design, and propose "performative cultural service" as a new concept.

The research question that arises is how to improve performativity and achieve optimal social impacts in cultural services, when informing the process with sense-making? Through analogy and case analysis, this paper attempts to propose a meta-design framework, underlining the aspects and steps to increase performativity, to support research and projects in related fields.

This paper is structured as followed. First, the authors give an overview of sense-making and explore the possibility that service can be viewed as a meaning bearer or transmission channel. The second part is about the potential of performativity in producing social impact. Third, the structure of a performative cultural service will be proposed through analogy. Finally, the meta-design framework will be established through case study, together with directions to develop relevant design strategies.

Service design as a sense-making activity

Service design could be regarded as a sense-making activity from two perspectives. The first relies on the function of systematic coordination to achieve common shared recognition; the second refers to services aiming to create a meaningful experience, like relational services and cultural services.

From the lens of service design, sense-making is"a motivated, continuous effort to understand connections, to anticipate users' trajectories and act effectively" (Klein et al., 2006). As stated by Mager & Sung (2011), service design coordinates processes, systems, and practices through a holistic understanding of the system and different actors and influential factors within the system. According to Meroni & Sangiorgi (2016), service design is a co-creation process aimed at achieving better experience or mobilizing energies for change through involving different actors and integrating their expertise, with the user as a resource, and the designer as facilitator or provoker. Therefore, service designers also play the role of coordinator in systematic sense-making.

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Meanwhile, services for creating meaningful experiences are pervasive, like relational service (Cipolla & Manzini, 2009), service design for collaborative communities (Jegou & Manzini, 2009), and cultural services like service in a museum. Maines (2000) stated that sense-making in service design is a social construction of meaning, that developed during social interactions, especially face-to-face service encounters. According to Kolko (2010), sense-making in design synthesis is "an action-oriented process that people automatically go through to integrate experiences into their understanding of the world around them."

Dennington (2017) states that service design could serve as a cultural intermediary, translating socio-cultural phenomena into a meaningful experience through "Triple Semantic Transformation". This entails translating and giving meaning to the identified socio-cultural trend, then transforming it into a service concept, and finally into details of the service. However, the particulars are lost in transmission, making the framework impractical.

According to De Jaegher & Di Paolo (2007), meaning is generated through social interaction and enactive experiences which matter to the subject. They defined participatory sense-making as "the coordination of intentional activity in interaction, whereby individual sense-making processes are affected and new domains of social sense-making can be generated that were not available to each individual on her own".

The definition indicates that it is not the lack of expressiveness that undermines sense-making, but the ongoing engagement that has unhinged the process. So they introduced the concept "coordination" - patterned behavior such as synchronization, mirroring, anticipation and imitation, to connect temporal aspects of interaction and their consequences for joint and individual sense-making. Therefore, sense-making in service design is mainly addressed in shared meaning and value individually and collaboratively through coordinating the expressiveness and temporal aspects.

As an interactive and intuitive language, performativity coordinates all the elements systematically, from the physical environment to human senses, from the narrative to emotional resonance, to achieve an optimized and impactive experience. Therefore, the transformation of performance knowledge into cultural service design deserves our concern.

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Performativity as a design strategy to create social impact

Performativity, as first defined by Austin (1975) in his book *How to do Things With Words*, is the capacity of communication to act or to consummate an action, a language that effects change in the world and functions as a form of social action.
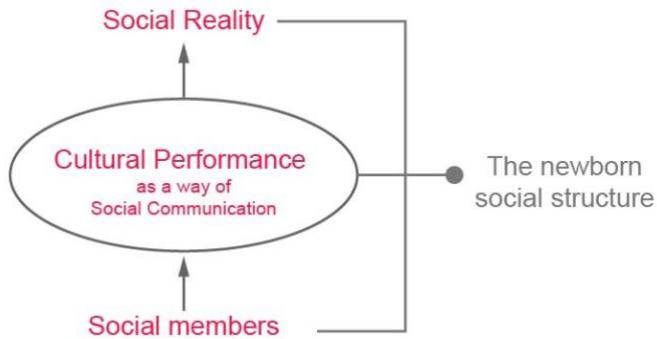
Figure 2: The social function of performance

The social function of performativity has been widely discussed (Bauman, 1984; Phillipson, 1972; Singe, 1955), suggesting that social reality can be constructed and communicated among social members through social communication (Figure 2). As a way of social communication, according to Bauman (1984), performance has a quality of reflexivity, as it can provide a situation that enables one to enter the other's attitude and experience and start to look at itself from the other's perspective. Therefore performativity could enhance one's self-awareness and social identity.

The performative experience is a process-based approach, where enhancing performativity may not necessarily mean increased functionality, but aims to create more meaningful and memorable experiences (Van Doorn et al., 2005). Dixon (1999) stated that performance could involve audiences in virtual world experiences that they can't have but which can be simulated. The magic of a performative experience is that we may not change the social reality by individual effort, but it can provide space for us to explore, discuss, or even try alternatives. Thus, when we come back to reality, we may start to think in a new perspective, to reflect and gain more inspiration and strength to change.

These experiences increase the possibility of applying the knowledge of performance study to service design, and proposing the concept of "performative cultural service." Cultural service experience could be

designed in a more performative and immersive way, to create social impact and to promote social inclusion and social innovation.

Kester (2014) pointed out that the performative approach is a context provider rather than a content provider. With the symbolic context, as Singer (1955) stated, the focus of the performative experience is role-playing, which creates an expressive concept and an interpretable interpretation of performance. Csikszentmihalyi (1991) noted that an optimal experience is not so much the result of finishing a task but more about being immersed and engaged in the process of performing the task. While Davis (1995) argued that the experience is like performing in an interactive drama, immersing in self-reflection through performing, rather than just watching. To conclude, the performative experience could be regarded as a co-produced process, where designers strive to create a context where users' thoughts and attempts could be amplified and integrate harmoniously with those experiences. Users could have their own interpretations as an echo during the encounter, and achieve multiple narratives, associations, and meanings during the interactions.

To design a performative experience, Van Doorn et al. (2005) proposed a feasible direction that connected behaviour and environment. In *The presentation of self in everyday life*, Goffman (1978) metaphorized daily life behaviour into performance, and stated that people follow culturally specified social scripts that influence each other. While Van Doorn et al. (2005) argued that if people behave according to social scripts, we may succeed in codifying the environment to support people in carrying out these scripts or performing their daily life. In this research, the authors attempt to include more diverse elements to formulate a comprehensive view of performative services.

Methodology: framing the structure of performative service

To understand in which aspects can service design intervene to achieve performativity, this research starts with identifying the structure of performative services. Service and performance are closely associated and service itself has been widely described as "performance". Fisk & Grove (1992) proposed a theatre framework for service experience with metaphor, in which service personnel as actors, the service setting as the stage, products as props, and the business process as the script. So we may formulate the structure of performative service through analogizing it to a performance structure, with questioning how to coordinate all the

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different elements in cultural services to generate performative experience. Therefore, the sense-making mechanism of performance is required to identify.
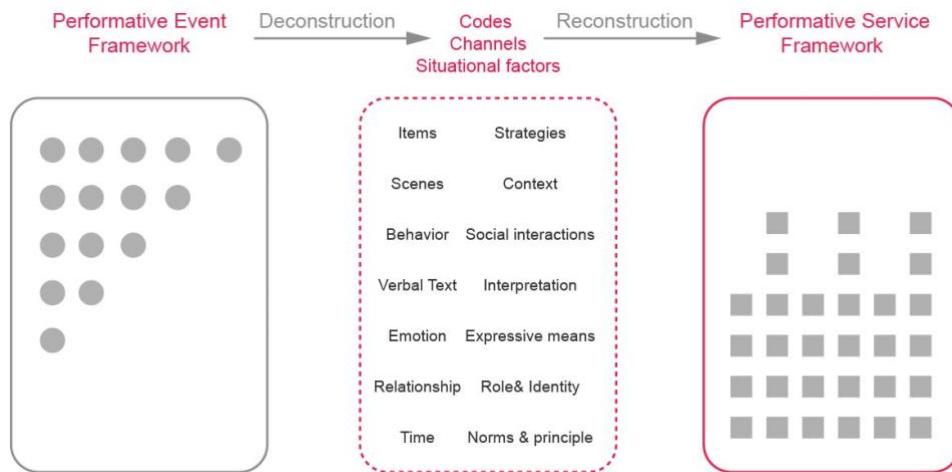
Figure 3: Hypothesis: analogy to frame the structure of performative service

According to Bauman (1984), performative events are used to accomplish large-scale communication through a variety of codes and channels, in which the shared part is called "shin in the frame of experience." The structure of a performance is the product of a systematic interaction of various situational factors, including but not limited to: the identity and role of the participants; the expressive means used in the performance; the basic principles of social interaction, norms, strategies for performance, and standards for interpreting and evaluating performance; and a series of actions that form the context of the incident. If we regard performance as a framework of social communication among specific communities, we may reconstruct the communicative framework of a service through analogy, so as to enhance its ability in sense-making (Figure 3).

In *The structure and the deconstruction of drama*, Huizhu (2006) divided the structure of drama into two layers: Theatrical layer with physical setting and Narrative layer for story-telling. In this research, the concept of performative culture service is proposed to produce social impact. Therefore, the third layer Social Impact is added to the primary analogy structure (Figure 4). The performative experience is co-created, where writers (designers and institutions) create a context to support readers' own sense-making and provide different storylines or possibilities for

readers to explore, while readers (users or visitors) interact with narrative to create their personal experience and story.
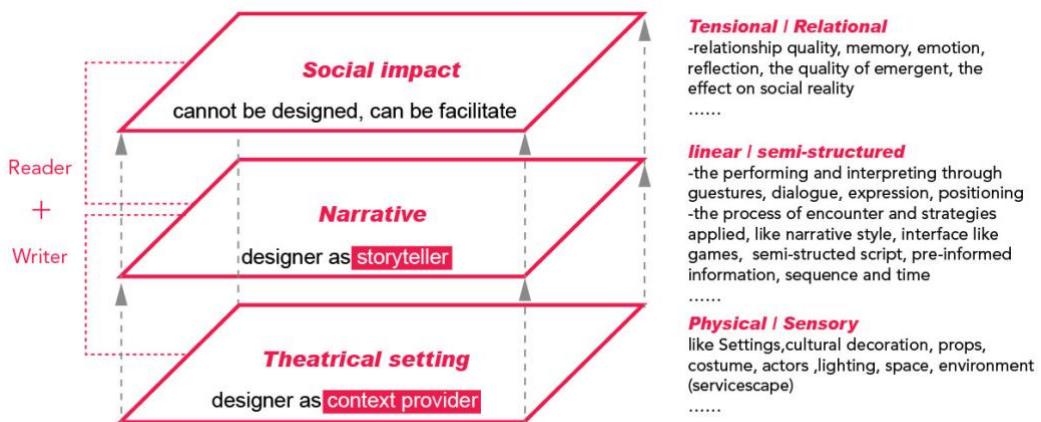
Figure 4: The structure of performative service for social impact

Since services are processual, the various performative elements blend throughout a service delivery to create its performance. According to the time sequence, a performative experience could be divided into three stages: Context, Process, and Catharsis (Figure 5). With this in mind, we could build a matrix dominated by three layers and three stages, so as to figure out the elements or factors that could be the carrier of performativity, as well as the corresponding design strategies.
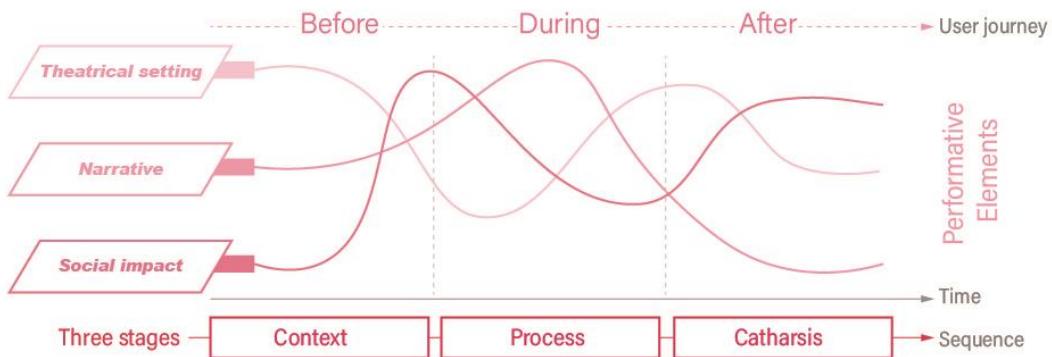
Figure 5: Three stages of performative cultural service

In order to identify potential parameters in performative experience, this research analyzed 23 relevant cases to refine the framework. including :

- Four cultural services for social innovation: Conflict Kitchen, Far-Near, Pragulic, Lodge a Student at Home;
- Two performative exhibitions: "sensitive environment" series curated by Studio Azzurro, Tra 100 anni al museo;
- Three performative events/workshops: Essere Storie, Avatar Tales, Biblioteca Vivente;
- Nine performative museums: Tenement Museum, Billy Graham Museum, Head-Smashed-In Buffalo Jump, Chinatown History Museum, Museum of Tolerance, Skansen Museum, Wali Local Museum, Casa Batllo, Palace Museum
- Two applied theatre productions: Forum Theater, "Impression" series directed by Yimou Zhang
- Three performative experiences: Heineken Experience, Hamburg Dungeon, Dialogue in the Dark

All these cases are related to performativity, and most of them could be regarded as an attempt at social innovation. Through analyzing these cases (Figure 6) in the first step, the authors listed the performative parameters in each case and the corresponding performative strategies. In the second step, the elements or parameters for design intervention were identified through abstraction and synthesis. In the third step, all the elements were sorted by the three layers, theatrical setting, narrative and social impact. After mapping all the elements, a matrix was built as the initial meta-design framework.
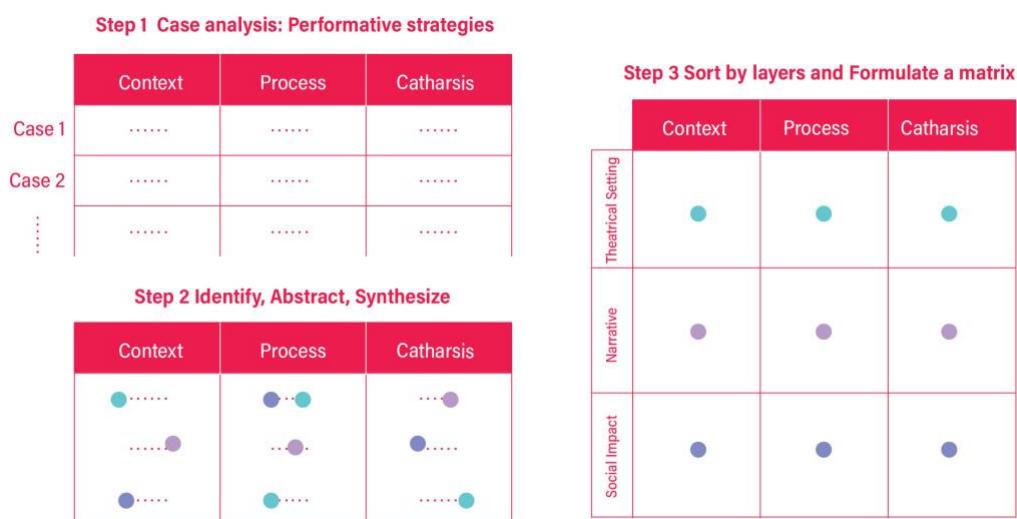
Figure 6: Case study to develop the initial meta-design framework

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Proposing an initial meta-design framework

The initial meta-design framework was proposed to provide an overall perspective on the design of performative cultural service for social innovation, through illustrating the aspects and elements that need to be concerned in practice. Through literature review, structure analogy was conceived as a hypothetical direction to bridge two disciplines: performance studies and service design. Based on analogy and case study, this paper presents a theoretical framework (Figure 7) with three layers and three stages, to enhance the performativity and social impact of cultural service.

However, as we mentioned before, a performative experience is a co-produced process, so it can't and shouldn't be designed fully. It would be a process of losing control or letting it go, when the design material becomes more abstract while time moves forward. Just as Murray (2017) stated, to create natural and memorable experiences, a balance is required between the freedom to interact when we perform and the structure that is imposed on us by our environment. Well-designed interactive narratives carefully balance these two views, to leave room for users own imagination, reinterpretation, and contribution.
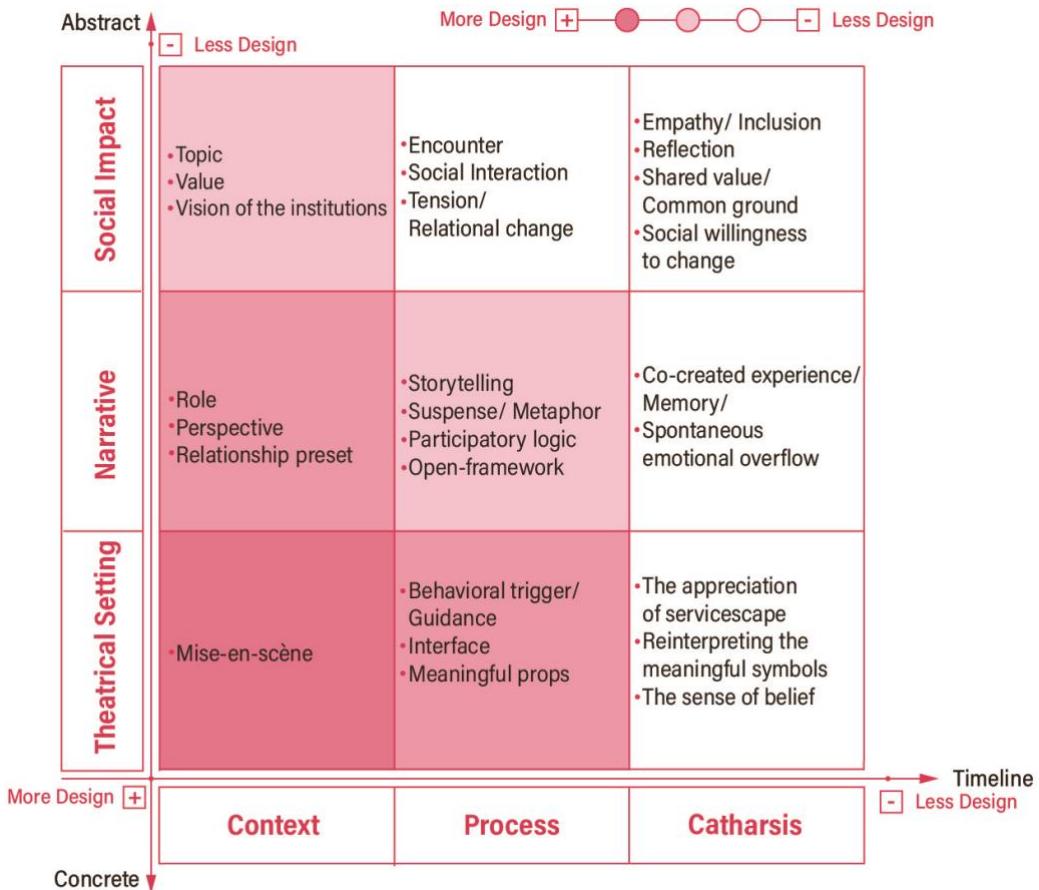
Figure 7: initial meta-design framework

In the initial meta-design framework, there are three stages if we deconstruct a performative experience: Context, Process, and Catharsis (Figure 7).

- Context: It serves as the base for the performative interpretation, including mise-en-scène, like settings, time and space, sound and lights and atmosphere, which could provoke emotion and lead users into the scene. In the layer of context, the role and perspective of visitors will also provide the starting point of narratives. With the same scene, but with different roles or perspectives highlighted, a drama would achieve different effects, focuses, and interpretations. For example, in "The Holocaust Section" of The Museum of Tolerance (Figure 8), visitors receive tickets with different pictures of Jewish children on them as a passport. The condition of the child will be updated throughout the museum tour, until at the end of the tour, whether the child survived

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or died will be revealed. The technique from the third perspective to the first perspective has been used to turn visitors into witnesses or one part of history, which creates empathy and emotional impact. In this layer, the designer is a context provider who creates a context that supports story making and will create a lasting and memorable experience in the minds of the people who visit it.

Figure 8: The Museum of Tolerance

- Process: The storyline slowly unfolds in the second layer, leading visitors to become immersed in the whole process gradually with suspense and hints, and this sense is co-created by designers and visitors. The core purpose of this layer is to reconcile "narrative" and "interactive," that is, the contradiction between the linearity of reconciling narrative and the nonlinearity of participants. Narrative meaning is the product of top-down planning by designers, and interactivity requires user input from the bottom up. To achieve this reconciliation, a balance is required between an imposed structure and the freedom to perform.
- Catharsis: The first two stages can be designed in advance, while the relation, reflection and emotion in the third layer are improvised and cannot be designed but must be facilitated through controllable parameters in the first two stages. As a successful performance is co-created by designer and visitor, the emotion and the "performance" of an audience becomes spontaneous overflow, something that designers cannot design or control. They can only facilitate the process and let it unfold.

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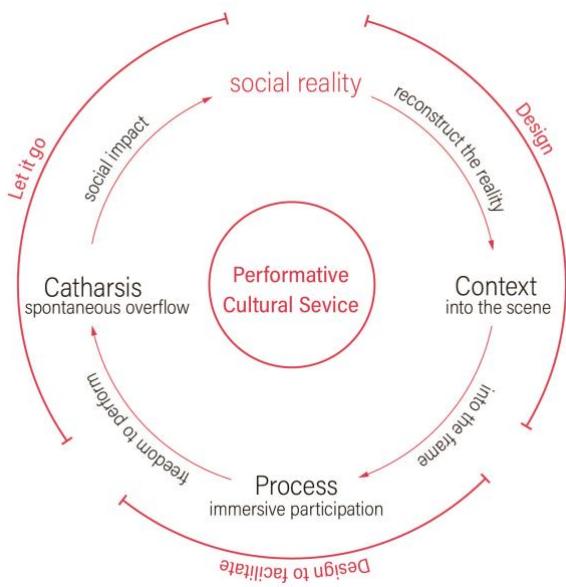
Figure 9: How performative cultural service promotes social change

The three stages could also be organized circularly (Figure 9), to demonstrate how could a cultural performative service smooth the process of social cohesion: reconstruct reality, lead visitors into the frame, give freedom to perform, and create social impact.

Discussion

The initial framework for this approach hasn't been tested, and could benefit from further refining with a more elaborated case study and expert interview. Moreover, performative strategies summed up during the case study are not present in this paper due to word limits. For example, regarding to the parameter "role and perspective" in Context layer, The Museum of Tolerance used a strategy called "from the third to the first perspective". Besides that, we summarized more strategies about "role and perspective" from other cases, including: "mutual conversion between macro and micro"(from community to individual, from history to this moment), "from reality to imagination", "from the perspective of living to the perspective of watching drama". All the strategies are redesigned and transformed into a toolkit, which will be tested together with the framework in co-creation workshops and in a real project.

Two issues could be explored further in the future. The first is how to design digital performativity with ICT, while the second is the issue of authenticity and ethics when performative cultural services are applied to museums.

Conclusion

The aim of this research was to investigate the possibility of applying the knowledge from performance studies to service design, so as to improve its ability in sense-making and social impact-creating. This research attempted to contribute an initial meta-framework, with a set of key stages and elements enlightened, to promote the relevant research, and bring inspiration to the actual design activities.

References

Austin, J. L. (1975). How to do things with words. Oxford, UK: Oxford University Press.

Bauman, R. (1984). Verbal art as performance. Long Grove, US: Waveland Press.

Cipolla, C., & Manzini, E. (2009). Relational services. Knowledge, technology & policy. 22(1), 45-50.

Csikszentmihalyi, M. (1991). Flow: The psychology of optimal experience (Vol. 41). New York, US: HarperPerennial.

Davis, T. C. (1995). Performing and the real thing in the postmodern museum. The Drama Review (1988-), 39(3), 15-40.

De Jaegher, H., & Di Paolo, E. (2007). Participatory sense-making. Phenomenology and the cognitive sciences, 6(4), 485-507. DOI: 10.1007/s11097-007-9076-9

Dennington, C. (2017). Service design as a cultural intermediary. Translating cultural phenomena into services. The Design Journal, 20(sup1), S600-S613. DOI: 10.1080/14606925.2017.1353008

Dixon, S. (1999). Digits, discourse, and documentation: performance research and hypermedia. The Drama Review, 43(1), 152-175. https://doi.org/10.1162/105420499320582213

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Goffman, E. (1978). The presentation of self in everyday life. London: Harmondsworth.

Bochner, S. (1996, November). Mentoring in higher education: Issues to be addressed in developing a mentoring program.

Grove, S. J., & Fisk, R. P. (1992, October). The service experience as theater. Paper presented at the 19th Annual Conference of The Association for Consumer Research, America. Retrieved from http://www.acrwebsite.org/search/view-conference-proceedings.aspx?Id=7341

Huizhu, S. (2006). The structure and deconstruction of drama: Narrative Structure and Theater Structure (Vol. 5). Taiwan: Shulin Publishing Co. Ltd.

Jégou, F., & Manzini, E. (2008). Collaborative services. Social Innovation and Design for Sustainability (Vol. 1). Milan, Italy: Polidesign.

Kester, G. H. (2004). Conversation pieces: Community and Communication in Modern Art. Berkeley, US: University of California Press.

Klein, G., Moon, B., & Hoffman, R. (2006). Making Sense of Sensemaking 1: Alternative Perspectives. Intelligent Systems , 21(4), 71. DOI: 10.1109/MIS.2006.75

Kolko, J. (2010). Sensemaking and framing: A theoretical reflection on perspective in design synthesis. Paper presented at the Design Research Society (DRS) international conference Design & Complexity, Canada. Retrieved from http://www.drs2010.umontreal.ca/data/PDF/067.pdf

Mager, B., & Sung, T. J. D. (2011). Special issue editorial: Designing for services. International Journal of Design, 5(2), 1-3.

Maines, D.R. (2000). The social construction of meaning. Contemporary Sociology, 29(4), 577-584. DOI: 10.2307/2654557

Manzini, E. (2015). Design, when everybody designs: An Introduction to Design for Social Innovation. Cambridge, US: MIT press.

Meroni, A., & Sangiorgi, D. (2016). Design for services. London, UK: Routledge. https://doi.org/10.4324/9781315576657

Murray, J. H. (2017). Hamlet on the holodeck: The future of narrative in cyberspace. Cambridge, US: MIT press.

Phillipson, M. (1972). Phenomenological philosophy and sociology. New directions in sociological inquiry, 119-164.

Singer, M. (1955). The cultural pattern of Indian civilization: A preliminary report of a methodological field study. The Journal of Asian Studies, 15(1), 23-36. https://doi.org/10.2307/2942100

Van Doorn, M., van Loenen, E., & de Vries, A. (2007). Performing in ambient narratives: supporting everyday life performances with technology. The Drama Review, 51(4), 68-79

Moving towards plurality: Unpacking the role of service design in relation to culture

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Abstract

Over the past two decades, there has been growing discussion about the relationship between service design and culture. However, these discussions are often fragmented and ambiguous, limiting the nuance in how culture is understood in service design. As such, the purpose of this paper is to build a more comprehensive understanding of the role of service design in relation to culture by drawing together discussions from existing literature. What emerges from our literature analysis is a framework presenting four different views on the role of service design in relation to culture, each with distinct interpretations of culture and its connection to service design. Furthermore, we present the emerging issues related to each of these four views, highlighting the overall necessity of attending to cultural pluralities in service design. We propose that a dynamic movement between these different views can provide service design practitioners and researchers with a decentralized perspective that can help them get unstuck from perpetuating a single, static understanding of culture.

Keywords: culture, plurality, service design, design

Introduction

"*Culture is one of the two or three most complicated words in English language*" (Williams, 1983, p.87). Williams (1983), a seminal theorist of culture studies, proposes three general definitions of culture: 1) a common process of intellectual, spiritual and aesthetic development; 2) a particular way of life of people or a group; 3) texts and practices whose function is to signify or produce meaning. Despite decades of related research, culture remains a wide and ambiguous concept that is difficult to define (Milner & Browitt, 2013).

This difficulty in interpreting culture also manifests itself in service design. Over the past two decades, there have been growing discussions about culture and how service design relates to it. For example, Cipolla and Reynoso (2017) suggested that analysing cultural aspects within existing indigenous services can provide valuable insights for developing new service concepts for low-income regions. With regards to organisational change, Yu and Sangiorgi (2018) considered the transformation of organizational culture as an effective way to promote participatory service innovation. In connection with service businesses, Dennington (2018) highlights the value of service designers' abilities in the conveyance of popular cultural meaning through service offerings. Many cultural concepts have been coined, used or adapted to explore the relationship between service design and culture. However, these discussions about culture are fragmented, which inadvertently may limit the ability of designers and researchers to explore the richness and diversity of culture in service design. Consequently, there is a need for a more holistic understanding of the role of service design in respect to culture as well as a need to build an understanding of culture that appropriately reflects service design's values, ideals and professional practice. Furthermore, without an understanding of the different perspectives on what service design is doing in relation to culture and some of the related issues, practitioners and researchers may unknowingly contribute to the erosion of cultures or the imposition of one culture over another (Tlostanova, 2017).

In response to this challenge, the purpose of this paper is to build a more comprehensive understanding of the role of service design in its relationship to culture by drawing together discussions from existing literature. To achieve this aim, this paper develops a two-by-two framework in which existing literature is positioned in relation to its view on culture (*pre-existing* or *becoming*) and how service design is seen in relation to culture (*separate* or *entangled*). This framework reveals four

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distinct views on the role of service design in culture. Furthermore, we provide a brief explanation of the key emerging issues in relation to each of the four overlapping and interrelated views on the relationship between service design and culture. We propose that a dynamic movement between these views is one promising approach to address many of the emerging issues because it can provide service design practitioners and researchers with a decentralized perspective to better understand and work with a plurality of cultures.

Approach

We employ articles related to culture in service design as the data source for this analysis of the role of service design in relation to culture. These articles are collected from academic journals and conferences in service design (e.g., Design and Culture, Design Issues and ServDes) and other related fields (such as Co-design and Social Innovation). In our sample, we selected not only texts that explicitly discuss culture, but also articles from which cultural factors are taken into account indirectly. To understand how service design researchers view culture and how they position the relationship between service design and culture, we did meaning condensation of excerpts that were drawn from the literature (Kvale, 2007). The fragments of segmented text were clustered into four views (Describing, Shaping, Adapting and Enacting) by seeking similarities and differences, which is referred as the initial code (Charmaz, 2014). These were then finally condensed and synthesized within a matrix that differentiates their perspective of culture in relation to time and the relative connection between service design and culture (focused code) (ibid). Based on this analysis, we built a framework that brings together these four perspectives to show their differences and similarities. Based on the framework, further analysis of articles was conducted to synthesize emerging issues related to each of the different views on service design in relation to culture.

The framework for understanding culture in service design

In its basic form, the framework is a two-by-two matrix (see Figure 1), which presents four different quadrants for plotting the position of different views on service design in relation to culture. These different

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interpretations of the role of service design in relation to culture can be distinguished across two dimensions.

The first dimension reflects how culture is viewed in relation to time in service design. In some service design literature, culture is viewed as *pre-existing*, which is often conceptualized to depict and to understand the current situation based on the evidence of the past and the present (Spencer-Oatey, 2008; van Boeijen, 2015). Such a view is often reflected by researchers who stress that culture sets the context before service design activities and that this pre-existing context exerts a deep influence on the service design process (Dalsgaard, 2017). On the other hand, some scholars emphasize that service design is concerned with culture in the future, what might become (Bremner & Roxburgh, 2014), and the ethical practice of world-making (Escobar, 2018). In this view, culture is recognized to be always in the process of *becoming*, in which the shared values and processes of groups are constantly evolving.

The second dimension relates to how researchers position service design in relation to culture. On the one hand, culture and service design are separate. In some research, there is a tendency to otherize culture from service design, seeing culture as a separate entity from service design (e.g., Lee & Lee, 2007). In a methodological perspective, design pragmatically focuses on how to transform the situation (Dalsgaard, 2017), which is sometimes referred to as solution-ism (Manzini, 2016). On the other hand, service design and culture are *entangled*. In this research, service design and culture are seen as intimately intertwined (e.g., Manzini, 2016; Akama et al., 2019). A phenomenological perspective holds that service design, as an ontological instrument, is process of organic and continuous transformation, which is entangled with the real world (Akama & Prendiville, 2013). This, makes it difficult, if not impossible, to separate service design from culture.

Framed by these two pairs of alternatives, *pre-existing* and *becoming,* and *entangled* (phenomenologically) and *separate* (pragmatically), the different perspectives on the relationships between design and culture gradually become clear. We name these views "describing", "shaping", "adapting" and "enacting". As shown in Figure 1, these four views are interrelated and overlapping, as service design may play more than one role when interacting with culture. Together, these four views help to unpack the role of service design in relationship to culture within service design literatures (see Table 1).
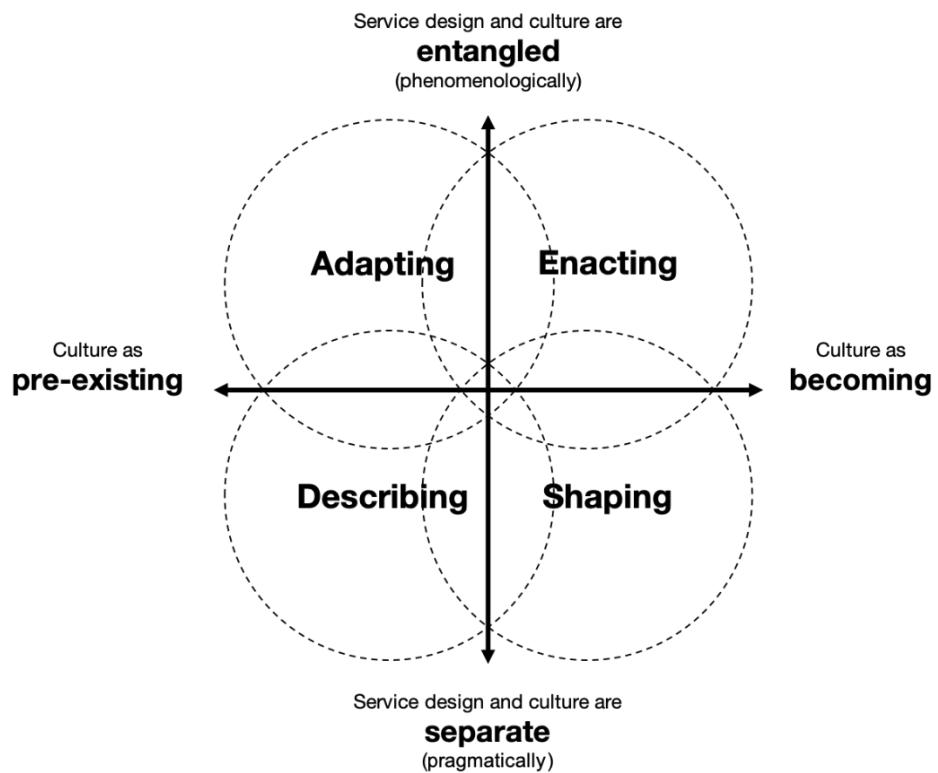
Figure 1. A framework of the views on the role of service design in relation to culture

	Describing	**Shaping**	**Adapting**	**Enacting**
Relationship between service design and culture	Separate	Separate	Entangled	Entangled
View of culture	Pre-existing	Becoming	Pre-existing	Becoming
Common service design activities	Depicting; Communicating; Illustrating	Handling; Moving; Manipulating; Impacting	Reflecting; Enhancing; Challenging	Performing; Embedding; Facilitating; Spreading
How service design interacts with culture	Service design depicts the characteristics and status of a culture.	Service design handles and moves culture carefully.	Service design must respond to changing cultural circumstances.	Service design is a process of performing and transforming culture.
Examples of the interactions between service design and culture	Service design uses different language systems and tools to describe a culture and its characteristics, providing background to service design activities (e.g., Taoka et al., 2018);	Culture can be used as an input to contribute to craft service innovation (e.g., Cipolla & Reynoso, 2017); The objective of service design can be to change culture (e.g., Dennington, 2018).	Service design approaches need to be dynamic and reflective to respond to changing cultural circumstances (Lee, 2014); Service design practitioners build/rebuild methods to adapt to complicated cultural contexts (e.g., Moalosi et al., 2010).	Every design act endorses the dominant paradigm, or proposes alternatives (e.g., Fuad-Luke, 2014). Design culture is generated from the interaction between design actions and other cultural worlds (e.g., Manzini, 2016）
Key emerging issues	Static and universal categorizations of culture denote subtle but important differences in service design (Bardzell, 2010).	Service design tends to detach methods from reality and designers in the service design process (Akama & Prendiville, 2013).	Western-centric service design approaches are mismatched with other cultural contexts (Taoka et al., 2018; Lee & Lee, 2007; Baek et al., 2019).	Service design tends to be insensitive to a multi-layered relationality of culture (Fuad-Luke, 2014; Akama et al., 2019).

Table 1. Features and issues of different views on the role of service design in relation to culture

Describing

Service design uses different language systems and tools to depict and communicate a specific culture with its own characteristics and status. This understanding provides a background to service design activities. It forms the first relationship between service design and culture. Based on the literature review, we find service design researchers regularly describe culture through geographical categorization (e.g., Baek et al., 2019; Lee & Lee, 2007). Building on cultural geography, this view sees culture as a capable entity of hierarchical transformation (Sauer, 1952). In this way, hemispheres, countries, cities, and communities can all become geographic units of culture used for the description of service design. Especially, the distinction of national boundaries is a customary way of outlining a culture in service design. For instance, Taoka and his colleagues (2018) compare the role of non-designers in co-design between Japanese and European cultural context. Cultural geography studies can present an evident correlation between place and culture (Zhao et al., 2006). Additionally, the nationality of a person can easily be established, making it an accessible mode of categorization (Dahl, 2004). People from the same country indeed often share some values and standards (Hofstede et al., 2005). Therefore, geographically defined cultures can help service design practitioners and researchers quickly understand and adapt to various cultural contexts and identify potential contextual challenges for service design activities.

However, it is necessary to recognize that the way of describing culture using geography as the only reference point can hide a more nuanced understanding of culture. Description itself is a subjective intervention through which designers and researchers participate in constructing reality, rather than being neutral (Bremner & Roxburgh, 2015). For designers and researchers, seeing and describing people of a taxonomized cultural background with geographical or nationalized categories can be speculative and risky (Akama et al., 2019). On the one hand, when it comes to culture, the place and country are imaginary and bear the subjectivity of describers (Tuan, 1977). When service design designers and researchers use pre-existing geographic divisions to describe culture, given perceptions will inevitably be brought into design activities (Dalsgaard, 2017). On the other hand, a growing number of scholars argue that it is problematic to employ national and geographical boundaries as the exclusive criteria for conceptualising culture in service design. It implies there is a unique and mechanical interrelation between geographic material and culture, which support a geographical

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determinism in service design. Here, culture could be simplified as a feature that represents the fixed geographic materials (Ingold, 2018).

Shaping

As a discipline that attaches great importance to change, some research depicts service design as carefully handling and moving culture to develop new services and further promoting cultural transformation. In these articles, service design and culture are often assumed to be two separate entities at the methodological level. Dennington (2018) suggests that the two are interactive: Culture is considered as the materials or resources for the development of a new service concept (also see Pahk et al., 2018; Cipolla & Reynoso, 2017). Service design then offers various tools and methods to offload the idea and abstract solutions that transform or shape culture by manipulating, building and evaluating the external representation of culture. Service design pays significant attention to shaping and modifying culture within organizations. Organizational culture in service design often focuses on culture at the individual level (e.g. actors' mindsets) and institutional level (e.g. structures) (Kurtmollaiev et al., 2018).

In these descriptions, service design tends to provide solutions to address specific cultural problems. It often considers the practical and economic impact of the solution while ignoring meaningful discussion of culture (Manzini, 2016). The reason for this limitation is perhaps that service design tends to detach methods from reality in the service design process (Akama & Prendiville, 2013). Designers typically employ an "outside perspective" in the service design process, which means that problems and solutions are defined and created in isolation from the particular, dynamic cultural context (Janzer & Weinstein, 2014). On the one hand, the tendency of externalization gives design practitioners plenty of space to imagine the design solutions and manipulate them (Dalsgaard, 2017). While, on the other hand, the outside perspective threatens the effect of using culture as a raw material for service design and suggests potential risks in doing so. This detachment can cause service design practitioners to intentionally or unintentionally produce outcomes that contribute to controlling the culture of others diffusely (Janzer & Weinstein, 2014).

Adapting

To confront some of the above-mentioned risks in describing and shaping culture, some literature focuses on building and challenging the cultural consciousness in service design. Scholars suggest that service design approaches need to dynamically respond to changing cultural circumstances (Lee, 2014). These activities constitute the third view of how service design interacts with culture – here it means adapting to culture. Theories supporting the geographical taxonomies, which have been extensively explored in earlier studies, have greatly influenced designers perspective of cultural observation in service design. One of the most cited and famous works on cultural dimensions is the value patterns created by Hofstede and his colleagues (2005). These cultural dimensions have been integrated into service design activities because of their concise, clear and powerful differing approaches. This approach has helped service design practitioners build methods for adapting to complicated cultural contexts (e.g., Moalosi et al., 2010).

The application of Hofstede's theory has been extended to a lot of cross-cultural and intercultural researches which are based on the classifications of nationalities in service design and design more broadly. Researcheres have shared several critical reflections regarding the issue that Western-centric service design approaches are significantly mismatched with other cultural regions. For instance, Taoka, Kagohashi, and Mougenot (2018) suggest that, in Japan, the presence of designers in the co-design process, hinders the empowerment and participation of non-designers, due to Japan's high-power distance. Similarly, Lee and Lee (2007) mention that in South Korea, which is more collectivist, user-participatory design research methods had poorer productivity and effectiveness than within the more individualistic German culture. Baek, Kim and Harimoto (2019) claim that current user-centred design framing overemphasizes the visible cultural levels (such as behaviour and structure) and risks neglecting the intangible value of culture. The above scholars all call for the enhancement of cultural awareness in the design process, specially the need for adapting design methods to different complex cultural circumstances.

Enacting

Fuad-Luke (2014) suggests that design culture is *"a continuous micro-political act of everyday"* and every design act endorses the dominant

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paradigm or a specific hegemonic view of the world or proposes alternatives. Manzini (2016) states that design culture is generated from the stimulation of interaction between design actions and other cultural worlds. These views are representative of the fourth view of the relationship between service design and culture, enacting, where service design is a means of cultural performance. In this discussion, culture is an entity in which service design is intertwined and embedded (Manzini, 2016).

Service design, as a series of continuous micro-political acts, requires a more comprehensive, dynamic approach to be sensitive to multi-layered relationality (Fuad-Luke, 2014; Akama et al., 2019). Service design methods based on conventional "scientism" are often viewed as a systemized process of using the methods (Akama & Prendiville, 2013). The process simplifies a design expert as a "process-facilitator" (Manzini, 2016) and, as such, service design is more likely to replicate the world as it is (Bremner & Roxburgh, 2014). This issue undermines the ability of service design in acting with, on, and through cultures and contributes to service design ignoring the hidden body of culture (Baek et al., 2019).

Moving towards plurality

This paper provides a preliminary framework that unpacks four views on the role of service in relation to culture. These four views often co-occur and are interrelated to each other. By reflecting comprehensively on these four views, we find that there is an overarching issue that applies to all four views; service design risks imposing an exclusive value and criterion of culture on others, as one sense of "modernity" is often over-emphasised in design (Tlostanova, 2017). The emphasis on modernity can contribute to building a new world in a messianic way by eliminating other possible ways of cultural transformation (ibid). Therefore, service design can contribute to reproducing colonial design practices, that control and discipline people's perceptions and interpretation of the world (ibid). The spread of one way of doing design contributes to the perpetuation of service design, as a global, homogenous activity, dominated by a single set of cultural interests and seeking a "Western" answer (Akama & Yee, 2016).

This exclusive, limiting perspective is dangerous to service design due to the possibilities of diluting the pluralistic richness of service (Kim, 2018). Janzer (2014) argued that designers should be sensitive to this cultural

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reality. Otherwise, they may contribute to or practice neo-colonial/colonial design. To resist the emphasis on modernity and reproduction of coloniality, service design researchers increasingly call for the need to embrace heterogeneity and a plurality of cultures. In response, one aim is to enhance the cultural awareness of service design practitioners so that they can be cautious of employing instrumental rationality and move towards a recognition of difference and plurality as the central conditions of service design (Akama & Yee, 2016).

One important concern lies in the culture of the plurality reflexive, where plurality can be self-generating for cultivating different potentials (Light, 2019). Moving towards plurality means that service design needs to be released from any single and static understanding of culture. Instead, plurality involves considering service design and culture as a unified living entity with mutual and respectful relationality. Perhaps the framework on the views of service design in relation to culture that is presented in this paper can offer a more holistic frame to think about the plurality of cultures in service design, while curbing the tendencies to see culture based on a given taxonomy.

The four views on the role of service design in relation to culture provide different contributions to the service design discipline. Service design's tendency towards the externalisation of culture can help the designer to "manipulate" design solutions pragmatically in order to pursue usability and effectiveness (Dalsgaard, 2017). However, service design has reason to question this tendency of detachment, as it may ignore the subjectivity of designer in the service design action (Akama & Prendiville, 2013). By re-focusing on the micro design actions of the every day, designers can take a more phenomenological perspective to understand the interwoven and interactive relationship between design and culture (ibid; Fuad-Luke, 2014). As such, by moving between these different views and building consciousness of the related cultural issues, this framework offers a decentralized way to work across the different views of service design in relation to culture, while recognizing one's positioning and its limitations. Our hope is that this framework opens up continued and more nuanced discussion on how service design can better recognize and work with cultural pluralities in all its views.

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References

Akama, Y., Hagen, P., & Whaanga-Schollum, D. (2019). Problematizing Replicable Design to Practice Respectful, Reciprocal, and Relational Co-designing with Indigenous People. *Design and Culture*, 11(1), 59-84.

Akama, Y., & Yee, J. (2016). Seeking stronger plurality: Intimacy and integrity in designing for social innovation. *Design and Culture*, 11(1), 1-11.

Akama, Y., & Prendiville, A. (2013). A phenomenology of co-designing services: the craft of embodying, enacting and entangling design. In *Crafting the Future: 10th* European *Academy of Design Conference* (pp. 1-16). University of Gothenburg.

Baek, J. S., Kim, S., & Harimoto, T. (2019). The Effect of Cultural Differences on a Distant Collaboration for Social Innovation: A Case Study of Designing for Precision Farming in Myanmar and South Korea. *Design and Culture*, 11(1), 37-58.

Bardzell, S. (2010). Feminist HCI: taking stock and outlining an agenda for design. In Proceedings of *the SIGCHI conference on human factors in computing systems* (pp. 1301-1310). ACM.

Bremner, C., & Roxburgh, M. (2014). A photograph is evidence of nothing but itself. In *The Routledge Companion to Design Research* (pp. 219-230). Routledge.

Charmaz, K. (2014), *Constructing Grounded Theory: A Practical Guide through Qualitative Analysis*, 2nd ed., Sage Publications, London.

Cipolla, C., & Reynoso, J. (2017). Service design as a sensemaking activity: Insights from low-income communities in Latin America. In *Designing for Service: Key Issues and New Directions* (pp. 147-162). Bloomsbury Academic.

Dahl, S. (2004). *An overview of intercultural research: The current state of knowledge.* Middlesex University Business School London: Society for Intercultural Training and Research UK 1/10 (2/ 2003), London.

Dalsgaard, P. (2017). Instruments of inquiry: Understanding the nature and role of tools in design. *International Journal of Design*, 11(1), 21-33.

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Dennington, C. (2018). *Trendslation–an experiential method for semantic translation in service design.* In Service Design Proof of Concept, Proceedings of the ServDes.2018 Conference, 18-20 June, Milano, Italy. Linköping University Electronic Press. pp. 1049-1063.

Escobar, A. (2018). Designs for the pluriverse: Radical interdependence, autonomy, and the making of worlds. Duke University Press.

Fuad-Luke, A. (2014). Design(-ing) for Radical Relationality: 'Relational design' for confronting dangerous, concurrent, contingent realities. In MA. Jin, & LOU. Yongqi, (Eds.), *Emerging Practices in Design. Professions, Values and Approaches* (pp. 42-73). Shanghai: China Architecture & Building Press.

Hofstede, G., Hofstede, G. J., & Minkov, M. (2005). *Cultures and organizations: Software of the mind* (Vol. 2). New York: Mcgraw-Hill.

Ingold, T. (2018). *Anthropology: why it matters.* John Wiley & Sons.

Janzer, C. L., & Weinstein, L. S. (2014). Social design and neocolonialism. *Design and Culture*, 6(3), 327-343.

Kim, M. (2018). An Inquiry into the Nature of Service: A Historical Overview (Part 1). *Design Issues*, 34(2), 31-47.

Kurtmollaiev, S., Fjuk, A., Pedersen, P. E., Clatworthy, S., & Kvale, K. (2018). Organizational transformation through service design: The institutional logics perspective. *Journal of Service Research*, 21(1), 59-74.

Kvale, S. (2007). Analyzing interviews. *Doing interviews*, 102-120. London: SAGE Publications.

Lee, J. J. (2014). The true benefits of designing design methods. *Artifact: Journal of Design Practice*, 3(2), 5-1.

Lee, J. J., & Lee, K. P. (2007, August). Cultural differences and design methods for user experience research: Dutch and Korean participants compared. In *Proceedings of the 2007 conference on Designing pleasurable products and interfaces* (pp. 21-34). ACM.

Light, A. (2019). Design and social innovation at the margins: finding and making cultures of plurality. *Design and Culture*, 11(1), 13-35.

Manzini, E. (2016). Design culture and dialogic design. *Design Issues*, 32(1), 52–59.

Milner, A., & Browitt, J. (2013). *Contemporary cultural theory: An introduction*. Routledge.

Moalosi, R., Popovic, V., & Hickling-Hudson, A. (2010). Culture-orientated product design. *International Journal of Technology and Design Education*, 20(2), 175-190.

Pahk, Y., Self, J., & Baek, J. S. (2018). COVALENT, a method for co-designing value exchange in community-centred design. *CoDesign*, 14(4), 275-292.

Sauer, C. O. (1952). *Agricultural origins and dispersals*. The American Geographical Society.

Spencer-Oatey, H. (Ed.). (2008). *Culturally Speaking Second Edition: Culture, Communication and Politeness Theory*. Bloomsbury Publishing.

Taoka, Y., Kagohashi, K., & Mougenot, C. (2018). A cross-cultural study of co-design: the impact of power distance on group dynamics in Japan. *CoDesign*. DOI: https://doi.org/10.1080/15710882.2018.1546321

Tlostanova, M. (2017). On decolonizing design. *Design Philosophy Papers*, 15(1), 51-61.

Tuan, Y. F. (1977). Space and place: *The perspective of experience*. U of Minnesota Press.

Van Boeijen, A. G. C. (2015). *Crossing cultural chasms: Towards a culture*-conscious *approach to design* (Doctoral thesis, Delft University of Technology, Delft, the Netherlands). Retrieved from https://repository.tudelft.nl/islandora/object/uuid%3Afc87dfd1-b7eb-4c84-b6c7-6835c5e837f8

Williams, Raymond (1983), *Keywords.* London: Fontana.

Yu, E., & Sangiorgi, D. (2018). Exploring the transformative impacts of service design: The role of designer–client relationships in the service development process. *Design Studies*, 55, 79-111.

Zhao, R., et al. (2006). *Human geography*. Beijing: Higher Education Press.

Service designing in psychiatric care

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Abstract

Designing services for care for a psychiatric precinct within the context of a major hospital development project is challenging. This paper reports on research that contributes to contemporary discourse on the interconnections between service design and infrastructures of healthcare. This is what Bitner (1992) named as a 'servicescape'- the integrated, multidisciplinary, physical, sensorial and experiential sites of care provision. Between 2016 -2018 the authors undertook a design anthropology evaluation that identified the experiences of situated service provision by people within a psychiatric precinct located within a regional hospital. In this discussion we identify some of the insights from this project.

Keywords: psychiatric services, co-located healthcare, maintenance-led designing, design anthropology

Introduction: Co-locating psychiatric services at the new hospital

Psychiatric Hospitals are for many people sites of mystery, intrigue and stigma. Psychiatric units are demanding in physical and emotional care, and models of care must extend to both patients and carers. Depending on the patient cohort, the type of psychiatric care facility and other unknown factors, including responses to everyday sensorial inputs, a psychiatric unit can be a place of ease, congeniality or tension. Designing services of care within this context is challenging, and increasingly healthcare providers desire to do so inclusively and collaboratively.

This paper explores some of the dimensions and challenges in the design of psychiatric hospital services, through a design anthropology approach that endeavours to make sense of people's experiences of services designed through the integration of a patient-centric model of care and architectural design practice. Patient-centric care is the equivalent of human-centred or user-centred design its focus is on developing actions of care that place the patient at the centre of the process (Rise Fry 2019. p. 379). Our research showed that the design of services for a psychiatric facility requires a subtle and multi-faceted approach to service design. This approach should recognise that experiences of such places often arise from unpredictable relationships between built environment, models of care and the multiple other services that must all work together in a sometimes highly-charged environment.

Bendigo Health is a Regional Health Service located 150kms from Melbourne in the Provincial Coty of Bendigo with patients being drawn from Central and North East Victoria, Australia. The award-winning new facility, opened in 2017, is widely recognised as an improvement on the previous facilities, partly through its co-location strategy. Within the context of a psychiatric facility, the provision of medical care is the key service provision, yet care facilities require a much broader series of services to ensure that they run effectively. During the period of this research (2016-2018) the Bendigo Health services of care included:

- Domestic cleaning, maintenance, security and food.

- Healthcare, physical and mental, spiritual care, allied health, and legal support.

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This research contributes to contemporary discourse on the interconnections between service design and infrastructures of healthcare. This is what Bitner (1992) named as a 'servicescape' - the integrated, multidisciplinary, physical, sensorial and experiential sites of care provision. In this research we have, through a design anthropology lens, undertaken a multidisciplinary evaluation of the sensorial dimensions of the services of care as realised within a new environment, which is itself the physical manifestation of a 'model of care' whose primary focus is 'patient centred care'. This is argued by Lee (2011) as being the most effective way to evaluate patient, carer and family experiences of care services, and these cannot be separated from the material environment.

Meta narratives in service scholarship

Contemporary meta narratives in service scholarship include:

- the phenomenological view on co-designing services "as a reflexive, embodied process of discovery and actualisation" (Akama & Prendiville 2013 p.30);

- the situated view in which attention to "emergence" has gained attention as the potential entry for the development and refinement of services, for example in "service ecosystem well-being" from a business and marketing perspective (Frow et al., 2019); and

- the intersection of Transformative Service Research (TSR) and service design, as argued by Anderson et al., (2018) "it is time to move services from being 'transformative by nature' to 'transformative by design'" (p. 109).

The granularity of these emergent, situated and collaborative transformations are open to maintenance-led designing in which all stakeholders play key roles contributing with their service areas (e.g. domestic, medical or management). It is a mode of designing which brings value to services (Holmlid 2012), and the resultant servicescapes include the physical environment (Lee 2011), and the "affective environment" (Andrews et al., 2014). These are all grounded in a material and relational view of services experiences, and are particularly needed in understanding services situated in, and composing of "therapeutic landscapes" for health care (Gesler 1992; Curtis et al. 2007).

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Methodology: Design anthropology for wellbeing

Technically the engagement was with Exemplar Health, the Public Private Partnership Company established to deliver the New Bendigo Hospital, to undertake a design evaluation of the new psychiatric units. The study was conducted over three years and included fieldwork at the old and new hospital facilities. The old facilities were three separate units geographically distant from one another. The new facilities, co-located these 3 units (with the 4th addition of Parent and Infant Unit PIU), and integrated these into the general hospital building. Participants were drawn from a breadth of stakeholders (patients, carers, service providers, medical staff, family and other allied carers, the project architects, landscape architects and management). The majority of the design decisions of the project were complete when our research commenced. As such, a design anthropology (Gunn et al. 2013, Smith et al. 2016; Ventura and Gunn 2017) and a sensory ethnography approach (Pink 2015) have been used as a means to make sense of people's experiences of the site and its service provision. An embedded approach that builds on Blomberg & Darrah's (2015) call for the value that an "anthropology of services" can bring for zooming into the everydayness of interactions with designs. A total of 152 people, representing the full spectrum of the units' stakeholders consented to participate in the study. A total of 79 days of on-site ethnographic research was undertaken.

The Bendigo Health design and development was guided by the New Bendigo Hospital Project Functional Brief (a document provided by the State Government procuring body to the Project Consortium). This included the Psychiatric Unit and is underpinned by the Unit's model of care and the guidance of the State's Chief Psychiatrist and representatives of the Victorian State Government. The Functional Brief is the key means for realising Lee's (2011) proposition that services of care must be understood within the environment of their provision. The data collection and analysis in this research was guided by and situated within this framework - and people's subsequent experience of it.

Service and hospital design approach

The design process used by the project architects and leaders was both consultative and traditional (see Figure 1 below). The architects used prototyping in order to engage stakeholders in innovative spatial, aesthetic and service solutions, and to work through material and care challenges. The design of services for the facility and the greater hospital development

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were done within a supply service provision approach – realised through outsourced and contracted service providers for food, cleaning and maintenance.

The Project Brief and the Model of Care express the intention to design and implement better care services than those provided through the old psychiatric facilities. This was done through an innovative yet conventional organisational frame, what Robert & Macdonald (2017) identify as a quality improvement activity combined with organisational creativity and innovation. They note that the service environments in healthcare contexts differ from other sectors in their "scale, variety and complexity as well as the (often) fragility, vulnerability and dependency of its clients" (Robert & Macdonald 2017 p. 118). Through this evaluation we have identified how the new hospital services have been experienced by the care service providers in this psychiatric health facility.
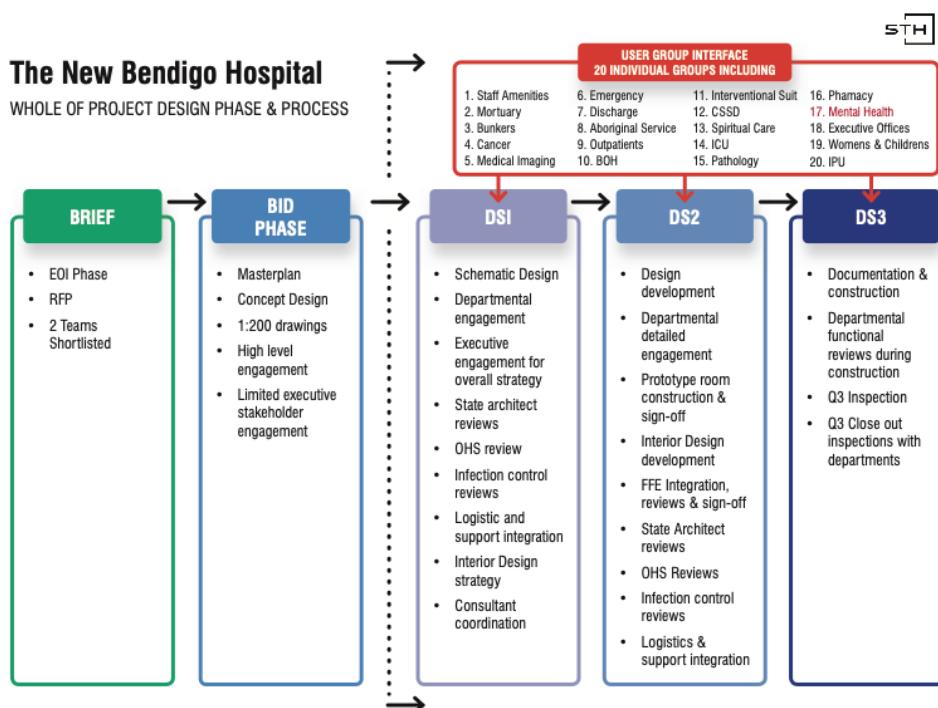
Figure 1 – Architects' consultation model as a surrogate for co-design

Identifying experiences of service provision

Our research endeavoured to identify the experiences and ambitions of the various stakeholders throughout the design and occupation phases of the project. It became apparent that even though a collaborative approach

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was used, people's experiences differed based on their current and prior roles. Moreover, changes in systems and processes affected how people experienced their new work context. In the accounts below, we show three different perspectives on the co-location of the Psychiatric Units in the main hospital buildings, from one of the architects who designed the new building, a new services manager, and a longstanding member of the cleaning staff who had worked in the Units for many years before the construction of the new building.

During the design phases (Figure 1), the architects acknowledged the value of the collaborative approach with all the stakeholders involved and overall expressed pride in the process. As one of the architects interviewed said: *"I've done a lot of mental health design and I think this one has probably had more rigor applied that any other project I know".*

The effort to integrate psychiatry with the wider health services in the hospital had also been at the centre of the agenda for the health service executives, who emphasised expectations *"partly from the point of view of de-stigmatising psychiatry… to break down the barriers"* (Psychiatry Manager). The move to the new hospital included a service change by contracting the operational management of all domestic services to one company for 25 years. Below, the Domestic Services Manager explains how taking on-board this responsibility required continual teamwork with the psychiatric unit managers, and ongoing dialogue with domestic services staff who were required to learn new service systems and to accommodate to new management hierarchies. As he details:

> Soft-services are all your cleaning, portering, food services, everything [including maintenance and gardening], so, yeah. We're the only Spotless PPP [public private partnership] at the moment that delivers all five services to the hospital … So, we're relying on the clinical staff to make sure they're reporting all that stuff. It's breaking habits from the old hospital where, "oh, while you're here, can you just do that". We now have our management system. Every job needs to be logged in… to the computer… and then it gets sent to us straight away and we can act on it straight away. (Services Manager)

After a year's experience, he highlights that the delivery of domestic services for psychiatric care has "*been a pretty steep learning curve, but it's been a good one.*" This learning process resulted in a maintenance-led design approach, to the renewal of things, processes and contexts.

This has been an opportunity to document a service adjustment and to provide insights for future design briefs and the construction of other psychiatric hospitals.

The change in services management that oversees psychiatry and the whole hospital, has had implications in the everyday routines of staff. As the Service Manager mentioned, the move had required "breaking habits" of staff from the previous units who were used to working in smaller teams and spaces and with a familiarity that some feel has been lost (and was being rebuilt) with the move to the new site, which requires working with new colleagues and with more explicit hierarchies than before

The participant accounts show that while the embedding of the Psychiatric Inpatient Units within the main hospital building was aimed at reducing stigma – and indeed was felt by staff to have succeeded in this – it also created conditions for unanticipated effects on the provision of services beyond clinical psychiatric care. Services such as maintenance, cleaning and catering were all recognised as important to creating conditions that could support care and wellbeing. Uncovering the effect of co-location on these services was an important outcome of the study.

Discussion: Engaging with tensions to foster plurality in psychiatric care services

Through the analysis of the service and care experiences of the various participants in the research, we have identified three key contexts for service provision within the hospital. These each represent different needs, stakeholders and expectations and are consistent with observations by Anderson et al. (2018) in that they evidence that designing services within such a complex and dynamic context is challenging and requires a breadth of approaches to service design.

Domestic services

The delivery of domestic services by Bendigo Health includes the provision of food, cleaning, security, maintenance, and gardening services. The procedures, teams and tools to deliver these services changed from the old psychiatric units, and are unique to the new hospital. Changes included adding technological devices to log activities, manage tasks and keep track of services delivery. For instance, at the new hospital

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food is prepared at the main kitchen hospital, following each patient's specific dietary requirements and food preferences and allergies. It is stacked in trays delivered by robot trollies, and subsequently wheeled into the Units by staff who serve the meals in communal dining areas. The use of linen tablecloths is an example of a practice of care, valued by catering staff and brought from the old Units to the new hospital. Likewise, security, maintenance and cleaning services at the new hospital have developed procedures in response to the social needs of the Units, in conjunction with contractual and technical requirements. Domestic services and the staff who provide services as everyday routines thus create environments of care that contribute to the provision of psychiatric healthcare services and wellbeing.

Healthcare services

The integration of psychiatric care services within the main hospital has had implications for the delivery of medical services, for broadening cultural shifts aimed at de-stigmatizing and normalising community perceptions towards psychiatric care. Medically, the co-location of psychiatry has made clinical services more accessible in terms of distance, time and costs. For example a chute connects each Unit to the pharmacy, and ambulances are no longer needed to transfer patients between departments. Shifts in psychiatry supported its de-stigmatization, through, for instance, the co-location of Adult Acute, Older People, Extended Care, and Parent and Infant Unit (PIU) and the delivery of ECT (electroconvulsive therapy) services now in the hospital theatre.

Management services

The term 'management services' refers to a meta layer that combines domestic and healthcare services, their management staff, and their daily work to maintain dialogue between Units and across services and departments from the hospital. Management services include each of the four psychiatric Unit managers, the manager of the Psychiatric precinct, managers of other clinical departments and hospital offices, and the domestic services manager. This sphere of management cares for the overall wellbeing of the psychiatric precinct, its staff, patients, operational systems, the Unit's physical maintenance and the adaptation of services to meet emergent needs. It is at this sphere of management services that decisions are negotiated.

Conclusion and implications

In this paper we reviewed how services for psychiatric care came into practice through the design process. Through this research we have identified the complexities of servicescapes within a psychiatric care context. We have provided some insight into the dynamic and fluid nature of service provision in a complex context such as a psychiatric unit by providing examples of different perspectives on the co-location of psychiatric services within a main hospital building and identifying the different contexts that service design must consider.

In doing so, we have identified how the new structure and management of these services has brought both benefits and challenges to everyday work practices in the hospital. We have presented accounts from people about the challenges and opportunities created by moving to the new hospital and co-located psychiatric care services. By presenting how psychiatric care services became integrated with wider medical services and the community at a central regional hospital, our aim was twofold. First, to highlight the work being done in psychiatric care to engage with tensions such as stigma and/so as to advance service designing for healthcare plurality. Second, by using design anthropology and sensory ethnographic methods, to demonstrate how the outcomes of service design are negotiated in daily routines and develop into a continual, everyday and maintenance-led service designing for wellbeing. Overall, we have highlighted some of the complexity of service designing for wellbeing in a psychiatric healthcare setting, and some of the considerations required to address that complexity.

References

Anderson, S., Nasr, L., & Rayburn, S. W. (2018). Transformative service research and service design: synergistic effects in healthcare. The Service Industries Journal: Hospitality, Healthcare, and Design, 38(1-2), 99–113. https://doi.org/10.1080/02642069.2017.1404579

Andrews, G. J., Chen, S., & Myers, S. (2014). The 'taking place' of health and wellbeing: Towards non-representational theory. Social Science & Medicine, 108, 210–222. https://doi.org/10.1016/j.socscimed.2014.02.037

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Bitner, M. (1992). Servicescape: The impact of physical surroundings on customers and employees. Journal of Marketing. 56(2), 57- 71.

Blomberg, J., & Darrah, C. (2015). Towards an Anthropology of Services. The Design Journal, 18(2), 171–192. https://doi.org/10.2752/175630615X14212498964196

Curtis, S., Gesler, W., Fabian, K., Francis, S., & Priebe, S. (2007). Therapeutic Landscapes in Hospital Design: A Qualitative Assessment by Staff and Service Users of the Design of a New Mental Health Inpatient Unit. Environment and Planning C: Government and Policy, 25(4), 591–610. https://doi.org/10.1068/c1312r

Frow, P., McColl-Kennedy, J. R., Payne, A., & Govind, R. (2019). Service ecosystem well-being: conceptualization and implications for theory and practice. European Journal of Marketing, 53(12), 2657–2691. https://doi.org/10.1108/EJM-07-2018-0465

Gesler, W. M. (1992). Therapeutic landscapes: Medical issues in light of the new cultural geography. Social Science & Medicine, 34(7), 735–746. https://doi.org/10.1016/0277-9536(92)90360-3

Gunn, W., Otto, T., & Smith, R.C. (Eds). (2013). Design Anthropology: Theory and Practice. London: Bloomsbury Publishing.

Holmlid S (2012) Designing for resourcefulness in service. Some assumptions and consequences. Miettinen, S. & Valtonen, A, eds. Service Design with Theory. Vantaa, Finland: Lapland University Press, 151–172

Lee, S. (2011). Evaluating serviceability of healthcare servicescapes: Service design perspective.International Journal of Design, 5(2), 61-71.

Pink, S. (2015). Doing Sensory Ethnography. London: Sage.

Rise Fry, K. (2019). Why Hospitals Need Service Design. In Service Design and Service Design Thinking in Healthcare and Hospital Management. Theory, Concepts, Practice, (2019) Pfannstiel, M.A. & Rasche C. (Eds). Switzerland: Springer.

Robert, G. & Macdonald, A. S. (2017). Co-design, organisational creativity and quality improvement in the healthcare sector: 'Designerly' or

Melisa Duque, Laurene Vaughan, Sarah Pink, Shanti Sumartojo
Service designing in psychiatric care
Linköping University Electronic Press

286

‘design-like’? in Designing for Service. Sangiorgi, D. & Penderville, A. (Eds). London: Bloomsbury Academic.

Smith, R. C., Vangkilde, K. T., Kjærsgaard, M. G., Otto, T., Halse, J., & Binder, T. (2016). Design anthropological futures: exploring emergence, intervention and formation. London; New York, NY: Bloomsbury Academic, an imprint of Bloomsbury Publishing Plc.

Ventura, J., & Gunn, W. (2017). Now You See Me, Now You Don't: Medical Design Anthropology, Improvisational Practices and Future Imaginings. Anthropology in Action 24 (3). 45-55. Web. https://doi.org/10.3167/aia.2017.240305

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The Emergency Department waiting room: towards a speculative service design framework

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Abstract

This paper describes an experimental, methodological approach to design research that draws upon the methods of speculative design and service design to present the framework of Speculative Service Design (SSD). This framework aims to aid service designers to explore and interrogate the tensions within future service experiences. Its goal is to draw on speculative tools and techniques to present them as a way to explore, extrapolate and evaluate future service experiences. SSD aims to imagine hypothetical service futures before they happen, decoupling design from direct market imperatives and illuminating the capacity that we, as citizens, have to influence its development and deployment.

This paper then presents how this framework has been applied in practice to the Emergency Department waiting room within a practice-based PhD. This example investigates the role of technology in future waiting experiences in the Emergency Department, and is used as a vehicle to proactively reflect on service experience futures before they happen. In doing so, the framework provides designers with a method to unpack the

ideologies and philosophies that drive the development and deployment of technology.

Introduction

Service design is a specific branch of knowledge, learning and practice. It is a discipline that has emerged from within the wider field of design that incorporates a range of different research areas (Stickdorn et. al, 2018, p.20), and as such is more than just the profession that bears its name. Contemporary service design practice is very much grounded in design for the *now*; drawing upon a heritage of change management, marketing and design discourses concerned with improving the status quo (Stickdorn et. al, 2018; Shostack, 1982: 1984; Downe, 2020). This paper advocates that this kind of thinking is insufficient when it comes to imagining possible alternative service futures, and that there is a need to augment service design with the approaches from elsewhere in contemporary, 'future-making' design research (Dunne & Raby, 2013; Malpass, 2017; Akama et. al, 2018) to extend the disciplinary purview of the field.

In contrast to service design, speculative design and its cousins - critical design, discursive design, subversive design and others - are obsessed with ambiguity and uncertainty (Tonkinwise as cited in Mitrovic and Šuran, 2016, p24). It combines informed, hypothetical extrapolations of an emerging or not yet available technology with a deep consideration of the cultural landscape into which it might be deployed, to speculate on future products and systems and the impact they may have on our everyday lives (Dunne & Raby, 2013). The speculative designed output is intended to be thought-provoking, and facilitate discourse with a broad audience: from experts in the field to the consumers and users of technology products and systems.

Through the union of these two discourses, this paper presents an experimental research methodology called Speculative Service Design (SSD). Presented as a framework, this research methodology aims to be useful to other service practitioners seeking to explore and interrogate future service experiences, beyond the scope of their normal practice of

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immediate futuring. This paper will then go on to bring this theoretical approach together with design practice, discussing this framework in relation to an ongoing design project undertaken within a practice-based design PhD concerned with imagining alternative futures for the Emergency Department waiting room (EDWR). This paper uses this design project as a vehicle for a study of the application of the methods described in the speculative service design framework, and uses the outcomes as a 'catalyst' (Dunne & Raby, 2013) for collectively redefining our relationship to the realities of the EDWR. It is proposed that this framework will resonate beyond the project described here, and be useful to other service practitioners willing to explore, interrogate and critique future service experiences in other parts of the health system and other sectors.

Towards a Speculative Service Design Framework
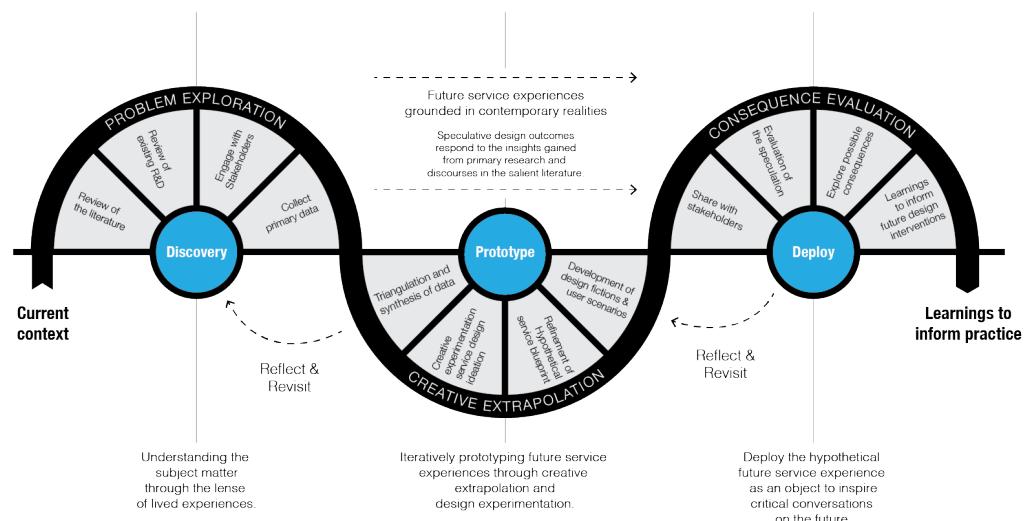
Figure 1: Speculative Service Design: A research framework/methodology for imagining, prototyping, deploying and reflecting upon future service experiences

Speculative Service Design (SSD) (Figure 1) is an experimental research methodology for collaboratively speculating upon future service scenarios. This methodological approach proposes an iterative, cyclic approach to research that is broken into the stages of 'discovery', 'prototype', and

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'deploy' – drawing upon the approaches from both speculative and service design discourses.

This framework is less concerned with the design outputs (what gets designed, built or tested) to outcomes (future, people-centered aspirations), which aim to achieve longer-term impact, aimed at opening up new possibilities for new and emerging sectors. This process does not intend to be as reductive as to suggest futuring is a three-step process. Instead, this framework asks users to extrapolate upon the current state of the world, and explore the consequences that might become apparent when interrogating a future service experience. While this framework might borrow practical methods from commercial design practice - such as co-design engagements, journey mapping and service blueprinting - it detaches them from direct market imperatives. The goal is not to 'optimise' a service for increased profit, or make things 'better' for end users, but to explore and interrogate the impact that a future might have on the world at large. This creates a new space for service design where speculative thinking can be used to proactively investigate future service experiences.

Discovery: Materialising our Imaginations

To look forward, we must first look around - this section is concerned with the first arc of the SSD framework: problem exploration. This means engaging with the real, lived experiences of the people and communities through which the project is attempting to engage. The goal is to collect data which can inform speculations on the future, ensuring that they are grounded within contemporary realities.

Typical 'design thinking' approaches in service design are concerned with searching for insights that drive an 'opportunity for design' (IDEO, 2015 p.75). Finding and defining a problem is an important part of the design process (Archer, 1979). As (Dunne & Raby, 2013) highlight, design is often optimistic in the face of these challenges and while it can attempt to solve them, design might have more impact when used as a tool to think about the future. The aim is to imagine and provide alternatives; future visions that can be used as vehicles to discuss present problems.
This part of the SSD framework asks us to engage in a process of 'discovery', where the goal is to collect narratives and stories that can then be used to inform the creation of alternative service experiences. (Sanders & Stappers, 2012) provide a wide range of designerly techniques to elicit

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such data which are applied in this framework; from co-design engagements, empathy interviews and observational studies. These engagements generate data – narratives, stories, 'signals' – which can then be used to inspire design experiments.

Prototype: Making future service experiences

Focussed ideation is an important part of the design process, and is applied in this framework. This section is concerned with the middle arc of the SSD framework: creative extrapolation.

Creative extrapolation upon the present should be grounded in contemporary realities, and respond directly to the data drawn from a variety of sources generated in the first phase of the SSD framework. By extrapolating on these contemporary signals, we are able to explore a variety of futures that may not be immediately obvious in the world today. Design proposals must be real enough to exist within our current understandings of science and culture, but radical enough that they challenge the current status quo. Futures ideation through this framework aims to build upon the emerging – and not yet available – technologies that might become part of everyday life in the future. This is in contrast to typical design approaches which are often in pursuit of a solution to a problem. This deviation away from the 'problem-solution' approach is a key and nuanced difference of this framework and typical service design approaches. It's important that for the speculation to be meaningful as a tool to explore future consequences, it does not converge too quickly upon solving modern pains. Good quality futures should aim to represent a rich, diverse, complex and textured alternative. To put it simply, everyone thinks about the future, they just don't do it very well (Candy, 2010, p. 31).

A useful way to speculate and extrapolate on the current status quo is to ask a 'what-if' question. In science fiction and popular culture, this approach results in fantastical narratives that can alter current, canonical trajectories. The Marvel *What-If* series of comics is one such example of extrapolation upon an existing continuity. In the 1st volume of the *What-If* series, readers are greeted by "Uatu the Watcher", who explains to the readers that there exists a number of alternate realities. In each alternate reality, there is a divergence from what has happened and what could have happened (Marvel, 1977). These 'what-if' questions provide a

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starting point for creative experimentation and investigation, exploring how different characters, stories and scenarios might unfold differently.

Crafting an engaging speculation is a balance between the 'real' and 'unreal'. If it is too 'futuristic', it will appear as a piece of science fiction, a piece of 'art', and mere speculation. If it is too close to the present, viewers will expect it to be implementable and ready for commercialisation. Through careful negotiation between these two contradictions, a speculative service future can emerge. More effective speculative service futures should raise more questions than the designer can answer. As (Barthes, 1968) articulates, "the birth of the reader must be at the cost of the death of the Author". Whatever debates emerge from the speculative service design work, they should not be attributed to the designer. They are emergent from the work, conversations by an audience – not the author – on a hypothetical future.

Deploy: Reflecting upon future service experiences into the world

How we communicate and disseminate the hypothetical service future, generated through speculative service design practice, is a key part of their value. This section is concerned with the last arc of the SSD framework: consequence and evaluation.

No matter how futures are deployed into the world, they should all draw upon the human proclivity for storymaking and storytelling. From exhibition, theatre, roleplay, comic strips and more; the goal is to deploy futures in a way that is thought-provoking. Creating and sharing fictions about a designed future - design fictions (Malpass, 2017) – enable us to explore the nuances and intricacies of an intended experience (Ahmadpour et. al, 2019). Conventional service design tools, while useful for providing a high-level schematic of multiple processes and interactions over time, fall short when it comes to exploring the minutiae of service experiences. As Bleecker articulates: "Design fiction objects are totems through which a larger story can be told [...]. They are like artifacts from someplace else, telling stories about other worlds." (Bleecker, 2009, p.7). (Downe, 2020, p.20) highlights the relationship that services have with products, with the service that exists around the product. In speculative design practice, the 'artefact' is central to the speculation - and is the

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vehicle through which knowledge is conveyed. Rarely is the 'service' in the foreground. In this framework, the service experience is at the center of the speculation.

These design fictions should not aim to pin-down or prescribe a given future. Indeed, they should highlight the textured nature of reality and how it may unfold differently for different people. Design fictions illuminate the unexpected, or unintended implications of contemporary actions (Ahmadpour et. al, 2019). Design fictions enable us to experience a glimpse of a possible future service experience through someone else's eyes – through their individual ontology – and help us to begin to develop a shared understanding of what the future might be like. The inherently political nature of service design (Penin & Tokinwise, 2009) means that service design futures must reconcile a multitude of world views to identify what the *preferable* attributes of the future are for all of us.

Speculative service design practice does not aim to present implementable service experiences – rather use design as a catalyst for debate (Dunne & Raby, 2014) and to imagine alternative realities to what exists today. This kind of design aspires to help democratise possible service futures, raise awareness of the consequences of our actions as citizen-consumers and widen participation in discourse. Exhibiting design work in museums and galleries is one approach, but a plethora of other approaches continue to emerge through speculative design discourse that range from workshops, interactive installations and public events in the community. Participatory approaches like these act as a 'theatre for conversation', and enable an audience to be critical of the future while still embracing the possibilities.

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An example of the framework: The ED waiting room

Figure 2: Co-Design engagement with ED Staff at a Melbourne Hospital.

Discover: Engaging Emergency Department stakeholders through Co-Design

An urgent or unexpected visit to the Emergency Department (ED) can be one of the most unsettling healthcare episodes that one can experience. Patients usually have little time to emotionally or physically prepare, and the ED environment in which they enter is typified by high volume, high acuity, emotional patients with visible injuries. In recent years, patient presentations have increased, which means that more patients are required to wait in the ED for treatment (Lowthian et. al, 2012). This has led to these waiting spaces – the Emergency Department waiting room (EDWR) – becoming increasingly congested, which is recognised as a major patient safety concern and associated with poorer patient outcomes. This section describes how the SSD framework was applied to this unique problem space, through a practice-based PhD concerned with speculating on the future ED waiting experience undertaken by the authors. Through a review of salient literature and a series of co-design engagements (Figure 2) with ED staff, patients and carers, a series of insights were formulated to guide and inspire speculative design experiments on the future of the waiting room. The initial co-design engagement that provided the groundwork for the speculative practice is discussed in (McGee et. al, 2018)

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A 'what-if' question was then formulated in response to co-design data and salient literature. This question took the form of: *What if we leverage the power of emerging and not yet available technologies to enhance the service delivery and experience of ED waiting rooms?*
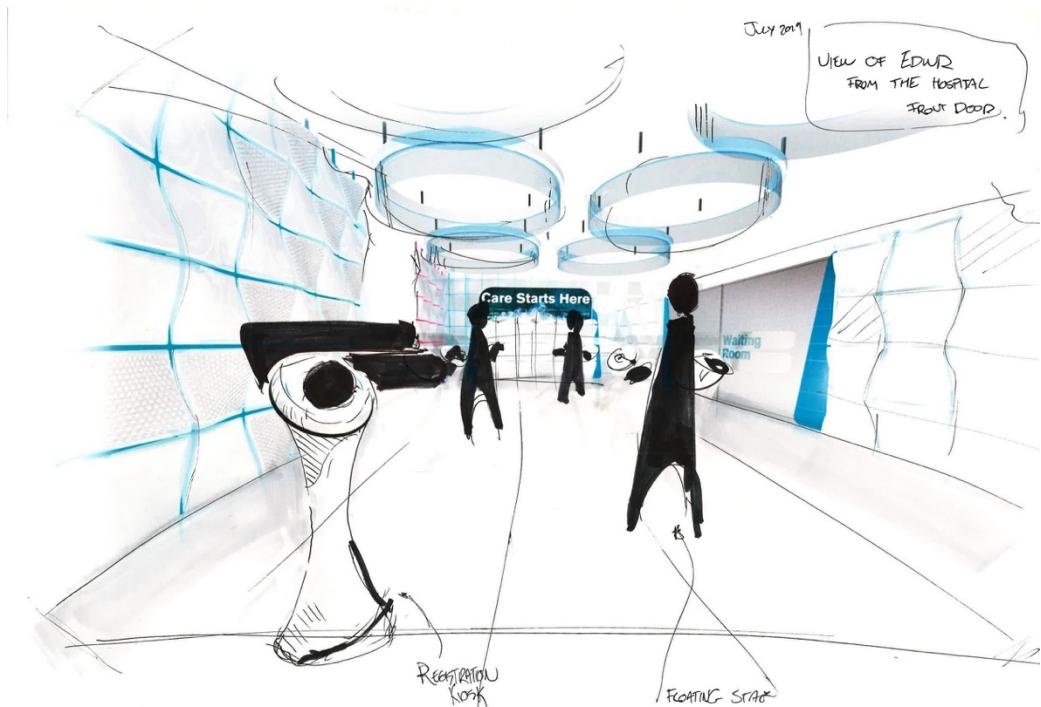
Figure 3: Design experiments: a view of the front door of the Emergency Department featuring registration and triage

Prototype: Engaging Emergency Department stakeholders through co-design

The EDWR is a service experience, as multiple stakeholders - patients, carers, clerks and nurses - facilitate multiple interactions throughout a waiting period. These interactions are supported by a plethora of systems that are not always immediately visible to the user (Penin, 2018, p12). Following from the what-if question, this ideation process examined the role of emerging and not-yet-available technologies and how they might be applied to the service journey. This included the development of a speculative service blueprint (Figure 4), which contrasted the current service with an alternative, and an exploration into the potential touchpoints that might make up that future journey. Figure 3 depicts the view from the front door when they attend an ED, where a kiosk device would 'triage' and 'register' them into the hospital without the need for

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human intervention. Figure 5 depicts a view of an autonomous waiting room chair that remotely monitors and supports patients awaiting urgent care through an array of embedded sensors. These ideas were developed through an inductive design process, where ideas were refined iteratively - and the focus laid upon the speculative service journey, not the touchpoints within the journey.
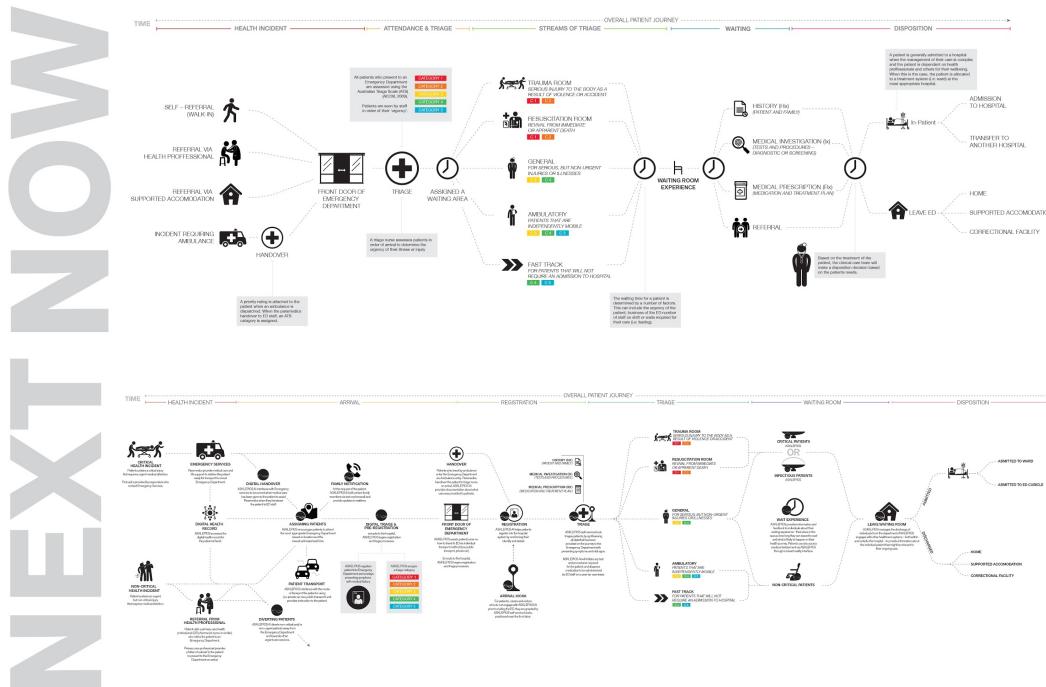
Figure 4: Diagram of a speculative service blueprint. The NOW section depicts an approximation of the current service journey. The NEXT section provides a schematic of a speculative alternative. A high resolution version of this graphic is available at https://figshare.com/s/35abfffe2a2a215d191b
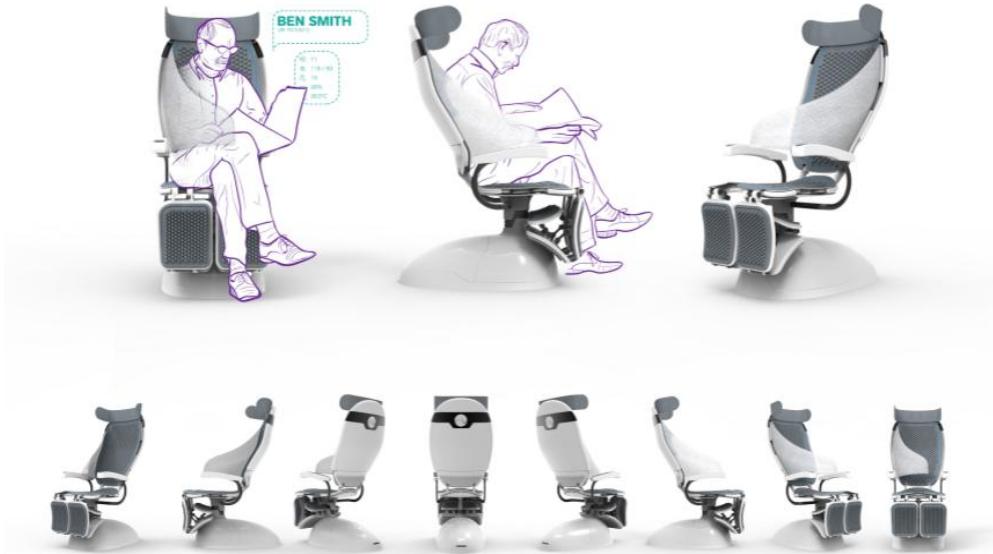
Figure 5: Multiple views of the speculative waiting room chair

Deploy: the waiting room of the future

Figure 6: Snapshots from the 5 different design fictions on the ED waiting experience of the future. Each fiction followed the perspective of a different patient in the ED.

Choreographing the many interactions and systems that impact the waiting experience in the ED has proved a significant challenge for healthcare administrators and service design practice alike, with little consensus existing in the literature as to the 'optimal' arrangement of systems or care models (Wiler Et. Al, 2010). Part of this difficulty is due to the number of stakeholders and complexity of the environment. In attempting to evaluate a speculative concept about an alternative, the challenge is much the same - how might we reconcile a multitude of perspectives about the service experience. The views of patients, carers and staff on a future service experience are all important, but are sometimes in tension with one another. This tension cannot be captured by a speculative service blueprint alone.

To address this gap, dissemination of the speculative service was achieved through a series of design fiction publications (Figure 6). These fictions were produced as a 'poster-zine', and illustrated in a comic-book style. This approach was chosen due to its low cost and ease of production, but also helped reinforce the 'sketchy' and amorphous nature of the future and how it is not yet 'pinned down'. Unlike the service blueprint, the design fictions enabled an exploration into the full contextual, emotional and spatial-temporal richness of a hypothetical service experience in a low-fidelity format. Through five separate editions, the design fictions explore the benefits, implications, challenges and problems presented by new and emerging technologies, and introduce us to how people might experience the ED of the future.

Conclusions and future work

As design continues to be challenged as a problem-solving, material-oriented suite of professions (Vaughan, 2018), design should embrace how it might be extended into new contexts of operation and engagement. The speculative yet grounded approach to future-making that the SSD framework engenders might be applied to a plethora of analogous sectors, complicated by multiple stakeholders and challenged by an uncertain future. The novelty of this methodological proposal lies in its combination of approaches, and the nuanced differences from typical service and speculative design methods. The SSD framework demonstrates how we might augment and mobilise service design to approach these problems.

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While this paper describes its application to an ED waiting room, it is hoped that the framework will prove useful to other practitioner-researchers. The speculative service-futures generated through this research help us open up critical debate, and help us explore some of the ethical, cultural, social and political tensions that might emerge. In doing so, we are better equipped to explore and define the attributes of preferable service futures.

References

Akama, Y., Pink, S., & Sumartojo, S. (2018). Uncertainty and possibility: New approaches to future making in design anthropology. Bloomsbury Publishing.

Ahmadpour, N., Pedell, S., Mayasari, A., & Beh, J. (2019). Co-creating and Assessing Future Wellbeing Technology Using Design Fiction. She Ji: The Journal of Design, Economics, and Innovation, 5(3), 209-230.

Archer, B. (1979). Design as a discipline. Design studies, 1(1), 17-20.

Barthes, R. (1992). The death of the author, 1968. na.

Bleecker, J. (2009). Design Fiction: A short essay on design, science, fact and fiction. Near Future Laboratory, 29. https://tinyurl.com/qhcfm2m (Assessed 8th December, 2019)

Candy, S. (2010). The Futures of Everyday Life: Politics and the Design of Experiential Scenarios. PhD Thesis. University of Hawaii, Manoa, United States. 10.13140/RG.2.1.1840.0248.

Downe, L. (2020). Good Services: How to Design Services that Work. Good BIS Publishers

Dunne, A., & Raby, F. (2013). Speculative everything: design, fiction, and social dreaming. MIT press.

IDEO.org. (2015). The field guide to human-centered design. Design Kit.

Lowthian, J. A., Curtis, A. J., Jolley, D. J., Stoelwinder, J. U., McNeil, J. J., & Cameron, P. A. (2012). Demand at the emergency department

Troy McGee, Daphne Flynn, Selby Coxon, Rowan Page
The Emergency Department waiting room: towards a speculative Service Design framework
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front door: 10-year trends in presentations. Medical Journal of Australia, 196(2), 128-132.

Malpass, M. (2017). Critical design in context: History, theory, and practices. Bloomsbury Publishing.

Marvel Comics (1977) "What if Spider-Man had joined the Fantastic Four?" (based on The Amazing Spider-Man #1). What if, Vol 1 #1. Marvel Comics.

McGee, T. Flynn, D. Coxon, S. Joe, K., de Bono, A. (2018) "A Co-Design Investigation into Emergency Department Waiting Rooms". Paper presented at the Design4Health 2018 Conference at Sheffield, United Kingdom. Abstract published in the proceedings of the 5th European International Conference on Design4Health, Sheffield, UK, 4th – 6th September 2018. Sheffield: Sheffield Hallam University.

Mitrović, I., & Šuran, O. (2016). Speculative--Post-Design Practice or New Utopia. Ministry of Culture of the Republic of Croatia & Croatian Designers Association.

Penin, L., & Tonkinwise, C. (2009). The Politics and theatre of service design. IASDR 2009 Proceedings, 4327-4338.

Penin, L. (2018). An introduction to service design: designing the invisible. Bloomsbury Publishing.

Stickdorn, M., Hormess, M. E., Lawrence, A., & Schneider, J. (2018). This is service design doing: Applying service design thinking in the real world. O'Reilly Media, Inc..

Sanders, L. & Stappers, P. (2012). Convivial Toolbox: Generative Research for the Front End of Design. BIS.

Slaughter, R. A. (1998). Futures beyond dystopia. Futures, 30(10), 993-1002.

Shostack, G. L. (1982), 'How to Design a Service', European Journal of Marketing 16(1): 49– 63.

Shostack, G. L. (1984), 'Designing Services that Deliver', Harvard Business Review 62(1): 133– 9.

Vaughan, L. (Ed.). (2018). Designing cultures of care. Bloomsbury Publishing.

Troy McGee, Daphne Flynn, Selby Coxon, Rowan Page
The Emergency Department waiting room: towards a speculative Service Design framework
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Wiler, J. L., Gentle, C., Halfpenny, J. M., Heins, A., Mehrotra, A., Mikhail, M. G., & Fite, D. (2010). Optimizing emergency department front-end operations. Annals of emergency medicine, 55(2), 142-160.

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Service Design in the Philippines: Tensions in Human-Centred Design and humane design

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Abstract

Services are the largest contributor to the Philippines' economy, prompting the necessity of exploring what service design might contribute to the country. This paper seeks to explore what service design means in a country like the Philippines, where business interests, customer demands, and working conditions of service staff rarely intersect as a result of imbalanced power dynamics. It presents practice notes detailing the tensions between desirability as a function of satisfying user wants and needs and as a function of largescale societal impact, and proposes a way forward through designing with compassion.

Keywords: the philippines, humane design, compassion in service design, customers and service staff tensions, power dynamics

Introduction

A couple I met once shared how they were refused service at an *emergency* room. The husband was pulled aside and was told to shell out a deposit before the staff could do anything to save his wife's life. "That's the hospital's policy. There's nothing we can do about it," they said.

A nurse from a general practice clinic I met was yelled at for refusing a patient, demanding she be administered rabies shots, as she was ready to pay for it and therefore was entitled to the service. The nurse calmly explained that this was outside his scope of work. The patient's safety required a doctor's recommendation first– an explanation that fell on deaf ears.

These are only snapshots of Philippine healthcare, a largely predatory system mired by privatization, commoditization, and poor working conditions. To illustrate, more than 50% of healthcare spend is paid out-of-pocket (WHO, 2018) due to poor distribution of financial aid centres and the complexity of navigating our government-provided benefits. Majority of healthcare products and services are treated as commodities, operating on a "cost-plus" pricing structure—businesses earn by tacking an arbitrary amount on what they sell, forcing patients to pay more the sicker they get. Healthcare workers are one of the first to suffer cost-cutting measures, long hours, and meagre wages, prompting many to seek jobs abroad (WHO, 2018). Many are left adrift fending for themselves in a health crisis.

As a service designer, I naturally lean towards optimizing for experience while constraining for financial sustainability. However, the rule-makers behind services see the reverse: financial sustainability is the optimizing factor, not the constraint. This rings true not just for businesses but also for patients and payors - especially in a country like the Philippines, where resources are unevenly distributed and scarce for many.

I had to be open-eyed about how people being forced to part with their resources (money, time, effort, power) affects the dynamic within the service environment and the larger ecosystem. I had to be cognizant of three things:

- First, the commoditized nature of the ecosystem means the incentive of those able to provide care is misaligned with those seeking it.
- Second, patients are rarely willing participants in a healthcare service. These services are often consumed as a necessity, not an act of leisurely choice – and one of the most insulting things a Filipino can do for someone in a position of powerlessness is to slap a price tag on the help they desperately need.
- Third, parting with resources brings expectations of service levels that may not always be realistic nor fair.

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These three things meld to produce a Philippine healthcare system that leaves many disempowered and disenfranchised. As a result, Filipino values like "*Utang na Loob*" and "*Katatagan*" disappear from the picture or are exploited.

Recognizing that systemic forces and resource scarcity are service design levers meant that empathy and creating pleasurable experiences is not enough. While human-centred design allows us to see the world from others' eyes, it does not necessarily compel us to see the bigger problems at the root of the painful experiences we observe.

I realized that perhaps we must shift from human-centred design towards *humane* design – to look at "desirability" from the lens of what must be done to truly benefit people instead of from the lens of satisfying user wants. The object of design is no longer the service, but the way an ecosystem works, with services being only a *vehicle* to achieve this.

The objective of humane design, instead, is *empowerment*.

"*Utang na Loob*" and Humane Design

"Utang na Loob" is a feeling of gratitude for a favour so meaningful its value is impossible to quantify. Because patients and health workers are forced to fend for themselves, the notion of healthcare erodes into an a exploitative machine instead of a space where people can foster relationships built on "*Utang na Loob*" – on helping someone in their desperate time of need, and on endless gratitude for receiving that help. Our community-oriented values and meaningful relationships are placed in the backburner, in favour of relationships forged by monetary exchange instead.

But how can one put a price tag on the long hours and stress thrusted upon workers caring for something as intimate as someone else's health, and the anxiety and grief patients endure? The "care" dimension of "healthcare" is often left out of the equation because both sides feel they are not properly compensated for the burden they bear. It's not a leap of imagination to say that this translates into despair, desperation, or disrespect. It's a never-ending cycle for as long as patients and health workers feel nobody is watching out for them, when that's one of the most important things a Filipino can do for someone else.

Through my practice, I've found that applying humane design principles were useful in addressing these tensions:

- Spend as much time defining tangible outcomes the service should create for the broader system as you do building it

  We must acknowledge that whatever we put into the world *will* create "role models" for future businessmen, service designers, policy-makers, and customers. The success of our services is hinged on its ability to alleviate collective long-term suffering more than its ability to satisfy temporal user wants.

- Question the rules

  The services we design produce only as much good as the rules permit. Rethink the core beliefs and practices that influence services, and reject the rules that harm us.

- Proactively incorporate high-value features for customers that take little effort from the business

  Relationships mediated by money command higher expectations from those who are parting with it and create tension. We must embed opportunities where businesses can leverage their strengths to provide high value at little cost to the customer to replace transactional relationships with a genuine approach.

Because healthcare is commoditized in the Philippines, the tendency for many businesses is to focus only on the transaction: patient care stops at the point of sale. Patients are left to find answers for themselves if they have questions about their medicines and are rarely proactively provided options where they could save more.

Instead of looking at medicine as one-off *commodities*, we look at medicine as a holistic *service.* When the COVID-19 pandemic hit the Philippines, many panicked and worried about their medicines: the drugstores they normally visit closed shop, ran out of stock, or became inaccessible with the shutdown of public transportation. Many lost income sources and so could no longer afford the medicines they need. The lack

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of mass testing efforts meant institutions panicked about the safety of welcoming their workforce back to the workplace.

Looking at medicine as a holistic service meant we had to fill the gaps the system could not so that people's health did not suffer.

We optimize for the health outcomes by integrating information in our services for free, so customers are empowered to make smarter and independent choices for their health. In the context of COVID-19, this meant streamlining our published product offerings to properly set expectations and give customers the freedom to get their medicines from others who can better serve them. This also meant integrating analytics and identifying next steps for our partner institutions for whom we administered COVID-19 testing.

We question the widely-accepted rule that healthcare businesses should earn more the sicker patients are by religiously keeping our prices lower than or at par with traditional drugstore rates. Customers are proactively made aware that they have the option to substitute their medicines with cheaper alternatives, and we encourage them to use this option whenever possible.

Lockdowns meant demand shifted to online services. We leveraged on our strengths in tech to make sure people get medicines and answers on time – despite the 10x surge in inquiries and orders because of the pandemic, we further cut down turnaround times through building internal systems and our first-ever chatbot, at no additional cost to the customer.

By optimizing for the best possible outcomes, questioning widely-accepted rules, and leveraging on our strengths, the most vulnerable no longer had to feel they are being cut corners on in a time of widespread panic and anxiety. We established relationships based on "*Utang na Loob*" – on helping each other at a time of need - and the *shared* goal of better health, instead of on price tags that make healthcare a zero-sum game.

"*Katatagan*" and Humane Design

Tensions among staff, customers, and businesses are normally addressed through co-design techniques that seek input from all stakeholders throughout the process. However, co-design is easier said than done in the Philippines, were "*Katatagan*" (resilience) is noble even when conditions are *unnecessarily* difficult - a trait Filipinos wear with pride. Our

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hard work under difficult circumstances is a labour of love and a token of gratitude for our families who worked hard to care for us.

I once met a cancer patient's husband who travelled for 12 hours from his hometown to the capital on a dilapidated bus to line up at one of the few financial aid centres granting cancer treatments subsidies. From 5:00 AM to 4:00 PM, he queued under the scorching heat on the off-chance that he would make the cut-off and lodge an application. He was "willing to endure it all if it meant his wife got the treatment she needed." He ended up going home empty-handed – he didn't make the cut and had no money left for another day of queuing.

While empathy allowed me to feel the pain he did, compassion compelled me to seek solutions that would make sure our resilience would not be taken advantage of again.

Service designers have the power to rewrite the rules of the service environment, and the responsibility to ensure that rules do not unnecessarily abuse resilience. This is best achieved when our eyes are open to where our designs fail once brought into the world – not just when service outcomes are unachieved, but also when we fail to welcome those in most need of the service.

Two humane design principles can help in this area:

- Consciously shrink the number of people who are excluded by what we design

  We must monitor the cases that "fall out" of the service, put aside resources for those we unintentionally exclude, and question the fairness of our own rules.

  Through religious monitoring when the pandemic hit, we realized that one of the biggest reasons why people didn't get answers fast enough was because their questions weren't easy to reply to. Questions were unclear, lacked context, or required more critical thinking. We addressed this by creating a "triage" protocol: we gave frontline staff "rules of thumb" and automated templates for common questions, while they were also encouraged to escalate more critical or sensitive inquiries within the same day so we could help.

This increased the number of people we were able to accommodate with shorter turnaround times while allowing exceptional cases to still be cared for.

- Create spaces where people can exercise agency and contribute to rule-writing

  We reframe the objective of co-design from "making sure everybody's input is incorporated" to "creating processes that allow even frontliners to redesign the process even without the intervention of a service designer."

  One of the operational protocols we have is a 30-minute daily "stand-up meeting" where the staff directly involved in fulfilling orders, answering customer inquiries, and designing operational processes share the top challenges they faced the previous day and the workload they have for the day. Each person who raises a challenge has to offer at least two options to solve them and the pros and cons of each – to the customer, the operations team, and the business. We've found this to be a great way to empower the staff to exercise best judgment and independent thought, while contributing to continuously rewriting processes that do not work for them.

Consciously decreasing exclusions and creating spaces where people can exercise agency redefine our resilience as "solving problems relentlessly" instead of as "suffering in silence." Harnessed the right way, our resilience nudges us to rewrite the rules to be in service of people—instead of the other way around.

Designing with Compassion

Creating satisfying experiences may yield temporary relief in day-to-day interactions, but when the arena is innately inhumane, the counterattack is not just to design with empathy but also with *compassion* - the strong desire to alleviate the suffering of others by creating services that empower and enforce the positive aspects of our shared values.

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Just imagine: what might the world look like if we design services as a means to improve the state of equality and inclusion in society, instead of as temporal moments and transactions that potentially reinforce the negative traits of the world we currently live in?

References

World Health Organization (2018).The Philippines Health System Review. Retrieved from: https://apps.searo.who.int/PDS_DOCS/B5438.pdf

From product centricity to services: Design workshops and maps as tools in strategy articulation

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Abstract

This paper explores how an IT company wants to change from product-centricity to servitization. A cross-functional customer journey workshop mapped the current state from the customer's point of view, and by identifying opportunities, it identifies gaps in becoming a service organization. Activities in the workshop focused on mapping a current customer journey and a proposition of a customer journey. The case explores how a service design workshop and tools can be used in strategic work, to support and facilitate a discussion on changes needed to be customer-centric, going beyond technology and features. The workshop and maps proved useful in facilitating and visualizing the current organizational state and identifying opportunities for what it takes to shift to servitization. This case contributes to practical aspects of how service design tools can support organizational transformation towards servitization.

Introduction

Shifting strategy from delivering a feature-rich software product to providing a customer-centric service requires a significant organizational transformation. This case study sets out with a new strategic initiative which envisages changing to a customer-centric service organization. This paper is concerned with applying the customer journey mapping technique to support early strategy work. Within service design, the literature draws on different fields. The two main approaches to research within service design focus on 1) integrating the scope of non-design fields such as marketing, leadership, and engineering and 2) exploring and challenging methods from other disciplines (Blomkvist et al., 2010). Within information systems, the focus on the service presents a shift away from traditional system thinking (Orlikowski & Scott, 2015). The shift from focusing on tangible products to intangible service offerings has gotten researchers to ask what then constitutes the object of study in services. In the following, we review literature focusing on service design as a field and servitization within business model innovation.

Service design as a field

As a field, the design of services is interdisciplinary. It integrates multiple contributions on theory, insights, and techniques from the design discipline as well as marketing, information systems, management and business administration (Teixeira et al., 2017). Design is the practices involved when making material and immaterial products (Clarke, 2011). Service design focuses on enabling a seamless experience for customers (Teixeira et al., 2017). This experience is a crucial competitive advantage in the service sector (Følstad & Kvale, 2018). Maps can help visualize and translate service material from immaterial to tangible representations (Blomkvist et al., 2016). Methods for representing services can be done through maps but familiar analytical tools, such as spreadsheets, cannot support relational complexities (Boyer et al., 2011). Maps help explicate business models and can encompass complexity as they support multi-perspectives and relational aspects (Simeone, 2019). Integrated cross-disciplinary models have been suggested and include the MINDS method (Teixeira et al., 2017) and Gigamaps (Sevaldson, 2011; 2015). Customer journey maps focus on depicting a customer's journey through a service with a focus on experience (Blomkvist et al., 2016) and are a visualization technique that represents the unfolding of the service process across abstract time (Følstad & Kvale, 2018). Customer experience is understood as being shaped during the interactions between the customer and the

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service provider (Berry et al., 2002) and is, in nature, holistically constructed (Verhoef et al., 2009).

Servitization and transformation

Servitization is a trend that has challenged how companies are doing business with customers as well as how products are developed (Frank et al., 2019). It refers to a transformational process from product-centric to service-oriented business models, centring on customer value and originating from the management research field (Frank et al., 2019). A servitization strategy shifts the focus to not only focus on product development itself but broadens the capacity to offer services that follow customer needs (Fabian Ayala et al., 2019). The journey to services has been explored in whitepapers foregrounding the benefits of servitization, such as an increase in customer retention and revenue growth (Livework, 2016) as well as higher profit margins, income & revenue and a stronger differentiation from competitors (Fabian Ayala et al., 2019)

The transformation of shifting to servitization implies both structural changes and an internal business transformation of the company's value architecture (Fabian Ayala et al., 2019; Frank et al., 2019). One challenge is to manage the transition to services, which from a change perspective is emergent and evolutionary (Martinez et al., 2017). Changes do not only affect organizational processes but also have implications for the roles of the actors in the service system (Overkamp & Holmlid, 2018). It affects a change in divisions of labour among service providers and recipients (Blomberg & Stucky, 2017). Overkamp & Holmlid (2017) argue that the implementation of new services should be part of the service design processes. Servitization as a business model is in itself insufficient in helping with the organizational processes that need to change and does not offer guidance in experimentation (Chesbrough, 2010). Design methods propose iterative approaches to articulating strategy in design, going beyond the idea that strategy can be pre-planned and controlled through frameworks (Simeone, 2019).

Research question

Servitization as strategy entails a comprehensive transformation for product companies. Service design offers an array of methods for studying and representing the immateriality of service. Customer journey mapping can be a useful tool to get valuable insight into how a service is

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experienced (Følstad & Kvale, 2018). It is a tool that can help bring together individual parts of the organization into a singular vision capturing the whole customer experience (Polaine, Løvlie & Reason, 2013). However, we know little of how existing methods and tools from service design can support and facilitate the discussions of pursuing a servitization strategy. This paper explores how design methods can support the initial steps of formulating a strategy within the transformational process of shifting from product centricity to achieve the benefits of servitization. The research question is, *how can design workshops, using the customer journey map tool, support an initial discussion on the challenges of shifting to a service organization?*

Case description

The case company A is a globally-operating financial technology company that successfully delivers an enterprise software solution to its clients. The system was developed over a 40 year period. The company employs 1500 people globally and has 200 clients. The product runs on-premise and supports financial professionals in their daily business operations and decision processes in a regulated and changing environment.

To remain adaptive to fast-paced changes in clients' needs, as well as in the business environment, the company has initiated an ambitious transformational strategy. The transition includes an increasingly holistic approach with a strong focus on clients' business outcomes. The new strategy has implications for the company's technology. It extends the delivery of a software product towards hosting and operating service offerings to continue empowering and enabling their clients' success. The company is new to the discipline of service design.

Workshop approach

A cross-functional workshop to map the customer journey was part of the early stages of the strategy creation process. The goal was to map how a customer experiences company A end-to-end and to identify opportunities for improving the service experience. The workshop took one full day (program in Appendix A). The workshop followed the narrative structure of a holistic customer journey (see Appendix B, figure 2) (Blomkvist et al., 2016). The workshop was facilitated by a newly-established design team

from R&D with the support of newly-hired strategy employees. One of the authors acted both as facilitator and notetaker[1]. Among the 13 participants, 11 were physically present, and two were present via videocall. Nine participants represented the organization, all drawn from senior management. Due to the dynamic nature of the activities and some participants being online, the workshop was not recorded.

The first part focused on mapping the customer's worst and best experiences from a current perspective, and the second part focused on a proposed customer journey through generative activities towards a possible service "to be" (Følsted & Kvale, 2018). The company had no consolidated set of personas. Through comparative document analysis of existing personas, the design team and Strategy Office created two abstract roles to represent the company's customers (Appendix B, Figure 1).

Coding and analysis of maps

The objects of study in this paper are the customer journey maps, generated during the workshop, consisting of colour-coded post-its, as well as the dialogue among participants captured in notes by one of the authors. Appendix C shows a timeline of interactions between the design team and representatives from the Strategy Office who collaboratively compared and combined the maps. The maps were inductively coded, and summarized in seven categories. The maps were introduced at a Strategy Session with around 25 people who had not participated in the workshop. One of the authors helped present the maps and observed the following discussion. The authors analyzed the seven categories along with the maps and observational notes following a grounded research strategy (Strauss & Corbin, 1990). The categories were reduced to five after the maps had been transcribed through condensation of meaning (Kvale & Brinkmann, 2009).

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[1]One of the authors is a researcher taking part in an action research study in the organization. The case study is part of an externally funded industrial PhD project with the company

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Analysis

The analysis will focus on what insights the customer journey mapping technique can bring to participants from a company that has a desire to change from being product-centred to being a service organization. In the following, we introduce the five categories. The source of statements in *italics* is from the transcribed maps unless indicated otherwise in parenthesis.

Personas as a shared tool

Applying personas as a shared tool was new to the organization. The workshop began with a discussion on who of the personas should be the protagonist of the journey. The participants selected a buyer persona different from the persona introduced by the facilitators. The stages were discussed with a point of departure in the participants' knowledge, and the persona was seldom mentioned. The discussion during the Strategy Session pointed to insecurity in working with personas expressed through questions such as, *Who do we start with? Who should we build? What differentiates them?* (Notes, Strategy Session). During the discussion, the participants gained the insight that to sell a service, the skills of internal work roles would be affected. Selling a service should be driven by a *future sales profile* which understands customers' *outcome needs* (Notes, Strategy Session).

Understanding a customer's business

The lack of a 'unified' understanding of their customers and business was the largest category. The participants noted that when new customers approach the company, there is a *lack of evidence to substantiate business benefits.* Participants stated that *clients want the company to understand their business challenges and not technical challenges better in the first stage of the customer journey.* The company is good at identifying trends and sharing their roadmap but *poor at executing against the roadmap.* Moreover, there is a *low discovery of functionality* with the customers. The experience of the company's sales department is that customers perceive the solution as complex and as a system aimed at experts. Customers experience unfamiliar terminology that is internal and company-specific.

Solutions

Discussions about solutions evolved around a better understanding of how customers interact with the company's solution through a *business intelligence discipline for data-driven dialogues with clients.* On the proposed state map, the participants imagined positive quotes from a future customer, stating:

> It is great to feel as a customer that you both get the benefits of a standardized system while still feeling your specific business needs are met:

> It has been such a great experience feeling how engaged the company has been in training and competences to develop my organization for optimal use of the solution.

The quotes express the expected benefits of shifting to a service organization. Furthermore, it was discussed that understanding best practice would lead to positive quotes from a future customer such as: *I always follow the recommendations of the company, because I trust they know about the process- optimization much better than I do.*

Overcoming complexity

A recurring theme across the entire customer journey was discussions of complexity. *Standardization* and *configuration versus customization* were brought up to address the challenge of a complex and configurable system (Notes, Strategy Session). An *'all-inclusive' pricing model* was suggested as a solution to address the complexity of the current pricing model. It was discussed how a *'sell it right'* bundle of software services could be created as a *solution package across the organization* to help *ensure lifetime client value* and *expand global clients to [address] new local areas*. This holistic understanding as a premise for being a service provider was new to the participants.

Flexibility was discussed from both a positive and negative perspective. When the company sells and negotiates with customers, they *never say 'no' to a customer*. The company is known as a trusted partner that is flexible, it always fixes first and settle later, and offers committed support. The flexibility comes with a downside when it comes to configuring the product, which can be done in many different ways.

Product adoption

With the company operating as a service organization, there was a need to discuss how expanding and renewing services with existing customers is challenged by not knowing what functionality of the system they use. There is a lack of shared insight into patterns of workflows after the product is bought and implemented. Furthermore, *onboarding end-users* was perceived as painful, and implementation projects as agonizingly long. Upgrades were seen as a negative experience, that can take between 3-6 months, and the word *stickiness* was repeated.

Solutions discussed to address the challenges included:

- To *make a dedicated effort for co-adoption of the solution with clients.*

- Implement *client success teams.*

- The company should *go cloud to better update experience and data-driven insights.*

- Switching to *service means flipping to renew-retain* (Notes, Strategy Session).

Silo-based organization

Participants in projects discussed how customers, during implementation, experience the organization's internal silos, as their point of contact is fragmented – they experience that they *shop in shops*. During the discussions in the Strategy Session, it was emphasized that a holistic reorganization was needed to *end 'silo' experience for clients.* Additionally, the *product-centred R&D development* should have an *outcome focus* as well (Notes, Strategy Session). Shifting to a service organization requires that the company needs to better *understand client business models* from their perspective and focus on the *development of a new delivery model* (Notes, Strategy Session).

Findings

Exploring this method inspired discussions of what it requires to be a service organization. In summary, the conclusions of the analysis show that:

- Mapping the customer journey creates an understanding of the current complexity of onboarding, terminology, pricing models and organizational design - from the customers' point of view.

- Mapping the customer journey helps to identify potential solutions to negative experiences in the current state.

- The map helps to take a holistic approach to understand how the company's product and delivery model affects the customer's experience.

- Discussions of the change needed have implications for the skills required internally and for organizational design.

Discussion

The strategy of organizationally changing from focusing on tangible products to intangible service offerings was materialized and discussed through two customer journey maps. We argue that this tool can offer a strategic starting point to support discussions on topics of the servitization needed, and in determining the new value proposition where the last is a significant challenge reported by the literature (Frank et al., 2019). The insights show the potential of design workshops to support the initial steps of articulating a strategy. The mapping of processes provided valuable insights into service provisions for both designers and managers (Følstad & Kvale, 2018). Imagining the proposed state, the participants realized they were far from delivering a service. The process revealed the implications of change at an organizational level.

How to reconfigure a business model and achieve the benefits of servitization is challenging (Frank et al., 2019) and the servitization strategy can have many orientations (Fabian Ayala et al., 2019). The maps offer a tangible frame for discussing the benefits and enablers, within and beyond the capabilities of the company in its current state. The discussion of the shift towards servitization, from a strategic level, confirms that its main focus is adding value to the customer (Frank et al., 2019). The workshop facilitated discussions on where and how there was a lack of understanding customers, e.g. during usage of the product. The topics in the discussion point to essential areas of the internal business transformation that the literature on servitization reports, e.g. its implications for the internal workforce (Overkamp & Holmlid, 2018;

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Bordoloi et al., 2018). Other important topics that should inform the service strategy include discussions on the product design (e.g. standardization), revenue models (e.g. pricing model) and technological benefits such as cloud computing (Frank et al., 2019). Moreover, the tool supports the servitization focus of adding value to customers through the proposed solutions of extending and supporting product usage, to retain customers (Fabian Ayala et al., 2019).

Although the paper does not explore the subsequent phases of the strategy, these will have implications for how the service strategy is implemented. In this regard, the approach to strategy articulation becomes important. Integrating service design processes will require that strategy is an iterative process where strategy articulation is evaluated continuously, as Simeone (2019) found. When implementing the new strategy and integrating initiatives with design processes, it must be acknowledged that the nature of strategy is emergent (Simeone, 2019), as well as the service journey transition (Martinez et al., 2017). A way to integrate design in the following phases could be to explore the proposed customer journey with specific scenarios which can support, "articulating value (co-)creation process, actor roles and responsibilities" (Overkamp & Holmlid, 2017, p. S4418). The generative activities of creating a proposed customer journey map includes participants discussing what is required to be a service organization, and offers a tangible starting point for exploring future scenarios and possible reconfigurations of servitization as business model innovation.

Conclusion

The expected benefits of servitization depend on determining the value proposition of the servitization business model. The business transformation to servitization is challenging, and as companies explore ways to diversify their portfolio through service strategies, this case shows how service design tools through the customer journey map can support discussions on the shift from product centricity to servitization. The findings conclude that customer journey mappings are useful to visualize a tangible starting point in the initial steps of discussing expectations of shifting to servitization. The topics discussed can support ongoing strategy articulation and point to areas of reconfiguration evolving in the current state of the organization. This paper contributes to the field through a

practical case of how a service design technique can support strategic work in organizational transformation.

References

Berry, L. L., Carbone, L. P. & Haeckel S. H. (2002). Managing the Total Customer Experience. Sloan Management Review, 43(3). Pp. 85-89.

Blomberg, J. & Stucky, S. (2017). Service design and the emergence of a second economy. In Sangiorgi, D. & Prendiville, A. (Eds.). Designing for Service: Key Issues and New Directions. London; New York, NY: Bloomsbury Academic. Pp. 213-222.

Blomkvist, J., Clatworthy, S. & Holmlid, S. (2016). Ways of seeing the design material of service. In N. Morelli, A. de Götzen & F. Grani (Eds.). Service Design Geographies. Proceedings of the ServDes.2016 Conference. 24-26 May 2016. Copenhagen. Linköping University Electronic Press. Pp. 1-13.

Blomkvist, J., & Holmlid, S. & Segelström, F. (2010). Service Design Research: Yesterday, Today and Tomorrow. In Schneider, J. & Stickdorn, M. (Eds.). This is Service Design Thinking: Basics-Tools-Cases. Pp. 298-313. The Netherlands: BIS Publishers.

Bordoloi, S., Fitzsimmons, J. & Fitzsimmons, M. (2018). Service Management: Operations, Strategy, Information Technology (9th edition). New York, NY: McGraw-Hill Education Ltd.

Boyer, B., Cook, J.W. & Steinberg, M. (2011). Recipes for Systemic Change. Helsinki, Finland: Sitra/Helsinki Design Lab.

Chesbrough, H. (2010). Business Model Innovation: Opportunities and Barriers. Long Range Planning, 43(2–3). Pp. 354–363. https://doi.org/10.1016/j.lrp.2009.07.010

Clarke, Alison J. (2011). Design Anthropology: Object Culture in the 21st Century. Austria: Springer.

Fabian Ayala, N., Gerstlberger, W. & German Frank, A. (2019). Managing servitization in product companies: the moderating role of service suppliers. International Journal of Operations and Production

Management, 39(1). Pp. 43-74. https://doi.org/10.1108/IJOPM-08-2017-0484

Følstad, A. & Kvale, K. (2018). Customer journeys: a systematic literature review. Journal of Service Theory and Practice, 28(2). Pp. 196-227. https://doi.org/10.1108/JSTP-11-2014-0261

Frank, A., Mendes, G., Ayala, N. & Ghezzi, A. (2019). Servitization and Industry 4.0 convergence in the digital transformation of product firms: A business model innovation perspective. Technological Forecasting and Social Change, Vol. 141, April 2019. Pp. 341-351. https://doi.org/10.1016/j.techfore.2019.01.014

Kvale, S. & Brinkmann, S. (2009). InterView - Introduktion til et håndværk. 2nd edn. København: Hans Reitzels Forlag.

Livework (2016). Servitization: Shifting from Products, to product service bundles in B2B. Whitepaper. December 2016. Retrieved from: https://assets.liveworkstudio.com/app/assets/servitization-part-i.pdf

Martinez V., Neely A., Velu C, Leinster-Evans S. & Bisessar D. (2017). Exploring the journey to services. International Journal of Production Economics, Vol. 192. Pp. 66-80. https://doi.org/10.1016/j.ijpe.2016.12.030

Orlikowski, W. & Scott, S. (2015). The algorithm and the crowd: considering the materiality of service innovation. MIS Q. 39(1) (March 2015). Pp. 201-216. https://doi.org/10.25300/MISQ/2015/39.1.09

Ostrom, L. A., Parasuraman, A., Bowen, D. E., Patrício, L., Voss, C. A. & Lemon, K. (2015). Service Research Priorities in a Rapidly Changing Context. Journal of Service Research, 18(2). Pp. 127-159. https://doi.org/10.1177/1094670515576315

Overkamp, T. & Holmlid, S. (2017). Implementation during design Developing understanding about service realisation before implementation. The Design Journal, 20:sup1. Pp. S4409-S4421. https://doi.org/10.1080/14606925.2017.1352937

Overkamp, T. & Holmlid, S., (2018). Towards a structured way to represent future service roles. Proceedings of the 5th Participatory Innovation Conference (PIN-C). 11-13 January. Eskilstuna, Sweden: University of Southern Denmark (SDU). Pp. 345-348.

Polaine, A., Løvlie, L. & Reason, B. (2013). Service Design: From Insight to Implementation. Brooklyn, New York: Rosenfeld Media.

Sevaldson, B. (2011). Giga-mapping: visualisation for complexity and systems thinking in design. Nordic Design Research Conference. 29-31 May 2011. Helsinki, Finland: NORDES. Pp 1-21.

Sevaldson, B. (2015). Gigamaps: Their role as bridging artefacts and a new Sense Sharing Mode. Relating Systems Thinking and Design (RSD4) 2015 Symposium. 1-3 Sep 2015. Banff, Canada: OCAD University Open Research Repository. Retrieved from: https://core.ac.uk/download/pdf/132316620.pdf

Simeone, L. (2019). An introductory review of methods for the articulation of strategy in design. Proceedings of the 22nd International Conference on Engineering Design (ICED2019). 5-8 August. Delft, the Netherlands: Cambridge University Press. Pp. 1065-1074. https://doi.org/10.1017/dsi.2019.112

Strauss, A. L. & Corbin, J. M. (1990). Basics of qualitative research: Grounded theory procedures and techniques. Newbury Park, Calif: Sage Publications.

Teixeira, J., Patrício, L., Huang, K.-H., Fisk, R. P., Nóbrega, L. & Constantine, L. (2017). The MINDS Method: Integrating Management and Interaction Design Perspectives for Service Design. Journal of Service Research, 20(3). Pp. 240–258. https://doi.org/10.1177/1094670516680033

Verhoef, P., Lemon, K., Parasuraman, P. A., Roggeveen, A., Tsiros, M. & Schlesinger, L. (2009). Customer Experience Creation: Determinants, Dynamics and Management Strategies. Journal of Retailing, Vol. 85. Pp. 31-41. https://doi: 10.1016/j.jretai.2008.11.001

Appendix A

Table 1. Workshop overview of activities

Introduction	**Plenary**
Selection of **persona, plenary**	Plenary
Current State: Activity 1: Customer's worst experience	Individual
Current State: Activity 2: Customer's worst experience	Groups
Current State: Activity 3: Customer's best experience	Individual
Current State: Activity 4: Customer's best experience	Groups
Presentation of Current State map	Plenary
Iteration of maps	Groups
Proposed State: Activity 5: Opportunities – individual view	Individual
Proposed State: Activity 6: Opportunities – collective view	Groups
Presentation of **the Proposed State map**	Plenary
Iteration of maps	Groups
Proposed State: Activity 7: Selecting and building scenarios	Groups
Presentation of scenarios	Plenary
Wrap up and feedback	Plenary

Appendix B

CTO / CIO

Charles

"I need to...
- Optimize front office performance to drive overall business performance
- Validate application performance before prod go live
- Ensure front office roles have the best possible experience with the company's solution
- Accelerate time to value when implementing the company's solution
- Minimize the cost of implementing the company's solution
- Focus scarce resources on our core business instead of testing activities"

PORTFOLIO MANAGER

Paula

"I need to maintain an optimal balance of portfolio assets so that I can achieve and exceed investment goals."

Figure 1 pre-selected personas: buyer and end-user

STAGES	Before	During	After
PERSONAS & STEPS	Explore market and excited about a solution.	Likes consistent architecture but teams seem frustrated.	New regulations require upgrade, but testing will impact business.
	Advise CTO about competing solutions.	Needs to valuate portfolio with past performance, but flow is complex.	Relieved to receive pre-trade alerts to avoid over-exposure.

CLIENT SATISFACTION

Figure 2 Customer journey map template

Olivia Harre, Lene Nielsen

From product centricity to services: Design workshops and maps as tools in strategy articulation

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Appendix C

Timeline of activities and interactions between the design team and representatives from the strategy office
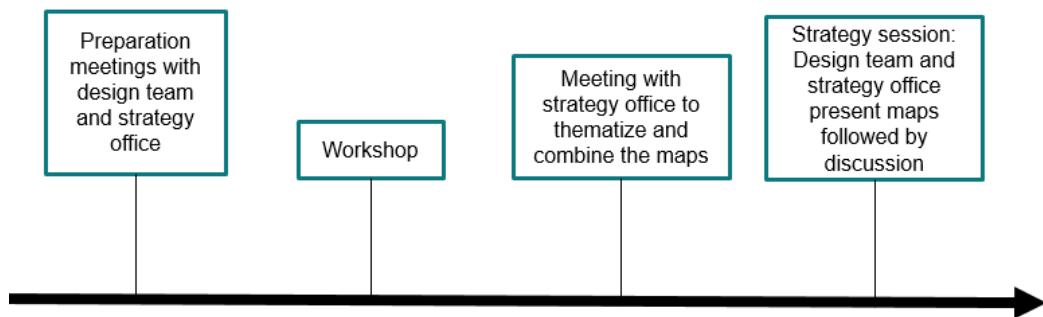
Service Design for mediating technology and experience in Augmented Reality: A case study of a holistic AR travel service

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Abstract

Augmented Reality (AR) is a technology that brings new possibilities to service design and delivery by projecting a digital layer of information directly on top of one's physical surroundings. However, there is tension between its technology-centric applications and its use as a holistic service. To bridge this gap, we examined the representative functions of AR applications from a service design perspective, with a focus on travel service as a case study. We built a taxonomy of existing AR functions and conducted interviews to understand user needs and patterns of travel experience as parts of a larger story. Based on this research, we then created a storyboard and user interface (UI) prototype for a holistic travel service supported by AR.

Keywords: service design, augmented reality, travel, service storytelling

Introduction

Augmented Reality (AR) is generally defined as the enhancement of a real-world environment using layers of computer-generated images

(Guttentag, 2010). AR differs from Virtual Reality (VR) in that AR enables the user to experience interactive information layered on top of their physical reality, while VR creates its own interactive world. Over the last five years, we have observed an explosive increase in AR applications, giving rise to a variety of industries, including retail, advertising, manufacturing, health care, media, entertainment, sports, and education. Statistics show that the global AR market is expected to grow significantly in the coming decade, reaching about 198 billion dollars by 2025 (Liu, 2019).

However, all this excitement surrounding AR must be accompanied by an understanding that there is still tension in the balance between technology and the ideal customer experience. Many current AR applications are often developed around technological capabilities rather than user needs; therefore, the customer experience tends to be moment-based and fragmented. For example, Pokémon Go positions AR as its figurehead technology, but this feature is only applied to one moment—when a user throws a ball to catch a virtual monster—which is not quite connected to other parts of the virtual or physical experience (Rauschnabel et al., 2017). Pokémon Go started as a worldwide phenomenon, but after a couple of months, fascination decreased and usage dropped. To maximize the value of this technology, there is a need to research and explore AR from the perspective of human experience.

In this study, a team of design and marketing researchers explored a service design approach to AR technology using travel as an example, which aided in the design of a more comprehensive and human-centred AR experience to bridge the gap between technology and customer needs. We first analysed the existing functions and usage of AR applications by building a taxonomy of 110 examples. Next, we interviewed eight people to understand the general customer journey and their specific needs when travelling. Based on this research, we created a storyboard and UI prototype for a travel service that integrates AR technology.

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Background

Augmented reality

AR is characterized by its ability to merge the virtual and the real—primarily through multi-dimensional sensory stimulation and immersive interaction—without changing the user's physical surroundings. Azuma (1997) summarized three characteristics of AR technology: virtual real-time fusion, real-time interaction, and 3D positioning. Recently a new generation of AR platforms, such as Apple's ARKit and Google ARCore, added environmental recognition capabilities, which led to the integration of AR into key social networks and operating systems. Currently, the majority of AR experiences are mediated by smart phones, but there is increasing adoption to other wearable visual or auditory devices, such as 0glasses or Boss AR. These advancements open up new possibilities for AR usage in diverse service contexts.

However, successful consumer use cases are still limited (Han et al., 2017), and an AR experience which enjoys ubiquitous consumer use is yet to be developed (Azuma, 2019). Scholars point to a set of challenges that AR technology and its applications need to overcome from a design perspective. AR must be integrated into workflows, tasks, and experiences more seamlessly (Tristan et al., 2017); be designed to provide practical benefits (Olsson et al., 2012); and supply quality information (Jung et al., 2015). The design of AR experiences presents several intrinsic challenges and thus should be approached holistically (Kourouthanassis, Boletsis, & Lekakos, 2015). Although AR applications offer much potential, existing guidelines or principles for their effective design is scarce (de Sá & Churchill, 2012).

AR and travel

Due to its ability to digitally overlay information onto users' immediate surroundings (Rauschnabel, Brem, & Ivens, 2015), AR has received much attention as a way to enhance tourist experiences (tom Dieck & Jung, 2017). An increasing number of scholars have explored its potential in areas such as user requirements (tom Dieck, Jung, & Han, 2016) and behavioural studies (Rauschnabel & Ro, 2016). For example, Martínez-Graña et al. (2013) suggest that AR applications are especially relevant to

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the tourism industry since they improve tourists' social awareness of an unknown territory.

Research shows that AR applications offer an efficient way to deepen understanding of the natural environment (Martínez-Graña et al., 2013), educate museum visitors (Casella & Coelho, 2013), and present historical events at tourism destinations (Benyon et al., 2014) by providing users with context-sensitive information (Yovcheva, Buhalis, & Gatzidis, 2012). Visitors particularly praise AR for its educational abilities, proposing it as a key focus in the design of experiences which incorporate entertainment as peripheral elements (tom Dieck, Jung, & Rauschnabel, 2018). Tourism is a service industry in which experience is the core value. Therefore, it is important to consider end-to-end experiences from a holistic perspective as the dominant offering.

AR and service design

Service design is a holistic approach with a structural arrangement of information which engages, informs, guides, and supports the customer experience, featuring touchpoints over time and across multiple channels (Parker & Heapy, 2006). As a new channel that provides a combination of physical and virtual information, AR offers great potential in supporting service experiences and participant interactions. Researchers propose that AR can be useful in the design of a service by providing backstage information to enhance location-based adaptation (Kansa & Wilde, 2008) or allowing travellers to personalize their services with multi-language functionality (Han, Jung, & Gibson, 2013).

Although little research has explored the application of AR from a service design perspective, Kim and Lee (2018) proposed that the technological capabilities of AR and VR can be used to enhance the autonomy of the customer through "service storytelling." Service storytelling refers to an ongoing, collaborative, and interactive dialogue between the service system and the audience, which customers can actively participate in to create their own experiences. To create a holistic service experience that integrates AR technology with different phases of travel, we base the present study on this approach.

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Method

Taxonomy of existing AR applications

We began our research by analysing the key functions and usages of current AR applications, including 110 applications collected from the Apple Store, Google Play, and the representative AR industry review websites on May, 2019, using the keyword "AR". Next, we determined their main use value in order to classify them(Figure 1), with a focus on psychological and behavioural perspectives rather than their technological specifications (Carlos Flavián et al.,2019). We found that the majority of these applications focus on entertainment, followed by education, action support, and spatial exploration(Figure 2). Details on their objectives are as follows:

- Catch attention (e.g., creating wonder via a surprise factor, such as iButterfly)

- Promote (e.g., informing customers about a product/service, such as Coke AR Cans)

- Call to action (e.g., persuading customers to make purchases by offering a virtual try-on experience, such as the Converse Shoe Sampler)

- Educate (e.g., supporting students in mathematics and science, such as GeoGebra AR)

- Support action (e.g., providing guidance, such as Find Your Car with AR)

- Utilize space (e.g., enriching interactions in the physical world to organize digital content, such as Amazon Products in Place)

- Immerse (e.g., transforming the environment into another space, such as Volcan de Fuego by The New York Times)

- Entertain (e.g., displaying an interactive game character, such as Flippy Friends Fruit Crush AR)

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- Coproduction (e.g., supporting collaboration between customers or the personalization of a service, such as Minecraft AR)

- Retain customers (e.g., incentivizing customers to return and use the service by providing special offers, such as ROAR Shopping Advisor)
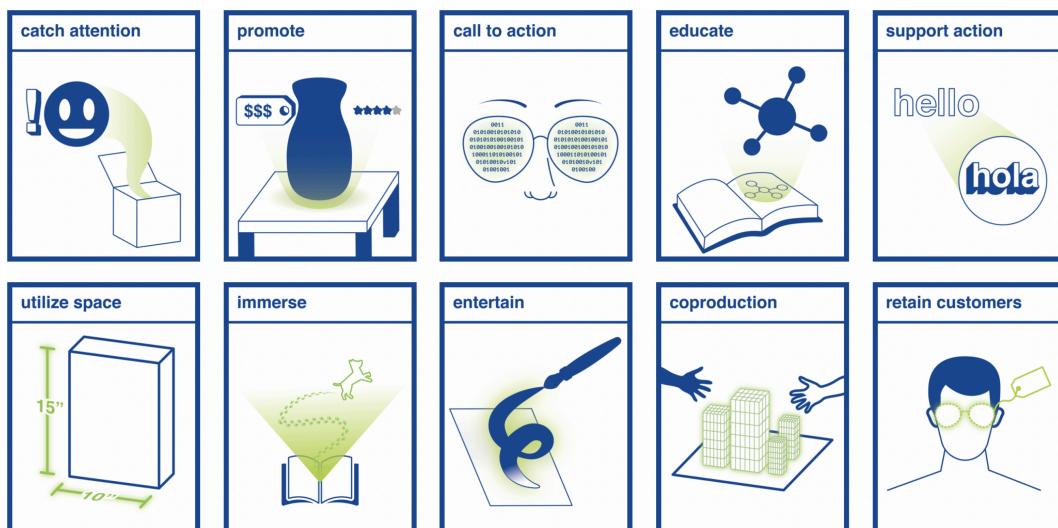
Figure 1: Taxonomy of AR applications
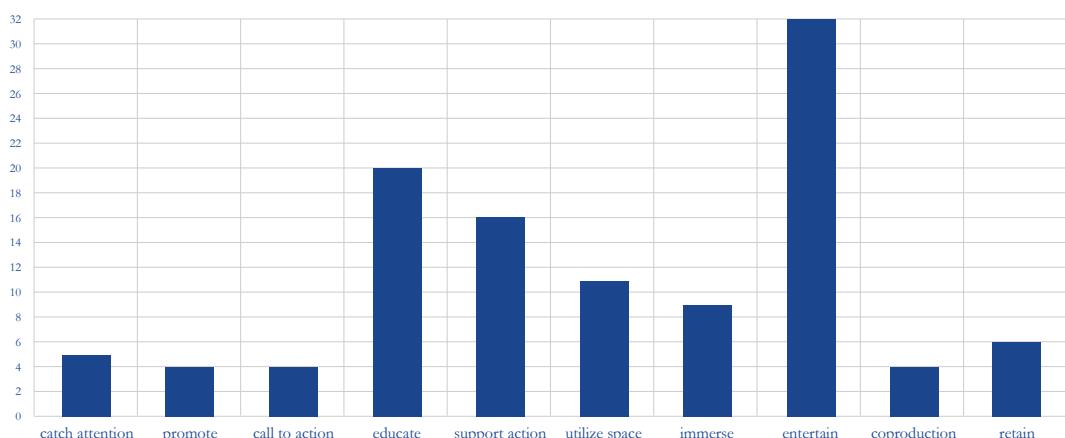
Figure 2: Usage of AR applications

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User research

In the next stage of our study, we conducted interviews with eight participants about the general steps and flow of travel (Figure 3), including the decision-making process, pain points, and their perceptions of AR. We found that travel planning is the most time-consuming phase. The interviewees tended to travel together with family or friends, and typically one person leads the planning and collects agreements. They were all concerned about how their accommodations would match their expectations, as well as how to navigate in an unfamiliar environment. The interviewees were also concerned whether they would miss locations they planned to visit, information they needed during their visit, or opportunities to attend nearby events.

Another finding was that the interviewees did not yet view AR as a useful "service." Many of them perceived AR as a technology that provides an exotic yet temporary, impractical, and unessential experience; therefore, the general image must be improved by a new approach. The role of design will be to weave AR touchpoints into the service flow based on user needs, ensuring they maintain a seamless connection to their respective services.
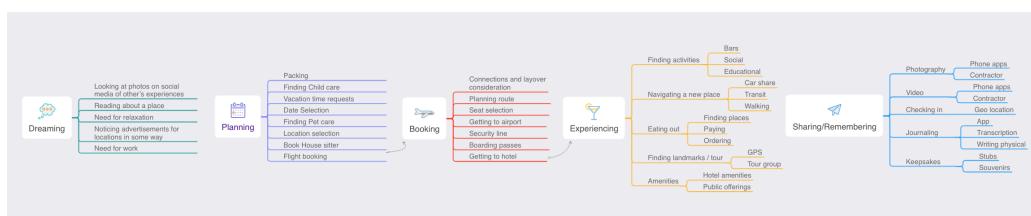
Figure 3: The general process of travel

AR travel experience design

Customer journey map

In the first phase of our design, we created a customer journey map to arrange the key AR functions in our taxonomy. The purpose was to tell a story from an individual traveller's perspective about their overall experience over time and across channels before incorporating AR

support. The customer journey is divided into three phases: preparation before travel (e.g., dreading, planning, and booking), experience during travel (e.g., getting there and being there), and activities after travel (e.g., going back home, sharing, and remembering).

Figure 4: Customer journey map of a travel experience

In the preparation phase, advertisements incorporating the AR functions of informing, promoting, and calling to action can initiate the travel experience. Other AR functions, such as education, coproduction, and immersion in a virtual reconstruction of the destination can also be helpful for pre-travel planning. For example, experiencing the destination in advance and learning useful information, such as history, safety, and transportation, can significantly enhance the travel-planning experience. Additionally, AR can support collaboration with travel companions in co-planning and documenting the agreed itinerary, especially for those who are collaborating from a distance.

During travel, AR applications can be integrated into a system to support a traveller's actions. For example, users can see information and receive guidance on navigating the city according to their itinerary. Meals, accommodations, shopping places, scenic spots, or pre-booked places can be easily found based on the user's geographical location. Virtual signs, guide arrows, and descriptions can be superimposed onto attractions, thereby allowing the user's experience to be less impacted by the presence of other tourists. AR can also provide personalized and improvised guidance in real time, such as in unexpected situations (e.g., bad weather or festivals) or based on other user comments and reviews.

After travel, AR can be used for organizing, sharing, and revisiting travel experiences. For example, drawing upon the functions of utilizing space

and immersion, AR can efficiently capture a travel experience in the physical space by archiving it virtually and providing a museum-like setting to view archived experiences with multimedia information. Users can also share these augmented travel experiences with their friends and families. As for the AR function of entertainment, virtual characters or scenes can add a more personalized voice to the experience, especially when shared on social media. On social media, AR can be used to inform, promote, and call others to action, thereby initiating new travel experiences while retaining the original customer.

Storyboard and UI development

Based on insights gained from our taxonomy and the interviews, we developed a storyboard (Figure 5) and UI prototype (Figure 6) for a travel experience with AR technology seamlessly embedded at each critical touchpoint throughout the customer journey. In this scenario, we explored the case of an inclusive Travel AR app available on a mobile phone, but the scenario can be applicable to other wearable devices that mediate AR.

The story begins with efficient AR support in collaborative planning before travel by projecting a virtual city over the users' physical surroundings and providing them with a preview of the experience. Once the travellers reach their destination, AR can help them seamlessly connect to their itinerary and turn unfamiliar surroundings into a navigable environment, for example, by allowing them to view the destination city from their hotel room and projecting the best routes for navigation.

During travel, AR serves as an efficient virtual guide who introduces information about tourist attractions, translates and recommends menu items in restaurants, and supports opportunistic exploration, such as shopping in a local market. It can also project how historical sites appeared in different time periods, enable interactions with characters from related history or folklore, and help travellers learn more about objects or events that they encounter in the street. After travel, AR supports the traveller in organizing and sharing their travel experiences as digital vignettes.

There are so many voices when planing a trip with friends. Jenny needs to keep them on the same page all the time.

The Travel AR app helps Jenny to create a shared city model to use for group planning, even when the members are not together in a same place.

Jenny and her friends can pick hotels and sightseeing using the city model provided by the Travel AR app. They can all see each other's choices and plan an efficient path together.

Jenny and her friends can all add ideas into the model and move things around on the virtual space.

During the travel

Jenny wakes up in the morning in a hotel room wondering about her travel plans.

Jenny looks around to better direct herself in a unfamiliar city. The Travel AR shows where she is in the city, and introduces her to nearby attractions and stores, while she is still in the hotel room.

She can zoom in to see her group's entire day plans as a whole, and also in step by step mode.

The Travel AR helps her to know where to start taking the bus to her group's first destination.

Jenny wonders where she is. All these buildings look strange, but the Travel AR app helps her to relocate herself.

She finally arrives at the tower. There are so many things to see and many other people that she feels distracted.

The Travel AR app helps her to focus and learn more information. What's this door for? What does "1869" on the door mean? Is there something mysterious behind it?

The Travel AR app reveals the story behind the door and Jenny learns about an ancient secret stairway.

The Travel AR app helps her to see what the tower looked like in the ancient time, as it has been burnt and rebuilt in the last century.

There is an interesting object at the top of the tower but she cannot clearly see it. The Travel AR app tells her it is actually a window and there is a little flower on it.

A virtual guide appears when Jenny gets closer to the tower.

She can pick the guide who suits the tower. She chooses an old gentleman.

Jenny can customize the travel guide with features like beard and 19th century clothes.

Jenny wants some special souvenirs to memorize this trip. She decides to take a photo with the virtual tower guide, who is the 19th century poet's ghost.

Jenny and her friends are starving. There are so many unfamiliar choices but the Travel AR app helps them to see the reviews and translate the restaurant names and menus in their languages.

The Travel AR helps her to see what the food looks like, what the ingredients are, and other people's recommendation about what is an authentic local dish and what it tastes like.

Jenny is walking in the street and can see from the outside what souvenirs are inside each store.

The Travel AR tells her the name and history of each item, and where to get the cheapest one.

After the trip

Jenny shares a photo of the ghost guide with her boyfriend and tells him all about this trip.

As she shares the AR movie of the tower, her boyfriend can experience the virtual space in his room using AR.

Jenny receives the photo of what her boyfriend sees from his phone. He adds it to his next trip plan.

Jenny can also organize her picture or AR video on a virtual wall to save memories during the trip. She decides to revisit the place in another season with her boyfriend.

Figure 5: Storyboard of a holistic travel experience with AR technology

Figure 6: Initial UI development

Conclusion

In this paper, we explored how service design as a holistic approach can enhance the AR experience via a case study of a travel service. We first analysed representative AR applications to distil their key functions, then arranged these functions according to a customer journey map based on interviews. Finally, we developed a storyboard and UI prototype to support a seamless AR service. Future study will be focused on the evaluation of the proposed solution. We argue that a holistic service design approach is vital for the future of AR development and its more diversified usage in design and marketing. Although we focused on travel experience as a core example, the key functions of AR identified in our research can be used to innovate various service industries. Service design offers to unlock the infinite possibilities of AR technology in supporting user needs and creating new business opportunities.

Acknowledgements

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References

Azuma, R. T. (1997). A survey of augmented reality. Presence: Teleoperators and Virtual Environments, 6(4), 355–385.

Azuma, R. T. (2015). Location-based mixed and augmented reality storytelling. In W. Barfield (Ed.), Fundamentals of wearable computers and augmented reality (2nd ed., pp. 259–276). Boca Raton, FL: CRC Press.

Azuma R. T. (2019). The road to ubiquitous consumer augmented reality systems. Human Behavior & Emerging Technology, 1,26–32.

De Sá, M., & Churchill, E. (2012). Mobile augmented reality: exploring design and prototyping techniques. In Proceedings of the 14th international conference on Human-computer interaction with mobile devices and services, San Francisco, CA (pp. 221–230). New York, NY: ACM.

Flavián, C., Ibáñez-Sánchez, S., Orús, C. (2019). The impact of virtual, augmented and mixed reality technologies on the customer experience. Journal of Business Research, 100 (2019), 547–560.

Guttentag, D. A. (2010). Virtual reality: Applications and implications for tourism. Tourism Management, 31(5), 637–651.

Han, D.,& Jung, T. H. (2014). Google Glass Creative Tourism Experience: A Case Study of Manchester Art Gallery. Paper presented at World Hospitality & Tourism Forum.

Han, D. I., Jung, T. H., & Gibson, A. (2013). Dublin AR: implementing augmented reality in tourism. In Z. Xiang & I. Tussyadiah (Eds.), Information and communication technologies in tourism 2014, Cham, Switzerland (pp. 511–523). New York, NY: Springer.

Kansa, E. C., & Wilde, E. (2008, July). Tourism, peer production, and location-based service design. In 2008 IEEE International Conference on Services Computing,Honolulu, Hawaii (Vol. 2, pp. 629–636). New York, NY: IEEE.

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Kourouthanassis, P. E., Boletsis, C., & Lekakos, G. (2015). Demystifying the design of mobile augmented reality applications. Multimedia Tools Applied, 74(2015), 1045–1066.

Kim, M., & Lee, Y. (2018, July). Service Storytelling: Exploring Storytelling Models in the Context of the Service Design Process. In International Conference on Applied Human Factors and Ergonomics, Orland, FL (pp. 299–311). New York, NY: Springer.

Liu, S. (2019, Oct 9). Augmented reality (AR) market size worldwide in 2017, 2018 and 2025. Retrieved from https://www.statista.com/statistics/897587/world-augmented-reality-market-value/

Martínez-Graña, A. M., Goy, J. L., & Cimarra, C. A. (2013). A virtual tour of geological heritage:Valourising geodiversity using Google Earth and QR code. Computers & Geosciences, 61, 83–93.

Olsson, T., Kärkkäinen, T., Langerstam, E., & Ventä-Olkkonen, L. (2012). User evaluation of mobile augmented reality scenarios. Journal of Ambient Intelligence and Smart Environments, 4(1), 29–47.

Parker, S., & Heapy, J. (2006). The journey to the interface. London: Demos.

Rauschnabel, P. A., Brem, A., & Ivens, B. S. (2015). Who will buy smart glasses? Empirical results of two pre-market-entry studies on the role of personality in individual awareness and intended adoption of Google Glass wearables. Computers in Human Behavior, 49(1), 635 647.

Rauschnabel, P. A., & Ro, Y. K. (2016). Augmented reality smart glasses: An investigation of technology acceptance drivers. International Journal of Technology Marketing, 11(2), 123–148.

Rauschnabel, P. A., Rossmann, A.,& Tom Dieck, M.C. (2017) An adoption framework for mobile augmented reality games: the case of Pokémon Go. Computers in Human Behavior, 76, 276–286.

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Service Design for Mediating Technology and Experience in Augmented Reality
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Tom Dieck, M. C.,& Jung, T. H. (2017). Value of augmented reality at cultural heritage sites: a stakeholder approach. Journal of Destination Marketing & Management, 6(2), 110–117.

Tom Dieck, M.C.,& Jung, T. H. (2018). A theoretical model of mobile augmented reality acceptance in urban heritage tourism. Current Issues in Tourism, 21(2), 154–174.

Tom Dieck, M.C., Jung, T. H., & Rauschnabel, P. A. (2018). Determining visitor engagement through augmented reality at science festivals: an experience economy perspective. Computers in Human Behavior, 82, 44–53.

Tristan. E & Sprehn, K. & Brill, R. & Ryan, K., Vincent, E. & Martin, J. (2017). Augmented Reality Design Heuristics: Designing for Dynamic Interactions. Proceedings of the Human Factors and Ergonomics Society Annual Meeting. Austin, Texas (pp. 2100-2104). Los Angeles, CA: SAGE Publications.

Yovcheva, Z., Buhalis, D., Gatzidis, C., 2012, Smartphone Augmented Reality Applications for Tourism, e-Review of Tourism Research (eRTR), Vol. 10, No. 2, 2012

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Designing for behavioural and institutional changes

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Abstract

Although the popularizing approach of behaviour design and the recently-introduced perspective of service ecosystem design (Vink et al., 2017; Vink, 2019) differ significantly in their purpose, focus, and theoretical backgrounds, these differences actually indicate an opportunity to integrate the two, to complement each other and facilitate behaviour and institutional changes simultaneously. To clarify the benefits and demonstrate the procedure of such an integration, this paper introduces a pilot study to implement the integrative design approach for a corporate project which aims at applying design thinking to their sales activities. The results show that the proposed approach helps designers and stakeholders to understand entangled relations between behaviour of employees and organizational social structures and also to uncover wider opportunities and more impactful strategies for change.

Keywords: behaviour design, behaviour change, service ecosystem design, institutional change

Introduction

It is a known fact that service designers always influence on users' behaviour, as introducing a new service necessarily solicits and causes behavioural changes. It is especially important for the designers to navigate and support intentionally the expected behaviour of users for cocreating values in use. Moreover, in recent times the human race cope with social and economic issues requiring behaviour changes in various domains including healthcare, energy saving, finance, education, safety, and corporate human resources (OECD, 2017; Afif et al, 2018). Growing concerns about those issues increase the demand in services, of which behaviour change is their primary value proposition (Risdon, 2013; Niedderer et al., 2017). Furthermore, the high penetration of smart phones and wearable devices with the capability to sense, analyse, and intervene in human behaviour as well as the popularization of knowledge and techniques for applying behaviour science provide designers with opportunities and more credibility to improve user behaviour and develop behaviour changing products and services (Wendel, 2013).

In a typical service design project which resorts to a behavioural approach, designers first set a specific behavioural outcome and an expected target behaviour to promote or inhibit achieving the outcome. Usually a certain gap between expected and actual behaviours is defined as a problem to solve. Then designers utilize knowledge of behavioural science such as cognitive biases and heuristics in order to understand the nature of barriers against the expected action and explore effective strategies to overcome them (Datta & Mullainathan, 2014; Tanita, 2017). This approach is basically founded on the idea of a cause-and-effect relationship between human cognition and behaviour, which support designers well in solving behavioural problems. Designers and organizations welcome such scientific rigor expecting to prove the effect of design interventions (Mahamuni, 2018; Risdon, 2017). However, this approach also invites some risk of understanding the problem too narrowly in terms of behavioural and psychological conditions without considering organizational, social and cultural contexts (Lambe et al., 2020). In addition, it tends to limit the means of intervention and solution to communication and interaction at specific touchpoints (Van Lieren et al., 2019).

From the perspective of service ecosystems (Lusch & Vargo, 2014), some service design scholars focus on the influence of social structures on

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behaviour of the actors (Vink et al., 2017; Vink et al., 2019, Vink 2019). Following the concepts of service-dominant logic and systemic design, Vink (2019) emphasizes the role of institutions within a service ecosystem such as rules, roles, norms, and beliefs to restrict and enable the possibility of actors' behaviours within the system. Such social structures or institutions help to maintain the actors' behavioural routines in the service ecosystem, which assure taken-for-granted patterns of service exchanges among them by reducing the uncertainties and their conscious efforts to perform those exchanges (Kleinaltenkamp, 2018). As these routinized problem-solving behaviours reproduce the social structures of service ecosystem, micro-scale human behaviours and macro-scale social structures reinforce each other, increasing their viabilities reciprocally (Giddens, 1984).

Based on the understanding of these characteristics of service ecosystems, the preceding research proposes the perspective of service ecosystem design (Vink et al., 2017; Vink 2019). Service ecosystem design engages and empowers various stakeholders to reflect critically on the existing institutions to reshape their mental models, creating conditions for altering the service ecosystem along with their behavioural routines toward preferred futures. In this perspective, design too is regarded as an activity of actors embedded in the service ecosystem not being free from the influences of its institutions. This is the reason why service ecosystem design has a strong focus on the reflexivity of actors (including professional designers) who participate collectively in a design process to recognize and reshape the institutional arrangements intentionally (Vink, 2019; Mutch, 2007; Suddaby et al., 2016). However, to implement the reformation of a service ecosystem, the design practice also needs to consider and resort to actors' unconscious and intuitive decision-making for helping the actors change their behaviour and supporting the modified behaviours become routinized once again.

The arguments above on behaviour design and service ecosystem design indicate an opportunity to integrate these different design approaches to complement each other for facilitating both behaviour and institutional changes simultaneously. To explore the benefits and demonstrate the procedure of such an integration, this paper introduces a pilot study to examine the integrative design approach for a corporate project which aims at applying design thinking to their sales activities. Based on this study, it summarises the complementary relationships between the two

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approaches more precisely, in order to clarify the advantage of the integration.

The pilot case study

Background

We implemented an integrative design approach for behavioural and institutional changes into a corporate environment, with the aim of encouraging their salespersons to learn design thinking skills and practice these in their work. This company, which has thirty-eight thousand employees, manufactures and sells digital printing and information technology solutions. The goal of this project is to transform their current sales approach of solving customers' known problems into more creative approach of finding and realizing customers' unknown opportunities. Through such a transformation, they expect to avert price competition and increase their revenue thanks to a value co-creation with customers. The company's internal service design lab, named as SDL, has been leading this project by introducing design thinking methods to around four thousand salespersons from selected divisions. As those salespersons are working at a large number of business hubs distributed over 7 regions of the nation, the SDL, located in the capital city, trained 125 salespersons as "design thinking ambassadors (DTAs)" and assigned them to promote the practice of design thinking at each local hub. Specifically, each DTA is expected to provide current and prospective customers with more innovative and competitive business proposals, by applying design thinking themselves or holding design thinking workshops with those customers. At the same time, several service designers of SDL were assigned as the "design thinking mentors (DTMs)" to assist the activities of DTAs.

Two years after the launch of the project, however, the director of SDL, who is a co-author of this paper, realized many of DTAs were not implementing design thinking workshops with customers as frequently as expected. More surprisingly, the director noticed some DTMs were not active enough to assist DTAs, instead waiting just for questions or requests from DTAs. Thus, recognizing the necessity to change behaviours of both the underperforming DTAs and DTMs, we decided to apply an integrated design approach for behavioural and institutional changes to this problem.

Procedure and findings

In order to implement the integrative design approach in a small three months pilot study, the director and five designers of SDL collaborated with two external service design researchers who facilitated the research process. We targeted on the primary actors of behaviour change, namely the DTMs who were not active in monitoring and assisting DTAs. The research project proceeded in the following three stages.

Stage 1: Behavioural diagnosis and intervention strategy design

The designers who participated in the project first drew an ideal journey map of the DTA's activity, which proposed and provided design thinking workshops to a customer. The journey map included the information about expected mentoring actions from the primary target actor (i.e., the DTM) and the gaps between the expected and actual actions. After drawing the journey map, the designers observed the following three critical gaps.

1. The DTM does not have regular discussions with DTAs to find opportunities to propose design thinking workshops to their customers.

2. The DTM does not check if a DTA has prepared an appropriate design brief for a design thinking workshop.

3. The DTM does not confirm if a DTA formulates a clear business strategy for providing a customer with design thinking workshops.

The designers then interviewed several DTMs to uncover the factors causing the gaps. To analyse the interview records, they applied the framework of CREATE action funnels introduced by Wendel (2013) to identify such factors in terms of six cognitive preconditions for a person to make a decision to act: Cue, Reaction, Evaluation, Ability, Timing, and Experience. This analysis revealed the following four key mental barriers preventing the target actor from performing the expected actions mentioned above.

- **Reaction** (to the requirement to support DTAs in finding opportunities to propose and make a design brief for a DT workshop)**:**
  These DTMs are afraid of disturbing the work of DTAs who are busy increasing orders for ready-made solutions rather than creating a new business opportunities. The DTM thus becomes reluctant to intervene into the work of DTAs.

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- **Evaluation 1** (of the cost/benefit of helping DTAs make a design brief or a business strategy for a DT workshop):
  Some DTMs feel that helping DTAs to prepare design briefs and formulate business strategies is beyond their responsibility. The DTMs believe that their support should focus on how to implement DT but not on why it is done with what.

- **Evaluation 2** (of the cost/benefit of helping DTAs make a design brief or a business strategy for a DT workshop):
  Because DTMs do not properly understand the purpose and importance of these support actions, they feel they are not worth doing.

- **Ability** (to assist DTAs in making a business strategy for a DT workshop)**:**
  Some DTMs are not confident in their ability to provide support.

The causal relations between the behaviour gaps and their correspondent psychological barriers are represented by the boxes and linking lines in the upper half of Figure 1, below.

As is common in a traditional behaviour design project, the participants brainstormed possible design strategies to overcome the four key obstacles in order to promote the expected actions of the target actor. The derived solutions include a strategy to provide DTMs with more specific KPIs for supporting DTAs and a strategy to prompt the DTM to make a commitment for performing the expected actions.

Stage 2: Psychological-institutional analysis

After concluding behaviour intervention strategies, the project moved on to the institutional analysis stage. First, the researchers held a workshop with the director and the designers to reflect on the organizational institutional factors which reinforce existing behavioural routines of both the DTAs and the DTMs. In the workshop, the researcher asked the participants to review the interview with the DTMs and grasp the DTMs' mental models and mindsets, by looking at the statements which typically represented the DTMs' beliefs and values and the perception of their duties and role in supporting DTAs. Those statements include expressions such as "We are often begging of DTAs to apply design thinking to their work", "We should serve DTAs as their advisers to design thinking", and "That goal is not for us but for the DTAs (Figure 1)". The researchers then facilitated a

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discussion among participants urging them to analyse how rules and norms such as divisional and individual KPIs, sales strategies, and training programs for design thinking skills for SDL staff are linked, and how they affect the DTMs' mental models and behaviours. Such reflective analyses finally uncovered institutional conflicts and contradictions among the sales division, the KPIs for assessing the performance of a DTA, and the SDL's KPI for the organizational design thinking promotion activities. Specifically, the sales division's current norm and culture prioritize short-term order increase for ready-made solutions over the creation of new business opportunities and customer-relationships, which contribute the DTA's KPIs. Moreover, the KPIs for the design thinking promotion activities of SDL are considered to be achieved if there is an increase in orders generated by any employee who attended the introductory seminar on design thinking held by SDL in contrast to an order increase resulting from DTAs' design thinking practices. As DTMs recognize that the share of the former (i.e., the order increase produced by the all seminar attendants) is larger than that of the latter (i.e., the order increase created by DTAs) and also that supporting DTAs demands more effort than holding the seminar, they do not have strong motivation for spending their time to assist DTAs' activities. Some of these findings were very illuminating to the participants of the workshop and made them realize that their perspective before doing this analysis was too narrow to recognize the influence of contradicting rules and norms. One of the participating designers expressed this insight by saying that "Although I might have known these contradictions unconsciously, this kind of visual representation gave me much clearer understanding of how such contradictions cause unexpected behaviour of employees."

Stage 3: Designing behaviour and institutional change strategy

All the derived information and insights depicted in Figure 1 helped the participants of this study to understand behavioural problems in the context of psychological barriers and institutional arrangements including mental models, norms, and rules. One of the participants emphasized the benefit of this way of representation by mentioning, "It is not easy for us to realize institutional problems by just looking at institutions. But this kind of mapping facilitates us to discover them from the perspective of behavioural failures and pains." Based on such enriched understanding of the problems, the participants brainstormed again on the possible behavioural interventions and institutional reformations to encourage more active support activities of DTMs to DTAs.

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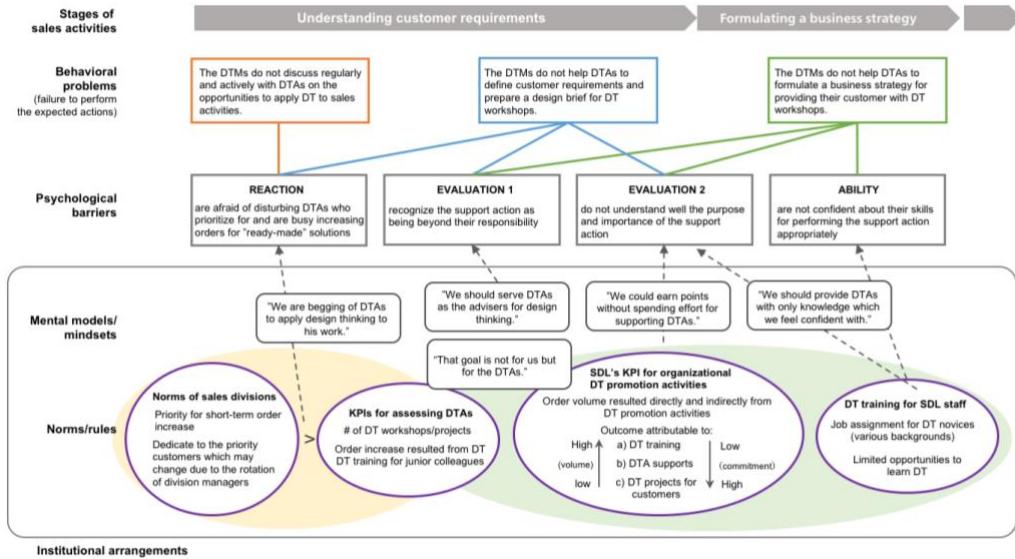
Figure1: Psychological-Institutional Analysis for Behaviour Change

While the ideas for intervention created in the behaviour design stage aimed at promoting the expected target actions by directly overcoming their barriers, the ideas generated after the institutional analysis were derived more from attention payed to the institutional factors causing the barriers. For example, regarding barrier (a), a designer of SDL concerned about the norm and the mindset of sales hubs which prioritizes short-term order increase over the creation of more future-oriented business opportunities. This designer proposed the idea of pairing a DTM and a DTA to work together in creating a new proposal for a target customer by applying design thinking so that the DTM demonstrates practically the values of design thinking for the DTA and the sales hub, motivating them to learn more and use it. Relating to barriers (b) and (c), the director of SDL, noticing the belief of the DTMs that the performance of DTAs is beyond their responsibility, also proposed changing the role of a DTM from a mentor to a partner who achieve same goals (with some appropriate KPIs) with DTAs. As for barrier (d), another designer suggested supporting a DTA with a team of both experienced and less-experienced SDL designers instead of doing it by individual DTM. In discussing these ideas, which demand the changes in the role, activity and goals of the target actor, the participants realized that it is more essential for such change strategies to enhance the contribution of SDL to the sales hubs and the company than to encourage the target actions independently (Proposition 2). The SDL director actually expressed this learning by saying:

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> Once we grasp the whole picture, we could uncover what should be essentially changed. This is similar to when we have a well-researched stakeholder map. If we see the problem as some local and individual scale trouble, we tend to patch over it. But when we understand its relation to a whole organizational issue, we look for a true solution.

In the next workshop, the participants further developed tactical ideas applying their knowledges of behavioural science to enhance the practicability of the proposed strategies above. They paid attention in particular to possible negative reaction from some DTAs who were afraid of failing to persuade their customers, who were not necessarily familiar with design approach, of the effectiveness of design thinking workshops. One of the tactical ideas proposed to overcome this barrier is to not let DTAs propose design thinking straight away to their customers. Rather it first suggests that DTAs apply sales tools such as business case study to user-centered solutions in order to trigger conversations, so as to discover the customers' real interests from their perspective of end-users. Once the customers identify such interests, it becomes easier for DTAs to propose a design approach to them. The tactic here is to frame design thinking in the context of ordinary sales activity. The knowledge of behavioural science behind this tactic is called familiarity or availability heuristic, which means that people show a stronger preference to something more familiar or easier to imagine over those unfamiliar or hard to imagine. This idea also follows the well-known finding in this field that the consistency of the expected action and the target actor's desired self-image encourages that action.

Benefits of the integrative design approach

Assuming the complementary relationship between behaviour design and service ecosystem design, we experimented with the integration of these two approaches in a pilot study and derived the following propositions to summarise the benefits of integration.

(1) The integrative design approach promotes deeper understanding of target behaviour.

- In the pilot study, the workshop to implement the psychological-institutional analysis helped the participants to widen their perspective and confidently recognize the influence of contradicting rules and norms

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on the behaviour of target actors. It is often the case that a designing for behaviour change project focuses too narrowly on the psychological barriers against the target behavior, without being aware of invisible institutional conflicts evoking psychological reactions. However, as the designer who participated in the workshop mentioned, it is not always easy for designers and stakeholders to gain a clear picture of such institutional contradictions and also anticipate how they might cause unexpected behaviour. To assist with understanding, this paper introduced an effective way of representing behavioural problems in the complex contexts of psychological barriers and institutional arrangements.

(2) The perspective of service ecosystem design prevents behaviour designers from wasting resources and from losing opportunities for innovation.

- As is demonstrated in the pilot study, when people see the behavioural problem in a target actor's local context, they tend to come up with strategy to intervene with some pinpointed and patch-like solutions. The integrative approach, however, facilitates designers and actors to grasp the whole picture and to uncover what should be essentially changed, considering the possibility of more drastic institutional reformations. Although such an institutional reformation usually demands more resources and efforts from actors and organizations, a challenge for simultaneous behavioural and institutional changes could, in return, bring them chances of innovating existing service ecosystems for more impactful benefits.

(3) Behaviour perspective guides institutional changes.

- Service ecosystem design practices empower the reflexivity of the actors to reshape their mental models, catalysing their institutional work of creating, disrupting, and maintaining social structures for the preferred future (Vink et al., 2019; Johnson-Laird, 2013). However, examining and deciding which element of institutional arrangements to create, disrupt, or maintain becomes difficult without some criteria. As the participant in the pilot study realized, the psychological-institutional analysis of the integrative approach enables us to criticize the existing institutions in relation to some observable and empathizable behavioural failures and pains. Complementing the vision of a service ecosystem reformation with some concrete goals of behaviour changes thus helps the actors to figure out what institutional changes are appropriate and necessary based on whether they enable and sustain the desirable behaviour changes.

(4) Behaviour design approach enhances the practicability of service ecosystem design.

- Even after the practice of service ecosystem design has succeeded in letting the actors recognize the necessity of changing their mental models and behavioural routines for reforming institutional arrangements, those actors might still confront the gap between their intentions and the actions that need to be taken, due to some psychological barriers such as status-quo bias or present bias. This paper shows in the pilot study how the knowledge of behaviour science can support the implementation of institutional changes by nudging expected behaviour of actors as well as resorting to their reflexivity.

Conclusions

Although the case introduced in this paper is a short pilot study which has a limited number of participants and has not practically implemented created strategies at the moment of writing this paper, it has demonstrated the process and benefits, summarized as the four propositions, of the integrated design approach for behavioural and institutional changes. In particular, it has exemplified the effectiveness of visualizing entangled relations between behaviour, psychological barriers, mental models, and social structures not just for understanding the problems in richer contexts but also for discovering wider opportunities and more impactful strategies to change.

The proposed approach also contributes to the conceptualization of the micro-macro relations of innovation in service ecosystems. Previous design research (Vink et al., 2019) recognizes the limitation of the direct applicability of research on innovation in service ecosystems for practitioners, mainly focusing on changing institutional arrangements at a macro-level aggregation (Vargo & Lusch, 2016). To break through the limit, the earlier research explains how the actors change their social context at a macro level by shifting their own mental models at the micro level (Vink et al., 2019). The integrative design approach for behaviour and institutional changes advances further the understanding of micro-macro linkage of a service ecosystem by emphasizing the behaviour and the decision-making of actors at the micro-scale.

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However, to assure the impact of the four propositions and also their practical applicability, it is necessary to test the approach with more cases in real design scenarios, inviting the participation of target actors of behaviour change in the design process. One of the important issues we have to consider for future study is the level of complexity we confront when a design project deals with multiple target actors and organizations with different institutional arrangements. The question then inevitably arises as to whether the format of visualization introduced in this paper could represent appropriately the entangled relations between a large number of behavioural and institutional factors in a comprehensible and useful way for the designing actors. In addition, we would need to have some criteria for deciding who and when to invite in the design practice both as the target of behaviour change and as the actors for innovating service ecosystems.

References

Afif, Z., Islan, W., Calvo-Gonzalez, O., & Dalton, A. G. (2018). *Behavioural Science Around the World: Profiles of 10 Countries*. Washington, D.C.: World Bank Group.

Datta, S., & Mullainathan, S. (2014). Behavioural design: a new approach to development policy. *Review of Income and Wealth*, 60(1), 7-35.

Giddens, A. (1984). *The Constitution of Society: Outline of the Theory of Structuration*. Berkeley, CA: University of California Press.

Johnson-Laird, P. (2013). Mental models and cognitive change, *Journal of Cognitive Psychology*, 25(2), 131-138.

Kleinaltenkamp, M. (2018). Institutions and institutionalization, in Vargo, S., & Lusch, R. (Eds.). *The SAGE Handbook of Service-Dominant Logic*, London: SAGE. pp.261-264.

Lambe, F., Ran, Y., Jüriso, M., Holmlid, S., Muhoza, C., Johnson, O., & Osborne, M. (2020). Embracing complexity: A transdisciplinary conceptual framework for understanding behaviour change in the context of development-focused interventions. *World Development*, 126. Retrieved from https://doi.org/10.1016/j.worlddev.2019.104703

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Lusch, R., & Vargo, S. (2014). S*ervice- Dominant Logic: Premises, Perspectives, Possibilities*. Cambridge: Cambridge University Press.

Mahamuni, R., Khambete, P., & Mokashi-Punekar, R. (2018). *Service Design for behavioural change - current state of the discipline and practice in India*. Proceedings of the ServDes.2018 Conference, June 10-12, Milan, Italy: Linköping University Electronic Press. pp.62-75. Retrieved from http://www.servdes.org/wp-content/uploads/2018/07/6.pdf

Mutch, A. (2007). Reflexivity and the institu- tional entrepreneur: A historical exploration. *Organization Studies*, 28(7), 1123–1140.

Niedderer, C., Clune, S., & Ludden, G. (2017). Design for Behaviour Change: Theories and Practices of Designing for Change. London: Routledge.

OECD. (2017). Behavioural Insights and Public Policy: Lessons from Around the World. Paris: OECD Publishing.

Risdon, C. (2013). *The new me generation: behavior change as value proposition*. Presented at UX Week 2013. Retrieved from http://www.slideshare.net/livebysatellite/ux-week-2013-the-new-me-generation

Risdon, C. (2017). Scaling nudges with machine learning. *Behavioural Scientist*. Retrieved from https://behaviouralscientist.org/scaling-nudges-machine-learning/

Suddaby, R., Viale, T., & Gendron, Y. (2016). Reflexivity: The role of embedded social posi- tion and entrepreneurial social skill in pro- cesses of field level change. *Research in Organizational Behaviour*, 36(1), 225–245.

Tantia, P. (2017). The new science of designing for humans. *Stanford Social Innovation Review* (Spring, 2017), 29–33.

Van Lieren, A., Marzia, A., & Flu, M. B. (2019). Experience prototyping for predictable behavioural outcomes - Where service design and behavioural science meet. *Touchpoint*, 11(2), 66-68.

Vargo, S. & Lusch, R. (2016). Service-dominant logic 2025, International Journal of Research in Marketing, 34(1), 46-67.

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Vink, J., Tronvoll, B., Evardsson, B., Wetter-Edman, K., & Aguire, M. (2017). *Service ecosystem design: doing institutional work through design.* Proceedings of the Naples Forum on Service. June 6-9, Sorrento, Italy, pp.1-15. Retrieved from https://www.researchgate.net/publication/317901747_Service_Ecosystem_Design_Doing_Institutional_Work_through_Design

Vink, J., Evardsson, B., Wetter-Edman, K., & Tronvoll, B. (2019). Reshaping mental models - enabling innovation through service design. *Journal of Service Management*, 30(1), 75-104.

Vink, J. (2019). *In/visible- Conceptualizing Service Ecosystem Design*. Doctoral thesis, Karlstad University.

Wendel. S. (2013). *Designing for Behaviour Change: Applying Psychology and Behavioral Economics*. Beijing: O'Reilly Media.

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The paradox of delivering professional design services: The plurality of value

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Abstract

Do professional design services offer a service or design a product? A traditional definition rooted in the service economy might point to the former, but the theory of Service-Dominant Logic from marketing might suggest the latter. While this may appear purely as a semantic difference, it has severe implications on 1) how designers articulate the value of their services, and 2) how clients perceive the value of a designer's service. This paper provides four industry examples to show how professional design services may change how they deliver a service to address the evolving expectations of a design service. It ends by offering two ways service designers can help professional design services innovate how they render services to their clients.

Introduction

Service Design is a customer-centric approach that helps firms design the service delivery to their clients. It aggregates different design disciplines to provide a holistic approach when designing new or redesigning existing

services (Ostrom et al., 2015). Consequently, it can often help firms stay relevant and competitive in their changing market landscape (Brown, 2009; Ostrom et al., 2015). Because of its perceived promises to keep businesses competitive, research in this discipline has been growing (Stickdorn & Schneider, 2011).

In the current service-oriented economy (Ostrom et al., 2015), service firms are faced with increasing competitors and need to differentiate themselves from the market. Here, service firms are companies that perform a set of tasks for their client in exchange for money. Their services are often intangible and heterogenous (Regan, 1963). As Regan pointed out, these firms are usually paid first before the service is provided and used by the client. In contrast, firms that sell goods to clients often produce before it can be sold and used by the client. Examples of such service providers are lawyers, consultants, accountants and architects.

It seems paradoxical that architects, creative professionals who design and offer unique solutions to each client, have followed the same service delivery method since the practice was professionalised. Most, if not all, architects offer concept design, design development, construction documentation and contract administration to their clients. This is to adhere the strict regulations of the profession. Since architecture firms must follow this standardised service delivery, how do they differentiate themselves from their competitors? More importantly, how can they create unique service experiences for their client, while keeping to the boundaries of their professional standards?

This paper first examines the evolving perception of value in services. It then identifies the plurality of perceived value in architectural design services to spotlight the divergence of the architect's and the client's perception of value. Next, it uses four industry examples to describe how some professional design services have innovated their service delivery to differentiate themselves for their competitors. It ends by recommending two areas where service designers can help architects to innovate how they articulate value and deliver service to clients.

Background

Since Service Design is customer-centric, it is essential to examine how the user values a service. This is where Service-Dominant Logic (SDL), a theory from the field of marketing developed by Vargo and Lusch (2004),

can help re-conceptualise the service relationship between clients and organisations (Wetter-Edman et al., 2014; Windahl, 2017).

Service-Dominant Logic

In SDL, value is created when different stakeholders exchange their services to benefit each other (Lusch & Vargo, 2014). Organisations that follow the SDL perspective acknowledge service as using resources to exchange and demonstrate knowledge and skills. Additionally, this involves using operant resources (primarily the intangible and specialised knowledge and skills) to configure operand resources (mainly the tangible goods produced during the process). An architecture firm is used here to illustrate this process. An interaction between stakeholders is the communication between the architect and the client. The architect applies their knowledge and skills to create a spatial design, then presents what the design is and how it is used to the client. The client comments on how the design proposal will be used when realised and in doing so, provide contextual knowledge back to the architect. Here, operant resources are the architect's knowledge and design skills. It is also the clients' contextual knowledge of how the design, when built, will be used. Operand resources that facilitate the operant resources are the drawings, such as sketches, visualisations and floorplans. Under SDL theory, this is the service-for-service exchange that co-creates value embodied in the design proposal. This value is often recognised only by those involved in the process.

On the surface, any design service firm that creates a unique outcome for each of its clients may appear to be following SDL. This perception is understandable. To create tailor-made solutions, designers need the client's feedback on their design proposals. But examining design service firms from the Goods-Dominant Logic (GDL) perspective may suggest otherwise.

Differences between GDL and SDL

The two key contrasts between GDL and SDL are 1) how operant and operand resources are used and 2) where value is perceived.

Firstly, firms operating under GDL recognise service as the process of delivering goods to the client. Operand resources are configured to produce goods for the clients. The resources can be explicitly configured for the client despite having operant resources (knowledge and skills) applied to it. In comparison, operand resources under the SDL enable the exchange of services (Constantin & Lusch, 1994; Vargo & Lusch, 2004) by revealing and demonstrating operant resources involved in the process. A

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GDL example is when architects use their design tools (operand resources) to produce a design proposal (goods) for the client. An SDL example is when architects use their design tools (operand resources) to demonstrate how they fuse their design knowledge and the client's contextual knowledge (operant resources). The byproduct of this demonstration is a set of design drawings.

Secondly, firms under GDL set the value of their service through their fees. Instinctively, the client appraises the value of the service based on the price. In contrast, firms under the SDL determine the value of their work through interactions with the client. These interactions then culminate into a design proposal. Here, clients appraise the value of the service based on both the fees and the interactions.

A GDL example is when an architect creates a design proposal (goods) specifically to a brief and sells it to the client. Clients see the value of the design proposal through the cost. They then get the value of the design by paying the architect. Under SDL, the architect uses design tools (operand) as a medium to interact with the client to find a design proposal. The architect still prices the service as usual, but the clients now value the design based on the exchange of services (operant) and not just on the price. Instead of perceiving the value at the point of payment, the client now sees value whenever they use the solution (Vargo et al., 2008) and in this example, the design provided by the architect. To make the value of the service more visible to the clients, firms often work with the client to co-create the value.

Using GDL and SDL lenses to examine how architects produce a design proposal for their clients reveals a plurality of where value is perceived. When architects create bespoke designs for their clients, is the value of work derived from their expertise that is invested in the design process or only in the tangible goods produced at the end?

The plurality of value in professional design services

Architecture practice was chosen as a subject for analysis because researchers and practitioners recognise architecture firms as professional service firms (Løwendahl et al., 2001; Maister, 1982, 1993; von Nordenflycht, 2010; Winch & Schneider, 1993). That is to say, the value of their service have always been their knowledge and skills. The built design is simply an output of the firm applying their knowledge and skills to the project. This section describes 1) the inherent value, 2) the perceived

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value, 3) the shifting perception of the value, and finally, 4) the paradox of perceived value in architecture design services.

A service firm is when a business provides its clients by exchanging its capabilities for a fee. A professional service firm is when a business offers a specialised service to its clients (von Nordenflycht, 2010). More often than not, the firm can provide the service because of the expertise of its employees. Other examples of professional service providers include lawyers, accountants and medical practitioners. While there are different definitions of what constitutes 'professional', this research adopts the view that the *Asymmetry of Expertise* between the provider and client transforms a service into a professional service (Freidson, 1994; Groß & Kieser, 2006). This asymmetry prevents clients from achieving what they need without going through a service firm. An example is when clients cannot obtain a new building without an architect. As Winch and Schneider (1993) described, the knowledge of the firm's employees is vital for the firm to deliver a customised solution to every client. This key resource (knowledge) also demonstrates the *Asymmetry of Expertise* as a significant characteristic of knowledge-based organisations and the value of professional service providers. From these definitions and characteristics, architecture practices operate as a service firm and should be valued based on their knowledge and skills.

However, what has changed in today's context is the *Asymmetry of Expertise*. The abundance of information available on the internet has given clients access to a degree of design knowledge that architects once possessed privately. Arguably, clients do not have the necessary training and experience that architects have. But this publicly available information has somewhat levelled the *Asymmetry of Expertise*. This information comes in different forms. Blog posts that are written by experienced but non-experts that share tips on do-it-yourself renovations. Technical drawings and documents uploaded by architects to advertise their service. Videos of experts demonstrating how space is conceived from concept design and built. Having such information readily and, more importantly, freely available have undoubtedly influenced the clients' valuation of architecture services. From the architects' view, the value proposition of their design service, knowledge and skills, has not changed. However, prospective clients can now obtain a version of this knowledge from the internet. Hence, the expertise has become and is growing harder to argue as a value proposition to the client.

Additionally, how clients engage architectural design services has also challenged how they perceive the value of such services. Before the

widespread use of the internet, clients visited architecture firms, and architects pitch their capabilities (operant resources) to them. They use their portfolio of completed works (operand resources) to justify their skills. This process help clients judge whether the architecture firm is suitable for the job. Now, clients perceive the architects' portfolio online first even before visiting the firm to learn of their capabilities.

This shifting perception from the client reveals a divergence on where the value of an architecture service is substantiated. The former process aligns with the perspective of SDL; the architect channels the clients' attention onto the firm's operant resources, which is their knowledge and skills. The firm's capabilities then substantiate the perceived value of the service. The later process aligns with the perspective of GDL; the clients are attracted by the portfolio of works, which is used to decide whether to approach the architects. In other words, the clients make an initial judgement of the service through their past "goods".

This paradox of perceived value presents opportunities for service designers to help architecture firms innovate their service delivery. It is important to note that SDL is fundamentally a theoretical perspective (Vargo & Lusch, 2017) and does not offer guidelines for practices to adopt and follow. To translate SDL into practical interventions require a building of mid-range theory (Brodie et al., 2011), such as using service system models to design and manage services (Ng et al., 2012). However, it is not the ambition of this paper to provide the means of using SDL to help architecture firms innovate their services. Instead, the purpose is to use SDL to reveal the differences in the value perceived by the architect and the client. In doing so, the goal of the paper is to make clear the distinction between the firm's value proposition (knowledge and skills) and the byproduct of the value proposition (designed outcome) of any architecture firm.

Industry examples

This conceptual research draws on four industry examples to describe how some professional design services foreground their knowledge and skills as their value proposition in the changing market landscape. Example 1 and 2 by WeWork and LendLease show how design services showcase the impact of design, rather than the design itself, to promote their value proposition. In other words, they use the benefits of the design, not the design itself, to describe to clients the value of their service. These

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examples align with SDL, specifically how clients see value when they use the solution instead of just the solution (Vargo et al., 2008). Example 3 and 4 by Here Studio and UNStudio shows how design services demonstrate operant resources through their design process. Example 3 articulates their participatory design services, drawing the attention onto the service-for-service exchange. This aligns with the SDL's focus on value derived from the service interactions. Example 4 pitches their design proposals from the perspective of knowledge discovered during the design process. This approach aligns with SDL's focus on the knowledge component (operant resources) rather than the GDL's focus on the goods produced for the client (design proposal).

Example 1: Space as a service by WeWork

WeWork is a real estate company that offers shared workspaces to entrepreneurs and small and medium enterprises around the world. They provide professionals with co-working spaces to rent and work. Tol (2019), the general manager of WeWork, described their value proposition to their clients as *space that performs a service*. This unique value proposition differentiates its service from other real estate companies. For WeWork, space is not merely a physical area to host their clients. The spaces that WeWork creates serve its clients to fulfil their need, which is to work. While this may appear as a semantic difference in describing space, it influences how WeWork innovate their service delivery to help their clients achieve greater value from the co-working spaces.

Two core activities of WeWork are 1) conducting space usability surveys with their clients and 2) observing how occupants use their co-working spaces. They interpret these data to improve their co-working spaces and ultimately, the value of their service perceived by their clients. For example, their co-working spaces in Australia have narrower corridors compared to the other offices around the world. WeWork surveyed their Australian clients and found that they have a higher tendency to introduce themselves to others (Tol, 2019). From this found knowledge, WeWork created narrower corridors to encourage casual introductions between their clients. Another example is their co-working spaces in China. The spaces have the largest delivery receptions and couch areas. Through surveys and observations, they found their Chinese clients to order lunch delivery regularly. From this knowledge, they expanded the reception area to accommodate the peak delivery during lunchtime. Additionally, they learnt that their Chinese clients have a culture of napping after lunch. Hence, they expanded the lounge areas to cater to their culture.

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Like architecture firms, WeWork design and built spaces for their clients. Unlike architecture firms, they interact with their clients continuously, even after building the office, to learn more about how they use the space. Then, they demonstrate their knowledge to improve the spaces for their clients. As such, the clients perceive the value of WeWork's service when they use the space.

Example 2: Digital infrastructure management by Lendlease

Lendlease is an international construction, property and infrastructure company that started in Sydney. Their core service is constructing and managing buildings for their clients. As Maher (2019) highlighted, Lendlease is currently innovating their service delivery by offering their clients a digital infrastructure management system. This is provided via a *Digital Twin*, a digital representation of a constructed building. The *Digital Twin* records data from the constructed building in real-time. Some of the data collected include temperature settings, power usage and occupancy of space within the building. These data help their clients learn how their building occupants are using the space. By referring to the *Digital Twin*, their clients are now able to manage the building performance more accurately. An example is their recently completed *International Towers Sydney*. According to McCartney (2019), the three towers host a million data points that continuously collect data on spatial usage. The *Digital Twin* then displays the data for building managers to monitor and decide on how to improve building performances.

Similar to WeWork, the built space has now been transformed from a physical and static space into a living and working experience. The *Digital Twin* reminds clients that the value of Landlease's service is not just the constructed building but also the evidence-driven management of the building achieved from real-time data collection

Example 3: Participatory Design in Here Studio

Here Studio is an Australian architecture practice that operates in Melbourne, Ballarat and Horsham. Aside from providing traditional architecture services (the design and construction of buildings), they also offer participatory design services with their clients to discover and discuss their needs. While Here Studio offers both services separately, some of their projects deliver both services cohesively. They use participatory design services to identify, explore and co-create design schemes with their clients. Subsequently, they use their architecture knowledge and skills to turn the design schemes into built projects. Such projects that

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exemplify these two complementary services are their Civic Hall Site (Here Studio, 2016a) and their Gippsland Innovation & Education Precinct (Here Studio, 2016b).

Involving stakeholders in a participatory design process helps draw the client's perception of value to the service-for-service exchange and away from the design proposal. In this exchange, the firm also demonstrated their architectural knowledge and skills (operant resources) to their clients. These actions align with characteristics of SDL; the service relationship between the client and the service provider (Here Studio) is focused on creating value through the service-of-service exchange. Yes, operand resources such as sketches and technical drawings were still developed for the client in the traditional sense of architectural services. However, these drawings served as a medium to demonstrate their operant resources. In fact, stakeholders who were involved in the participatory process created some of and parts of those operand resources. In doing so, the stakeholders witnessed the value of the operant resources, that is to say, the architect's knowledge of transforming the stakeholders' ideas into spatial designs, which were evident in the drawings.

Example 4: Knowledge creation in UNStudio

UNStudio is an international architecture practise that operates in Amsterdam, Frankfurt, Shanghai and Hong Kong. As an architecture firm, its core offering is architecture services. However, they took a different approach to promote themselves. On their company website, they focus heavily on describing their skill competencies. They also describe their completed projects from the perspective of how they applied their competencies.

One of their skill competencies is discovering knowledge during the design process and applying the knowledge into their proposals. This competency is managed internally under UNS Knowledge (UNStudio, 2018b) and also demonstrated through their sister firm, UNSense (UNSense, 2018), a firm that researches and delivers design strategies for the built environment. The way they promote their services and operate as a firm draw focus onto the intangible output of their service, namely knowledge. Similar to the previous examples, what they produce (the constructed building) is a consequence of their skilful use of operant resources.

A recent project that demonstrated their dexterity with operant resources was *The Green Spine* (UNStudio, 2018a) for the Southbank by Beulah Architecture Design Competition. At the 2018 Future Cities Symposium

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(UNStudio, 2018c), UNStudio and their team members presented how the assembled multidisciplinary team developed and synthesised their knowledge and skills (operant resource) to propose *The Green Spine* to the client. As such, the value of their service is in the co-creation process by the multidisciplinary team members.

Discussion

By using SDL as a theoretical frame to analyse how architects deliver services to clients, these examples suggest two areas where service designers can help architecture firms innovate how they provide services to their clients. The first area is to focus on the value proposition. The second is to focus on demonstrating the firm's capabilities with the client.

Service designing how value proposition is pitched to clients

Service designers can adopt the SDL perspective to help architects reframe their value proposition. Instead of the built outcome, service designers can improve the architecture firms focus on the impacts of design on the clients. Since service design adopt a customer-centric approach to designing services, service designers are skilled to help architects articulate how the design approach translates into design impact for the client. This shift in focus will also create opportunities for service designers to help architecture firms explore new ways of delivering service to their clients. As the WeWork and Landlease examples showed, the architects' design outcomes (i.e. the spaces) can be transformed further into an ongoing service that continually provides value to the client.

Service designing how expertise is demonstrated to clients

Service designers can adopt SDL perspective to help architects clarify and articulate the value of their knowledge and skills to clients. As mentioned above, this value is inherent in architecture services. However, the value is becoming latent due to the changing perceptions of the *Asymmetry of Expertise*. Here, service designers can transform the client communication component of the service into an exchange of expertise; clients provide the contextual knowledge of they use space, and the architects respond by demonstrating their design knowledge. In the Here Studio example, the participatory design activity shows this type of client communication component. If the activity is not feasible with the client, service designers can look at how the firms demonstrate their knowledge and skills through their online portfolio, as described in the UNStudio example.

Conclusion

Previous research has argued that architecture practices operate as a professional service firm. As such, the value of their service is their knowledge and skills, not the design provided to clients. However, when SDL is used as a theoretical lens to analyse the service delivery from the architect to the client, it revealed a plurality of perceived value in the design service. This plurality also revealed an opportunity to innovate in how architects deliver value through their service. This paper explored the opportunity further through four industry examples. The examples showed how existing professional design services innovated and differentiated their service delivery from traditional architecture practices. Hence, architects should focus on the service delivery experience and emphasise the effects of their design as their value proposition. This is where service designers can intervene and work with architecture firms to redesign and improve how the firm offers their service to clients.

References

Brodie, R. J., Saren, M., & Pels, J. (2011). Theorising about the service dominant logic: The bridging role of middle range theory. *Marketing Theory*, 11(1), 75–91. https://doi.org/10.1177/1470593110393714

Brown, T. (2009). *Change by Design: How Design Thinking Transforms Organisations and Inspires Innovation*. New York, NY: Harper Collins.

Constantin, J. A., & Lusch, R. (1994). *Understanding Resource Management: How to deploy your people, products and processes for maximum productivity*. Oxford, Ohio: The Planning Forum.

Freidson, E. (1994). *Professionalism Reborn: Theory, prophecy and policy*. Cambridge: University Of Chicago Press.

Groß, C., & Kieser, A. (2006). Are Consultants Moving Towards Professionalisation? In *Professional Service Firms (Research in the Sociology of Organisations, Vol. 24)* (pp. 69–100). https://doi.org/10.1016/S0733-558X(06)24004-7

Here Studio. (2016a). *Here Studio: Civic Hall Site, Ballarat*. Retrieved 2 December 2019, from http://www.herestudio.net/community#/civic-hall-site-ballarat/

Here Studio. (2016b). *Here Studio: Gippsland Innovation & Education Precinct*. Retrieved 2 December 2019, from http://www.herestudio.net/community#/gippsland-innovation-education-precinct/

Løwendahl, B. R., Revang, Ø., & Fosstenløkken, S. M. (2001). Knowledge and Value Creation in Professional Service Firms: A Framework for Analysis. *Human Relations*, 54(7), 911–931. https://doi.org/10.1177/0018726701547006

Lusch, R. F., & Vargo, S. L. (2014). *Service-dominant logic: Premises, perspectives, possibilities*. New York: Cambridge University Press.

Maher, W. (2019, October 18). Lendlease lays out property-tech wish list. Retrieved 2 December 2019, from https://www.iothub.com.au/news/lendlease-lays-out-property-tech-wish-list-532576

Maister, D. (1982). Balancing the Professional Service Firm. *Sloan Management Review*, Fall 24(1), 15–29.

Maister, D. H. (1993). *Managing the Professional Service Firm*. New York, NY: Simon & Schuster Inc.

McCartney, S. (2019, November). *Digital Disruption and Transformation*. Presented at the Business of Architecture and Design Conference, Sydney, New South Wales, Australia.

Ng, I., Badinelli, R., Polese, F., Nauta, P. D., Löbler, H., & Halliday, S. (2012). S-D logic research directions and opportunities: The perspective of systems, complexity and engineering. *Marketing Theory*, 12(2), 213–217. https://doi.org/10.1177/1470593111429519

Ostrom, A. L., Parasuraman, A., Bowen, D. E., Patrício, L., & Voss, C. A. (2015). Service Research Priorities in a Rapidly Changing Context. *Journal of Service Research*, 18(2), 127–159. https://doi.org/10.1177/1094670515576315

Regan, W. J. (1963). The Service Revolution. *Journal of Marketing*, 27, 57–62. https://doi.org/10.1177/002224296302700312

Stickdorn, M., & Schneider, J. (2011). *This is Service Design Thinking: Basics, Tools, Cases*. Amsterdam, The Netherlands: BIS Publishers.

Tol, B. (2019, November). *The We Company: WeWork*. Presented at the Business of Architecture and Design Conference, Sydney, New South Wales, Australia.

UNSense. (2018). *UNSense: Who we are*. Retrieved 2 December 2019, from http://unsense.com/about-unsense/

UNStudio. (2018a). *UNStudio: Southbank by Beulah*. Retrieved 2 December 2019, from https://www.unstudio.com/en/page/11738/southbank-by-beulah

UNStudio. (2018b). *UNStudio: UNS Knowledge*. Retrieved 2 December 2019, from https://www.unstudio.com/en/page/10374/knowledge

UNStudio. (2018c, July). *Future Cities: The Green Spine*. Presented at the Future Cities Symposium, Melbourne, Victoria, Australia. Retrieved from https://www.southbankbybeulah.com/fcsymposium

Vargo, S. L., & Lusch, R. F. (2004). Evolving to a New Dominant Logic for Marketing. *Journal of Marketing*, 68(1), 1–17. https://doi.org/10.1509/jmkg.68.1.1.24036

Vargo, S. L., & Lusch, R. F. (2017). Service-dominant logic 2025. *International Journal of Research in Marketing*, 34(1), 46–67. https://doi.org/10.1016/j.ijresmar.2016.11.001

Vargo, S. L., Maglio, P. P., & Akaka, M. A. (2008). On value and value co-creation: A service systems and service logic perspective. *European Management Journal*, 26(3), 145–152. https://doi.org/10.1016/j.emj.2008.04.003

von Nordenflycht, A. (2010). What Is a Professional Service Firm? Toward a Theory and Taxonomy of Knowledge-Intensive Firms. *The Academy of Management Review*, 35(1), 155–174. https://www.jstor.org/stable/27760045

Wetter-Edman, K., Sangiorgi, D., Edvardsson, B., Holmlid, S., Grönroos, C., & Mattelmäki, T. (2014). Design for value co-creation: Exploring synergies between design for service and service logic. *Service Science*, 6(2), 106–121. https://doi.org/10.1287/serv.2014.0068

Winch, G., & Schneider, E. (1993). Managing the knowledge-based organisation: The case of architectural practice. *Journal of Management Studies*, 30(6), 923–937. https://doi.org/10.1111/j.1467-6486.1993.tb00472.x

Windahl, C. (2017). Market sense-making in design practice: Exploring curiosity, creativity and courage. *Journal of Marketing Management*, 33(3–4), 280–291. https://doi.org/10.1080/0267257X.2016.1272306

Current and future trajectories for Service Design education: Views from educators in academia

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Abstract

In the past few years, higher education programs in service design have been steadily growing. Mostly positioned as master's degrees within varied faculties and departments, these programs propose quite diverse educational offerings. To explore such variety, this short paper presents the preliminary findings of some in-depth interviews with the coordinators of six master's programs. The interviews discuss key elements of these master's programs and, more broadly, highlight current and future trajectories for the service design education.

Keywords: service design, design education, service design education

Introduction

Although services have always characterized "human adaptation and the organization of societies" (Blomberg & Darrah, 2014, p. 123), the more specific term service design was coined in the 80s in marketing studies (Shostack, 1982, 1984). Already a few years later, a group of design

researchers started using the term to more granularly represent those design processes oriented towards ideating, defining and developing services (Hollins & Hollins, 1991; Manzini, 1993; Morello, 1991; Erlhoff, Mager, & Manzini, 1997). This interest prompted the establishment of service design courses at the Cologne University of Applied Sciences, followed by the Politecnico di Milano, Carnegie Mellon University and Linköping University (Mager, 2008, 2009). In 2009, the first master's degree fully dedicated to Service Design was started at the Laurea University of Applied Sciences (Ojasalo, 2012), followed by the Savannah College of Art and Design. Since then, the number of master's programs in service design has been steadily increasing, especially in Europe (White & Holmlid, 2012; de Götzen et al., 2018). As master's degrees highly vary as regards their educational offering (educational approach, curricula and courses) (Becermen & Simeone, 2019), the result is a quite heterogeneous landscape, with different types of degrees (MDes, MA, MFA, MBA and MSc) located in different faculties and departments (design, IT, management - just to name a few). To date, such diversity has not been systematically analysed in design research and very few studies have been devoted to examining the current education in service design (Ferruzca et al., 2016). This paper intends to offer a contribution along these lines by reporting on a set of interviews carried out in 2019 with the coordinators of six master's programs in Europe and the US. These interviews explore key aspects of each master's program with a focus on their current and future educational trajectories. This material allows us to examine some of the views of educators in academia and, hopefully, to offer insights to schools providing service design courses and programs.

Previous research about service design education

The majority of literature on service design education mainly examined specific master's degrees rather than proposing comparative studies. Previous research explored topics as diverse as establishing new service design programs (Ojasalo & Ojasalo, 2009; Ojasalo, 2012; Al-Yassini, Kim, & Selzer, 2011; Blomkvist, Holmlid, & Segelström, 2011; Pacenti, 2011; Penin, 2011; Heiskari & Helenius, 2010; Morelli & de Götzen, 2014; de Götzen, Morelli, & Grani, 2014), in-class teaching (Guersenzvaig, 2011; Howard, 2011; Tossavainen & Kaartti, 2015; Ali, Grimaldi, & Biagioli, 2017; Ball & Dominguez, 2017; Tokayer & Lee, 2017; de Götzen et al., 2018), service design competences (Luojus & Tossavainen, 2019) or work

experience of graduates (Sun & Runcie, 2016; Kaartti & Guilland, 2019). Other studies discussed more general aspects of service design education, e.g. knowledge and skills for service designers (White & Holmlid, 2012; Mirzaie & Parlato, 2017; Jones, 2017) or opportunities and challenges for service design education (Polaine, 2011). A couple of comparative studies more broadly examined the landscape of higher education (Ferruzca et al., 2016; Becermen & Simeone, 2019). This short paper aims to complement these studies by further investigating diverse educational approaches in service design through the words of a number of educators in academia.

Research methods

The research is based on a set of in-depth interviews (Legard, Keegan, & Ward, 2003) with the coordinators of six master's programs in service design, carried out in 2019. The interview questions were mostly open (Seidman, 2006) and built upon previous desk research (Becermen & Simeone, 2019). The interviewees were chosen to represent different typologies of education (MDes, MA, MFA, MBA and MSc). Some of the oldest programs were selected so that they could share insights on how their students fared on the job market after getting their degree. The final selection (Table 1) includes one- and two-year programs across five countries; for each of the programs, the study coordinators were interviewed.

Program	Type	Duration	Country	Starting date of the program
Politecnico di Milano - POLI.design Master in Service Design	MDes	1 year	Italy	2012
The Savannah College of Art and Design (SCAD) MFA in Service Design	MFA	2 years	The United States	2009
Aalborg University Copenhagen MSc in Service Systems Design	MSc	2 years	Denmark	2012
Laurea University of Applied Sciences MBA in Service Innovation and Design	MBA	1.5-2.5 years	Finland	2009
Politecnico di Milano MSc in Product-Service System Design	MSc	2 years	Italy	2005
Royal College of Art (RCA) MA in Service Design	MA	2 years	United Kingdom	2012

Table 1: Programs coordinated by the interviewees

There are at least three important limitations of this research. The first is the narrow selection of the master's programs and the quite marked euro-centric sampling. The second is that our research is currently aimed at master's programs in academia, but a growing number of courses and degrees are offered also at a bachelor's level and outside academia - at times, through online and offline short courses and workshops[1]. The third is that we adopt a characterization of service design (Shostack, 1982, 1984; Stickdorn & Schneider, 2010), which does not fully take into account broader and more inclusive views of what services are (Blomberg & Darrah, 2014).

1 E.g. https://www.ideou.com/products/human-centered-service-design
https://www.service-design-network.org/service-design-network-academy
https://www.thisisservicedesigndoing.com/school
http://ciid.dk/education/professional-programmes/

We hope that in future iterations of our research, we will be able to represent more properly such diversity. For the time being and acknowledging the current limitations, we mark our research as exploratory and preliminary.

Findings

Table 2 shows a preliminary characterisation of the six master's degrees.

Master's program	Preliminary characterisation emerged from the interviews
MDes in Service Design - Politecnico di Milano - POLI.design	A one-year program for professionals coming from different backgrounds and countries. It is structured around intense three-semester project work in collaboration with companies, supported by other modules; it does not require a final academic thesis.
MFA in Service Design - The Savannah College of Art and Design (SCAD)	As the program is part of an art and design college, students are expected to perform good presentations as a core deliverable of their studio projects. The students get briefs from large corporations and work through multidisciplinary groups - meaning that service design, acting, and architecture students can be part of the same group. It recently started offering an elective track on UX design, social innovation and business innovation. It requires a final academic thesis.
MSc in Service-Systems Design - Aalborg University Copenhagen	An academic program that focuses on the social, technological and systemic aspects of service design. Most of the students have an internship in their third semester to gain more hands-on experience. It requires a final case-based academic thesis.
MBA in Service Innovation and Design - Laurea University of Applied Sciences	A program with strong business and management aspects and that requires previous work experience. The education is organised to accommodate the needs of a heterogeneous group of students who also work full-time and that can indeed use their work as a case for their academic assignments. A final academic thesis is required.
MSc in Product-Service System Design - Politecnico di Milano - School of Design	An academic program not exclusively dedicated to service design, as services are considered components of product-service systems. Therefore, students work on different projects integrating services, products and spaces into complex solutions, as to develop hybrid skill sets. It targets relatively young students. It requires a final academic thesis.
MA in Service Design - Royal College of Art (RCA)	The program is studio-based and currently does not offer compulsory credit courses. The goal is to help students build a strong portfolio through five studio projects and an optional summer internship project in collaboration with different companies. It requires a final academic thesis.

Table 2: Preliminary characterisation of the programs

Student profile

Except for the MSc in Product-Service System Design, programs are open to students from different disciplinary backgrounds, even though a large number of students tend to have a design background. The MDes program at Politecnico di Milano and the MBA program at the Laurea University of Applied Science require a minimum of 2-3 years of previous work experience. All these programs are taught in English and are open to international students, but the ratio of international students differs. Programs in the UK, USA and Italy have more Asian and non-European students, compared to the programs in the Nordic countries, which are filled by mostly European students. In all these programs, the number of female students is remarkably higher compared to male students.

Collaborations and curricula

All these programs maintain collaboration with organisations in different sectors, which provide design briefs that the students need to tackle as part of their courses or semester-long projects. Only at the MBA program at Laurea, the collaboration mostly takes place through the organisations for which their students already work (but also with other organisations or R&D projects at Laurea). Except for the MA program at RCA, all the other master's degrees have curricula of credit courses, which vary greatly. A program is management-led (MBA); all the others are design-led. The coordinator of the RCA program argued that the "management side of the service design in most of the service design courses is missing" and this motivated the RCA's collaboration with Imperial College Business School, which, however, has room for improvement. Conversely, the MBA program at Laurea manages to equip their students with management, leadership and business competencies and sees their students as a change agent for their organisations. The coordinator of the program mentioned that common challenges in service design are implementation and impact assessment. To succeed in the market, business competencies such as capital investment analysis, accounting and budgeting are crucial to estimate the means needed for the services to operate and to be financially viable. However, within the limited time and the fixed number of credits of a master's degree, it is always difficult to decide

> … how much focus there should be on business and how much on service design competences. Partly this is something that students can decide: depending on their background and learning outcome

goals, they can choose the elective courses that they need - increasing either their business competences or service design competences (Coordinator of Laurea).

Graduates and job market

In general, graduates work in various roles such as designers, design researchers, product/service/design managers or entrepreneurs. Although there is a growing interest from the public sector, the private sector tends to recruit more service designers than the public and third sectors. Graduates emerging from different service design programs develop different skill sets and a somewhat distinct positioning in the job market. For example, graduates from the MSc in Product-Service System Design are hybrid designers (i.e. they could potentially work as product designers, UX designers, graphic designers, service designers) and, as such, they are valued by small and versatile design consultancies, whereas graduates from the MBA program tend to work in larger corporations. Programs also adapt to the requests of the job markets. For example, since in the USA the demand for UX designers is remarkably higher than for service design, SCAD started offering an elective track on UX design. The MFA program at SCAD is the only master's degree dedicated to service design in the US, and the program coordinators have noticed that the current education cannot keep up with the increasing requests for service designers in the job market. The coordinator of the program mentions that "last May, we graduated 25 students, and that was a big thing... But this is all we can do at the moment." Her colleague supports this view:

> Although [service design] is a small pond, we don't have enough people to fill this pond. At first, that seems to be great, but it's not, because these positions will be filled by someone else [without a specific service design preparation].

Geographical distribution

The interviewees have several opinions about why a large part of the current master's programs in service design are located in Europe. According to the coordinator of the MDes program at POLI.design, this is a result of the fact that in Europe, 80% of the GDP is based on services. The coordinator at Laurea pointed out that this shift toward a service-dominant economy is a bigger trend:

I know that there are people in South Africa, Colombia and Mexico that are actively studying service design and bringing it to their universities. But probably the critical mass is not there yet, and for those markets, it will take some time.

In the context of the US, the program coordinator at SCAD pointed out that it is also challenging to find experienced staff:

It's very difficult to get faculty able to teach service design. This is one of the things that prevent these majors from growing in other parts of the country. Since there are not many professionals specifically educated in service design, how can you possibly educate other people? Of course, in Europe, it's easier because service design has been taught for a longer period of time, and there are so many people getting out of those education programs.

The coordinator of the RCA program believes that since industrial design programs in Asia have started offering service design courses, in less than five years we will see major growth of service design programs in Asian countries such as China and Korea. She added that her experience is that in some Asian countries, the procedure to establish new educational programs is more cumbersome than in Europe, and this can at least partially explain why service design education is nowadays still mostly anchored to European countries.

Future trajectories for service design education

Table 3 reports on the views of the interviewees about possible future trajectories for service design education.

View of coordinators from	Question: "What do you think educators should further bring to service design education?"
Politecnico di Milano - POLI.design - Master in Service Design	Sustainability, environmental issues and circular economy but also closer linkages with emerging technologies: We need to go beyond the user-centred approach. So, I think we need to understand, for example, how to integrate the use of technology, the use of artificial intelligence, the use of data in education to create services that don't exist yet.
MFA in Service Design - The Savannah College of Art and Design (SCAD)	Develop a better understanding of services as systems
MSc in Service-Systems Design - Aalborg University Copenhagen	Develop a better understanding of how public administration and policy making work so that we can design better public services
MBA in Service Innovation and Design - Laurea University of Applied Sciences	How to bring service design into organisations
MSc in Product-Service System Design - Politecnico di Milano - School of Design	Sectoral knowledge and specialisation for areas such as healthcare, tourism, etc. and develop knowledge of digital technologies
MA in Service Design - Royal College of Art	Develop a fundamental shared framework for service design education

Table 3: Views of educators on the future of the service design education

Final remarks

Service design has been characterised as a holistic and multidisciplinary approach that requires different skill sets (Moritz, 2009; Stickdorn & Schneider, 2010). However, there is no common educational framework to determine the right balance of design, user research, technology, business and management competencies. Nowadays, programs develop their curricula somewhat independently and in relation to the specific faculty or school in which they are embedded. Some programs attempted to go

beyond the boundaries of single institutions by setting joint degrees, but multi-institution collaborations can open administrative and organisational challenges.

Another key point which emerged from our research is to what extent service design education should aim at creating broadly skilled designers whose capabilities can be applied in different sectors or, as an alternative, should focus on developing expertise in particular sectors, such as in the case of programs oriented to wellness[2], hospitality[3], library[4] and information services. How can educational programs strike a balance between the broad skill sets needed to support a holistic and explorative nature of service design (including wider perspectives tied to sustainability, circularity and systemic thinking) and the knowledge needed to design, develop and assess domain-specific services?

A more specific but connected point is whether service design education should focus more on the business and managerial aspects of services. Large organisations in particular tend to become more and more complex, with production and distribution pipelines that are scattered across varied geographical areas and markets and that rely on big data and real-time information flows. Understanding such complexity is another important challenge for service designers, who are, at times, not well equipped to understand the organisational, financial and managerial aspects of such processes. A better understanding of the organisational components of service design would also benefit those designers who intend to work on public services, which might require interplay of multiple public and private organisations.

While, arguably, these issues might be inherent to any kind of design, a more specific challenge for service design programs is that graduates are often isolated in their journey of trying to embed service design in their workplace and service design programs could do more to support them. Often, graduates find it challenging to explain what they do (Sun & Runcie, 2016) also because even within the service design community, there is no

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[2] http://wellnesseducation.pc.ut.ee/

[3] https://www.novia.fi/studies/master-degree-programmes/leadership-and-service-design/master-of-hospitality-management-leadership-and-service-design

[4] https://kisk.phil.muni.cz/profilace/design-informacnich-sluzeb

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agreement on the definition of what service design is (Stickdorn & Schneider, 2010). There is a great variety of views on the role and the responsibilities of service design professionals and the full potential of service design is still underexplored in the service economy (Sun & Runcie, 2016). This picture is further complicated by the fact that there are many academic programs that do not use "service design" in their official title but still offer courses that are very similar to the master's degrees in service design (Ferruzca et al., 2016). As a consequence of this magmatic landscape and plurality of views, there is no consensus on which competencies service designer students should acquire with their education. As noted by the coordinator of the RCA program: "A key danger for service design education is that there is no fundamental framework." This has prompted some to state that service design has "no clear home in academia" (Polaine, 2011, p. 50). Is this varied educational landscape an opportunity to enrich the field? Or rather, this proliferation of different educational approaches - nowadays also in the form of online and/or short courses - makes it difficult for the service design community to build more collaboratively on a joint educational vision? And, again, and more tightly connected to the modest and limited scope of this paper: can the euro-centric perspective here adopted be complemented by the voices of other educators from other geographic and cultural contexts as to provide a more granular mapping that fosters difference and diversity? We hope that these questions can ignite dialogue with other researchers at ServDes 2020 and beyond and help further the understanding of service design education.

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References

Ali, H., Grimaldi, S., & Biagioli, M. (2017). Service Design pedagogy and effective student engagement: Generative Tools and Methods. *The Design Journal*, 20(sup1), S1304–S1322.

Al-Yassini, R., Kim, M., & Selzer, S. (2011). Designing a Service Design Curriculum. *Touchpoint - the Journal of Service Design*, 3(1), 66–71.

Ball, J., & Dominguez, M. (2017). Service Design in the Business Curriculum. *Touchpoint - the Journal of Service Design*, 9(1), 22–25.

Becermen, B., & Simeone, L. (2019). Exploring the landscape of service design education: A preliminary review of current programmes in higher education. *Proceedings of the International Association of Societies of Design Research Conference*. 2-5 September 2019. Manchester.

Blomberg, J., & Darrah, C. (2014). Toward an Anthropology of Services. *Proceedings of ServDes 2014. Service Future; Proceedings of the Fourth Service Design and Service Innovation Conference*. 9-11 April 2014. Lancaster, United Kingdom. Linköping University Electronic Press, 122-132.

Blomkvist, J., Holmlid, S., & Segelström, F. (2011). Prototyping a Service Design Curriculum. *Touchpoint - the Journal of Service Design*, 3(1), 53–55.

de Götzen, A., Kun, P., Simeone, L., & Morelli, N. (2018). Making sense of data in a service design education. *Proceedings of ServDes 2018. Service Design Proof of Concept*. 18-20 June 2018. Milan. Linköping University Electronic Press, 177–187.

de Götzen, A., Morelli, N., & Grani, F. (2014). Challenges and Perspectives in Service Design Curricula: The Case of the Service Systems Design Master of Aalborg University in Copenhagen. *Proceedings of ServDes 2014. Service Future; Proceedings of the Fourth Service Design and Service Innovation Conference*. 9-11 April 2014. Lancaster, United Kingdom. Linköping University Electronic Press, 394–400.

Erlhoff, M., Mager, B., & Manzini, E. (1997). *Dienstleistung braucht Design: Professioneller Produkt-und Marktauftritt für Serviceanbieter*. Luchterhand.

Begüm Becermen, Luca Simeone
Current and future trajectories for Service Design education: Views from educators in academia
Linköping University Electronic Press

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Ferruzca, M., Tossavainen, P., Kaartti, V., & Santonen, T. (2016). A Comparative Study Of Service Design Programs In Higher Education. *INTED2016 Proceedings.* 7-9 March 2016. Valencia, Spain*.* IATED Digital Library, 6490–6498.

Guersenzvaig, A. (2011). Teaching Service Design to Design Students. *Touchpoint - the Journal of Service Design*, 3(1), 46–48.

Heiskari, J., & Helenius, M. (2010). Experiences from the Launch of a New International Master's Program in Service Design and Engineering*. Proceedings of ICSS 2010. 2010 International Conference on Service Sciences*. 13-14 May 2010. Hangzhou, Zhejiang, China. IEEE Computer Society, 28–33.

Hollins, G., & Hollins, B. (1991). *Total Design: Managing the design process in the service sector*. London: Pitman.

Howard, J. (2011). Teaching Co-Design. *Touchpoint - the Journal of Service Design*, 3(1), 56–57.

Jones, M. (2017). Educating for Breadth and Depth. *Touchpoint - the Journal of Service Design*, 9(1), 36–39.

Kaartti, V., & Guilland, A. (Eds.). (2019). *Service Innovation and Design— Stories of the Emerging Themes and Impact of the Education*. Laurea-ammattikorkeakoulu: Laurea Julkaisut / Laurea Publications 121.

Legard, R., Keegan, J., & Ward, K. (2003). In-depth interviews. *Qualitative Research Practice: A Guide for Social Science Students and Researchers*, 6(1), 138–169.

Luojus, S., & Tossavainen, P. (2019). New Insights in Higher Education: Leading Service Design. *INTED2019 Proceedings*. 11-13 March 2019. Valencia, Spain. IATED Digital Library, 2972–2980.

Mager, B. (2008). Design Dictionary-Service Design. In M. Erlhoff & T. Marshall (Eds.), *Design Dictionary: Perspectives on Design Terminology* (pp. 354–357). Basel: Birkhäuser Basel.

Mager, B. (2009). Service design as an emerging field. In S. Miettinen & M. Koivisto (Eds.), *Designing services with innovative methods* (pp. 27–43). Finland: University of Art and Design Helsinki.

Begüm Becermen, Luca Simeone
Current and future trajectories for Service Design education: Views from educators in academia
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Manzini, E. (1993). Il Design dei Servizi. La progettazione del prodotto-servizio. *Design Management*, 4, 7–12.

Mirzaie, N., & Parlato, C. (2017). Desirable Traits: Educating for an Evolving Service Design Practice. *Touchpoint - the Journal of Service Design*, 9(1), 32–35.

Morelli, N., & de Götzen, A. (2014). Shaping a New Service Design Programme. *Touchpoint - the Journal of Service Design*, 6(2), 86–89.

Morello, A. (1991). *Design e Mercato dei Prodotti e dei Servizi* (Dottorato di Ricerca in Disegno Industriale). Politecnico di Milano, Milano.

Moritz, S. (2009). *Service design: Practical access to an evolving field*. https://www.lulu.com/commerce/index.php?fBuyContent=7745447

Ojasalo, K. (2012). Designing and implementing an innovative Master's degree programme: A case study. *International Journal on New Trends in Education and Their Implications*, 3(3), 136–147.

Ojasalo, K., & Ojasalo, J. (2009). Developing Service Design Education. In S. Miettinen & M. Koivisto (Eds.), *Designing Service with Innovative Methods* (pp. 98–123). University of Art and Design Helsinki.

Pacenti, E. (2011). Better Services for Better Lives. *Touchpoint - the Journal of Service Design*, 3(1), 58–61.

Penin, L. (2011). A Critical Approach to Service Design Education. *Touchpoint - the Journal of Service Design*, 3(1), 62–65.

Polaine, A. (2011). Late to the Party? *Touchpoint - the Journal of Service Design*, 3(1), 50–52.

Seidman, I. (2006). *Interviewing as qualitative research: A guide for researchers in education and the social sciences* (3rd ed.). New York: Teachers College Press.

Shostack, G. L. (1982). How to Design a Service. *European Journal of Marketing*, 16(1), 49–63.

Shostack, G. L. (1984). Designing services that deliver. *Harvard Business Review*, 62(1), 133–139.

Stickdorn, M., & Schneider, J. (2010). *This is Service Design Thinking: Basics—Tools—Cases*. Amsterdam: BIS Publishers.

Sun, Q., & Runcie, C. (2016). Is Service Design in Demand? *Design Management Journal*, 11(1), 67–78.

Tokayer, M., & Lee, K. (2017). Cultivating Healthcare Innovation through On-the-Job Design Education*. Touchpoint - the Journal of Service Design*, 9(1), 26–31.

Tossavainen, P. J., & Kaartti, V. (2015). Don't the Cobbler's Children Have Shoes? A Service Design Lens and Visualization Tools in Action in Higher Education. *International Journal of Innovation, Management and Technology*, 6(5), 320–325.

White, H., & Holmlid, S. (2012). What Do Tomorrow's Service Designers Need to Know? *Paper connected to a workshop at ServDes 2012*. 8-10 February 2012. Henlsinki, Finland.

Hear hear! Why sound in service design should matter

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Abstract

Current tools and techniques used in everyday design practice are focused on managing the complex information of service systems primarily through visualization. The visual in methods has become a dominant norm prevalent in service design practice. In wanting to counteract the emphasis on visualization, we direct attention to qualities of sound in natural and structured form. This conceptual paper offers two important contributions. First, we propose sound as an alternative representation medium to augment design tools and methods. Second, since sound as representation is an under-explored concept, we suggest a conceptual framework. The conceptual framework introduces an understanding of sound as persistent or performative. As such, it serves as a starting point to guide the exploration of sound as a medium of representation in service design, in a way that complements existing tools and methods.

Keywords: sound, visual representations, sonification, service design, auditory experience

Introduction

Representation, according to the Oxford dictionary, symbolically describes or portrays something in a particular way, usually through visual means. Service design uses external representations to address intangible components of present and future service systems, making them more accessible in facilitating articulation, learning, collaboration, communication and empathy (Blomkvist & Segelström, 2014). An indispensable element in service design, the importance of visualizations has been reported in both research and practice (Blomkvist & Segelström, 2014; Kimbell, 2011; Manzini & Vezzoli, 2003; Patrício et al., 2011). However, service in its entirety is only partially visually observable. Where visualizations, such as service blueprints and customer journeys, can be informative of many interactive service components that enable co-creation of customer experience and value outcomes, they rarely account for the nuances of the entire servicescape (Lemon & Verhoef, 2016; Shostack, 1982; Steen et al., 2011). Servicescapes, defined as physical spaces where service is performed, comprise of physical, social, symbolic and natural dimensions (Rossenbaum & Massiah, 2011; Tombs & McColl-Kennedy, 2003). They also include a complex network of intertwined actors, processes and artefacts (Chandler & Lusch 2015, Edvardsson et al., 2005). Thus, there is an interplay of different stimuli that influences interactions in servicescapes and serves to co-create service experience as a service is performed.

One of the most important elements in any servicescape is sound. Sound can have a profound effect on how we experience and interact with the environment by providing cues for action (Brown et al., 2016). Therefore, the effect of auditory elements has been researched across design and service-related disciplines. Research in service marketing has reported the effect of different sound aspects (such as ambient sound, background music or congruency of musical elements and verbal communication) in buying behaviour and perceived service quality (Andersson et al., 2012; Demoulin, 2011; Hung 2000). Product sound and sonic interaction design, on the other hand, explore the relationships between users and objects, and the role of intentional or consequential sounds in inducing action, supporting understanding and evaluating design artefacts aesthetically (Rocchesso & Serafin, 2009, Schifferstein & Desmet, 2008). Finally, sound, with its unique temporal dimension and performative potential can serve as an embodied medium for creative experimentation and new knowledge creation (Orning, 2017). All this suggests that auditory

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considerations can have an important application in various settings relevant for service design.

Regardless of the importance of sound in co-creating service experience and its ubiquity within many servicescape layers, it currently plays a surprisingly marginal role in service design methods and techniques. As representations in service design are predominantly visual, mapping the sonic stimuli and ambient sounds, or using sounds as means of representation, is usually unaccounted for. However, sound as representation can augment the experiential information, learning and understanding, and open new, more inclusive methodological opportunities for service design. To the best of our knowledge, research in service design has not so far tried to conceptualize representational categories of sound to address these methodological opportunities. Thus, we have embarked on this conceptual exploration inspired by the paper from Diana et al. (2009) that explicates and systematizes the scope of visual representations. In this paper, as a starting point for discussion, we propose how sound can be conceived of as a representation, its potential for augmenting visualizations and generating unique experiential insights.

Blinded by the sight

Making services visible and tangible is characteristic of service design practice (Blomkvist & Holmlid, 2010). Designers primarily use visualizations as a medium to communicate (Segelström, 2009) and transfer not only knowledge in the form of data and insights, but also enhance empathy, provide inspiration and support engagement (Visser, 2009). Aesthetically a highly visual discipline in comparison (Holmlid, 2007), service design has come a long way from the early days of molecular modelling and service blueprinting (Shostack, 1982) as a way of mapping the elements and structure of services. The rapidly changing service environment and involvement of multiple stakeholders in services has rendered the role of visualizations as crucial in creating shareable objects of thought and design (Blomkvist & Segelström, 2014). In an effort to address the differing needs for visualization that arise during various stages of the service development process, Diana et al. (2009) proposed a taxonomy of visual representations based on their level of iconicity (abstract-realistic) and relation with time (synchronic-diachronic). This interpretation allows for the classification, comprehension and subsequent use of the different representation types.

The level of detail in the representations varies but often progresses from more conceptual in the exploration stages to more articulated as the design is refined. In their typology, tools and techniques such as customer journeys, service blueprints and various flow diagrams can "visualize the sequence of actions and stages that compose the service experience" positioning them on a diachronic pole of the time spectrum (ibid., p.3). Such visual representations condense the temporal dimension to the design of touchpoints in a linear sequence (Koivisto, 2009). Additionally, the synthesis of visualisations requires an understanding of the graphical elements and their consequent organization into meaningful information (Diana et al., 2009). While learning the visual codes increases the readability and reduces time spent drawing the elements, proprietary visualisations often remain specific to a project (Segelström, 2009). Systems mapping techniques such as giga-mapping can greatly enhance the understanding of systems complexity (Sevaldson, 2011). However, such maps can be limited by two-dimensional formats and often struggle to capture nuances in representations without adding visual congestion (Aguirre-Ulloa & Paulsen, 2017). To address these issues, Aguirre-Ulloa & Paulsen (2017) put forth a multi-sensory systemic design tool that uses materials to represent relationships. Sensory cues such as sound could theoretically enhance multi-sensory representation of services. Although other embodied representations such as service walkthroughs and roleplays are interactive, and can more realistically portray and create experiences co-related to the temporal element (Blomkvist & Segelström, 2014), like visualizations they nonetheless rely heavily on the sense of sight and visual aspects of aesthetic qualities. A quick search of the 25 methods listed in *This is Service Design Thinking* (2010) reveals 10 methods that may include sound in any capacity at all.

While visual understanding of the environment is elementary in human perception, other sensory information (auditory, olfactory, tactile) can extend, change and complement the visual element, especially in creative interactive systems (Rocchesso et al., 2008). From a norm-creative perspective (Nilsson & Jahnke, 2018), advancing the use of sound is an opportunity to at least partially counteract the existing norm of relying primarily on visual representations. Sound in service has hitherto been studied as part of the servicescape but more often is limited to being an onomatopoeic feature in representations. This paper argues that auditory cues are not only appropriate for exploring the temporal dimension of service but can also generate distinctive insights into predominantly visual service design tools and techniques. Therefore, an exploration of sound as a medium of representation can enrich articulation, learning, collaboration

and communication of visualizations, and simultaneously contribute to creating a more inclusive design space.

Unmuting the sounds of service

Auditory experience is multifaceted, contextual, and connected to the source of the sound not just the sound itself (Rocchesso et al., 2008). As an auditory cue, sound has the following properties: loudness (intensity); timbre ("color" usually pertaining to the sounding source or "instrument"); pitch (height, ordering dimension); and duration (Taylor & Campbell, 2001). Sounds can also be organized and thus, become what we recognize as music. It can be constructed and organized through rhythm (flow of sounds through time), melody (linear sounding "whole"), harmony (group of simultaneously sounding tones), texture (polyphone/homophone) and form (structure of all organizational elements) (Benward & Saker, 1997). Emotional and cognitive response to sounds and music as well as the relation to its socio-cultural creation, development, and practice (performativity) have been explored in a variety of disciplines in humanities, natural and social sciences. Additionally, in some musical traditions there is a long history and strong interrelation between notation as sounds' visual script of varying fidelity levels, and situated performative practices, revealing that it is important to consider the connection between seeing and sounding (Hultberg, 2002). Although important, we will not elaborate further on these aspects as they are outside the scope of this paper. We focus on rather simplified explanations relating to how sound and organized sounding structures might be conceptualized as representations in service design.

In forwarding sound as a medium of representation, we build on the same parameters as described by Diana et al. (2009) i.e. *iconicity* and *relation to time*. The spectrum of iconicity focusses on the coherence between the representation of an object and its actual appearance ranging from abstract to realistic. On the realistic side, lie the sounds that occur in any particular environment, like birdsong or the incessant beep of machines in an hospital giving signals for action. On the other side, we have abstract representations which entail for example, sonification[1] of an object. For instance, the sonification of gamma-ray bursts. All sounds are temporal

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1 Sonification here refers to the use of non-speech audio to convey information.

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and inseparable from the sounding event. Therefore, on the spectrum *relation to time,* sound cannot be perceived as synchronic or static. We can experience the sounding event in many ways but when making the connection with representations it is useful to differentiate between the sound (music) as an activity or an output.

Music can be seen in two ways:

- An activity: The activity is tied to the instantaneous interactive construction of organized sounds (music) through the means of various sounding objects or bodies, for example playing an instrument or singing.
- An output: The output is tied to engagement, primarily through listening to the sounds or music, and does not include instantaneous interactive construction of organized sounds.

In service design, similar to visualizations, sound as an output can serve as a persistent external point of reference (Kirsh, 2010). Based on this understanding, the *relation to time* spectrum is understood as oscillating between persistent and performative. Persistent representations can include the recording of the soundscape consisting of ambient sounds or previously sonified research data that enables auditory analysis of the servicescape. Sound as an activity in service design can serve as a performative representation where service system components, blueprints, customer journeys, flows or customer experience maps are sonified though joint musical performance, with or without the support of visual script.

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ABSTRACT

Musical journey   Sonified stellar radiation

time
PERFORMATIVE ●————————————————————● PERSISTENT

Sonic safari   Ambient sounds

iconicity

REALISTIC
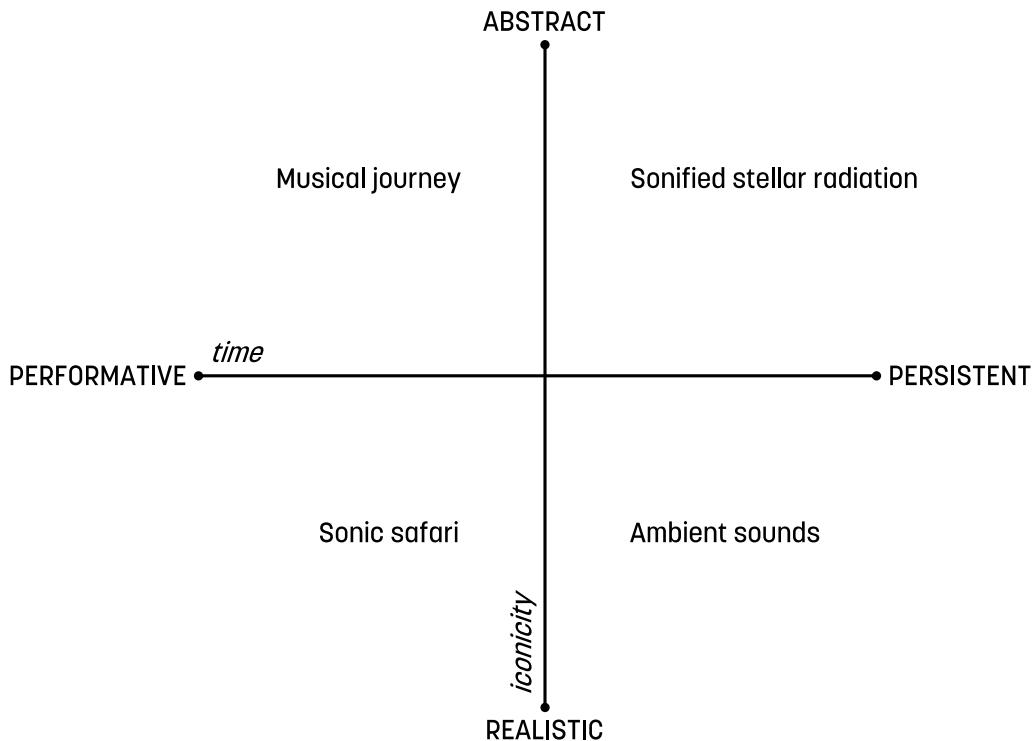
Figure 1: Mapping the landscape for sonic representations

Figure 1 conceptualizes and explicates the possibilities for sonification. The sounds on the persistent side of the spectrum are sound bites that are constant and available in the world. Such sounds could be used for immersive reflection in guiding design work. The performative side imagines sonic representations that could augment existing methods. For example, when designing for a healthcare context, sounds can bring a new layer to understanding servicescapes, experiences and relations. One can use recorded ambient sounds as an immersive technique, embark on field research recording the intentional and consequential sounds of the hospital ward, or sonify the patient journey using sounding objects to account for the pace, dynamics, density, and mood qualities of journey steps that unveil through time.

To the best of the authors' knowledge, no currently available methods correspond to any part of the sonic landscape. Whether using sound as performative or persistent representations, visual elements representing service components such as shapes, lines, and colours, can be substituted or augmented by sounding elements that can provide a higher

level of variability in representation. The simultaneity of constructing multiple melodic flows with varying rhythm and pace, different harmonic qualities, changing polyphonic texture, diverse instrumental colour and performative density is what enables this variability that is difficult to achieve though visualizations. Whether sounds are realistic, such as ambient sounds, or abstract such as instrumental composition, they can still represent a servicescape with unique experiential qualities.

Stop, look and listen

Current tools and techniques, used in everyday design practice, are focused on managing the complex information surrounding services including people, interactions, processes, system elements and the inter-relationships between them, primarily through visualization. We highlight the need to advance beyond the visual-dominant norm prevalent in service design practice to include other sensory information. In wanting to counteract the emphasis on visualization, this paper offers two important contributions. First, we propose sound as an alternative representation medium to augment design tools and methods. Second, since sound as representation is an under-explored concept, we build on the work of Diana et al. (2009) and utilise the parameters of *iconicity* and *relation to time* to construct a conceptual framework. This conceptual framework offers a nuanced understanding of sound as persistent or performative. It serves as a starting point to guide the exploration of sound as a medium of representation in service design, in a way that complements existing tools and methods.

In her TED Talk (2016), Astronomer Wanda Diaz Merced, who lost her sight to illness, highlights how sonification of stellar data enabled researchers to discover patterns and connections obscured by visualizations. She also mentions working with astronomy students, with multiple disabilities, to teach them radio astronomy and sonification techniques to make astronomy more accessible as a field. We see similar potential in the field of service design, where the integration and use of sound in design tools and methods can reveal unobserved patterns, create a more inclusive space and tap into the tacit knowledge of differently abled people. Simply experimenting with a different medium has the potential to bring novel insights to sighted designers, particularly from groups that were systematically excluded before. Additionally, this could also have implications for extending design education to the visually impaired.

Our conceptual framework also provides a foundation for future research. We suggest three areas of exploration:

Sound in design research:

First, the inclusion of sound as a distinct part of design research and ethnography. Sound exploration or sound observations can focus explicitly on what and how an activity sounds. But what could such an addition to design research look like?

Techniques for sound and creativity:

This area has huge potential, where sound can contribute through collaborative play and creation of sound with artefacts or materials. It also raises several questions. Who sonifies? Is it the user or designer or both? How would that be different? Is it done one at a time or simultaneously? Is it recorded or is it "co-created"? The use of sound might verify the visual or open up the possibilities for discussion on particularly messy or slow-paced parts of a service journey. Sonification of feelings and/or emotions through the journey could evoke visceral reactions that differ from those elicited through visualizations. As such, utilising sound as a form of external representation can affect the amount and quality of information obtained during the design process.

Representing the future soundscape:

How can designers (or some other discipline), in an inclusive way, work with sounds that new services will produce? This can be crucial for understanding the experiences we are creating. Furthermore, in their framework for understanding experiences, Wright et al. (2003) suggest that people's experiences in relation to any situation are constituted by four threads of experience: compositional, sensual, emotional and spatio-temporal. The sensual and spatio-temporal threads are both impacted directly by sound (through its influence on the senses and presence in locations), and thus influences how we think and act in any given situation. Emphasising sensory engagement can allow participants to understand ideas pre-reflectively and grasp much more of the situation than would otherwise be available (McCarthy & Wright, 2005). In reference to the threads of experience, sound nor visual stimuli, should be used irrespectively of other modalities. From this follows naturally the inclusion of additional senses, such as smell, taste and touch. We see this as an

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exploratory process[2] that would, like all design activities, need to be tailored to its specific use. Design is visual-centric, but it is also a reflective practice. Design entails a multi-sensory approach. As we propose, an approach focused on sound can bring a new dimension into service design tools and techniques.

References

Aguirre-Ulloa, M., & Paulsen, A. (2017). Co-designing with relationships in mind. *Form Akademisk-forskningstidsskrift for design og designdidaktikk,* 10(1), 1-14.

Andersson, P. K., Kristensson, P., Wästlund, E., & Gustafsson, A. (2012). Let the music play or not: The influence of background music on consumer behavior. *Journal of Retailing and Consumer Services*, 19(6), 553-560.

Benward, B., & Saker, M. N. (1997). *Music in theory and practice* (Vol. 1). Michigan: McGraw-Hill.

Blomkvist, J., & Holmlid, S. (2010*). Service prototyping according to service design practitioners.* In Conference Proceedings, ServDes. 2010, Exchanging Knowledge. December 1-3. Linköping, Sweden. Linköping University Electronic Press. 1-11.

Blomkvist, J., & Segelström, F. (2014). Benefits of External Representations in Service Design: A Distributed Cognition Perspective. *The Design Journal,* 17(3), 331–346.

Brown, A. L., Gjestland, T., & Dubois, D. (2016). Acoustic environments and soundscapes. In Kang, J. & Schulte-Fortkamp, B. (Eds.) Soundscape and the Built Environment, (pp. 1-16). Florida: CRC Press.

Chandler, J. D., & Lusch, R. F. (2015). Service systems: a broadened framework and research agenda on value propositions, engagement, and service experience. *Journal of Service Research*, 18(1), 6-22.

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[2] As a starting point, we seek to test and investigate the imagined design methods in a ServDes 2020 workshop.

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Demoulin, N. T. (2011). Music congruency in a service setting: The mediating role of emotional and cognitive responses. *Journal of Retailing and Consumer Services*, 18(1), 10-18.

Diana, C., Pacenti, E., & Tassi, R. (2012, September). *Visualtiles: Communication tools for (service) design*. In Conference Proceedings ServDes. 2009; DeThinking Service; ReThinking Design. 24-26 November 2009. Oslo, Norway. Linköping University Electronic Press. 65-76.

Edvardsson, B., Gustafsson, A., & Roos, I. (2005). Service portraits in service research: a critical review. *International Journal of Service Industry Management*, 16(1), 107-121.

Holmlid, S. (2007). *Interaction design and service design: Expanding a comparison of design disciplines.* In Conference Proceedings 2nd Nordic Design Research Design Conference. May 27-30. Stockholm, Sweden. Nordes Digital Archive. 1-8.

Hultberg, C. (2002). Approaches to music notation: The printed score as a mediator of meaning in Western tonal tradition. *Music Education Research*, 4(2), 185-197.

Hung, K. (2000). Narrative music in congruent and incongruent TV advertising. *Journal of advertising*, 29(1), 25-34.

Kimbell, L. (2011). Designing for service as one way of designing services. *International Journal of Design*, 5(2), 41-52.

Kirsh, D. (2010). Thinking with external representations. *AI & SOCIETY,* 25(4), 441-454.

Koivisto, M. (2009). Frameworks for structuring services and customer experiences. In S. Miettinen & M. Koivisto (Eds.), *Designing services with innovative methods* (pp. 136-149): Helsinki University of Art and Design.

Lemon, K. N., & Verhoef, P. C. (2016). Understanding customer experience throughout the customer journey. *Journal of Marketing*, 80(6), 69-96.

Manzini, E., & Vezzoli, C. (2003). A strategic design approach to develop sustainable product service systems: examples taken from the 'environmentally friendly innovation 'Italian prize. *Journal of Cleaner Production*, 11(8), 851-857.

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McCarthy, J., & Wright, P. (2005). Putting 'Felt-Life' at the Centre of Human-Computer Interaction (HCI). *Cogn Tech Work*, 7, 262-271.

Nilsson, Å. W., & Jahnke, M. (2018). Tactics for Norm-Creative Innovation. *She Ji: The Journal of Design, Economics, and Innovation,* 4(4), 375-391.

Orning, T. (2017). Music as performance–gestures, sound and energy. *Journal for Research in Arts and Sports Education*, 1(5).

Patrício, L., Fisk, R. P., Falcão e Cunha, J., & Constantine, L. (2011). Multilevel service design: from customer value constellation to service experience blueprinting. *Journal of Service Research*, 14(2), 180-200.

Rocchesso, D., & Serafin, S. (2009). Sonic interaction design. *International Journal of Human-Computer Studies*, 67.

Rocchesso, D., Serafin, S., Behrendt, F., Bernardini, N., Bresin, R., Eckel, G., Franinovic, K., Hermann, T., Pauletto, S., Susini, P., & Visell, Y. (2008, April). *Sonic interaction design: sound, information and experience*. In CHI'08 Extended Abstracts on Human Factors in Computing Systems. April 5-10. Florence, Italy. ACM. 3969-3972

Rosenbaum, M. S., & Massiah, C. (2011). An expanded servicescape perspective. Journal of Service Management, 22(4), 471-490.

Schifferstein, H. N., & Desmet, P. M. (2008). Tools facilitating multi-sensory product design. *The Design Journal*, 11(2), 137-158.

Segelström, F. (2009). *Communicating through visualizations: Service designers on visualizing user research.* In Conference Proceedings DeThinking Design, ReThinking Services–First Nordic Conference on Service Design and Service Innovation. November 24-26. Oslo, Norway. Linköping University Electronic Press. 1-11.

Sevaldson, B. (2011). *Giga-mapping: visualisation for complexity and systems thinking in design*. In Conference Proceedings Nordes 2011- Making Design Matter. May 29-31. Helsinki, Finland. Nordes Digital Archive. 1-20.

Shostack, G. L. (1982). How to design a service. *European Journal of Marketing,* 16(1), 49–63.

Steen, M., Manschot, M., & De Koning, N. (2011). Benefits of co-design in service design projects. *International Journal of Design*, 5(2).

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Taylor, C., & Campbell, M. (2001). Sound. In *Grove Music Online*. Retrieved 5 Dec. 2019, from https://www.oxfordmusiconline.com/grovemusic/view/10.1093/gmo/9781561592630.001.0001/omo-9781561592630-e-0000026289.

TED Ideas worth spreading. (2016, February). *How a blind astronomer found a way to see the stars* [Video]. https://bit.ly/2OUafXe

Tombs, A., & McColl-Kennedy, J. R. (2003). Social-Servicescape Conceptual Model. *Marketing Theory*, 3(4), 447–475.

Visser, F. S. (2009). Bringing the everyday life of people into design. Technische Universiteit Delft.

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Do they (know they) need a service designer? An investigation of service design capabilities through the lens of the market

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Abstract

Freshly graduated service designers are often struggling to align with the expectations that companies have when they are looking for a service designer. The understanding of what service design is, which capabilities a service designer has and how these capabilities can create value for the company can be very different, making it difficult for the inexperienced job seeker to even find the right job offer. In this paper, we investigate if there is a more general misalignment between academia and the market in the definition of service design capabilities, by analysing a consistent pool of job offers in the area of service design.

Keywords: design capabilities, service design job market

Introduction

While service design can no longer be considered as an emerging discipline, it is still much less codified and structured than other more mature design disciplines,

meaning that there is no definite mutual understanding of what constitutes service design practice. As the market increasingly sees the value of service design, this becomes an issue as there is no "professionalization" of service designers (Kirchberger & Tether, 2014) and, consequently, related fields and neighbouring professions (e.g., UX designers, marketing consultants) can easily claim to offer service design (Ibid). While there is a growing request for service design capabilities from the market, the number of diverse design education programmes is also growing, building a wide array of design capabilities, but also contributing to the markets (mis)understanding of service design. This raises the question of whether the boundaries between service design, UX design, CX design, UI design, interaction design, strategic design and systemic design are clearly defined and understood.

In the academic context, the evolution of service design has been mapped out in order to analyze its multiple different definitions and dimensions, distinguishing, for example, among the systemic and human experience approach (Nisula, 2012), or between an approach that tries to integrate practices and ideas from other fields and the one that works on the basic assumptions and methods in service design (Blomkvist et al., 2010; Sangiorgi, 2009). Starting from a series of workshops held at the Service Design Conference in Finland in 2012 (White & Holmlid, 2012) and in Lancaster in 2014, the competences and skills of "tomorrow's service designer" have been recurrently discussed within the service design community in an attempt to define what an educational program should deliver for them. These competences and skills ranged from conventional and contemporary design skills to business skills[1]. In a recent document by the University of Arts London (Sangiorgi et al., 2014), service design research in the UK has been mapped out defining the different sectors, educational courses and modules in service design and emerging research themes within the discipline.

Furthermore, several papers contributed to the definition of the discipline and its core competences while focusing on the establishment of a particular programme (Al-Yassini et al., 2011; Becermen & Simeone, 2019; Blomkvist et al., 2011; de Götzen et al., 2014; Morelli & de Götzen, 2017; Morelli & Götzen, 2014; Ojasalo, 2012; Ojasalo & Ojasalo, 2009; Pacenti, 2011; Penin, 2011) or while exploring specific challenges related to in-class teaching (Ali et al., 2017; de Götzen et al., 2018;

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[1] https://tomorrowsservicedesigners.wordpress.com/

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Guersenzvaig, 2011). Besides the numerous blog-posts or online discussions in different social media platforms where practitioners present their view on the needed capabilities of a (service) designer, there are no systematic studies based on the analysis of job offers.

This paper is a preliminary and partial exploration of how the discipline translates into the market, highlighting the ambiguities, tensions and challenges both for the educated service designer looking for a job and for the company seeking for specific capabilities. After a description of the used methodology and a short investigation of (Service) Design capabilities through the literature, an analysis of 31 job postings will be presented, followed by a discussion on the related findings.

Methodology

Within the scope of this paper, a review of 31 job postings for service designers was conducted, mostly by analyzing their text and identifying which design capabilities the job market is currently requesting. The job postings were from 2017-2019, collected from different countries from all over the world. They included the explicit demand of a service designer. Although the study was limited to job postings made only in three languages (English, Danish and Norwegian), they were collected from the UK, Singapore, the Netherlands, USA, Norway, Denmark, Australia, China and Romania, with a majority of postings from the UK and Denmark. The review included job postings from both the private and public sector, which were divided into three categories: public organisations, private consultancies, and organizations looking for in-house service designers. The job postings were clustered according to recurring themes in order to find possible patterns across the organisations in the definition of service design capabilities. Such a clustering process was carried out at first independently by some of the authors of the paper and was then jointly reviewed across several iterations. In the different job postings, various terms such as capabilities, competences, skills or abilities were used as synonyms.

To understand how the service design capabilities extracted from the job postings fit into the current requests from the general market landscape, they were compared to the World Economic Forum's research on desired skills for 2020 (World Economic Forum, 2018).

How design research views design capabilities

The concept of design capabilities has been used in a broad way and in very different contexts. In the design management literature, it mainly refers to management practices inside the organization (Mortati et al., 2014) and it is often used in relation to skills, resources, competences and capacities. Various attempts to disambiguate the different terms have been proposed (Acklin, 2013; Amit & Schoemaker, 1993) but it has proven difficult to trace clear boundaries (Delamare Le Deist & Winterton, 2005; Johnson et al., 2017). While in this section we refer to the work of other authors that either use the term capabilities, abilities or competences (and, therefore, we keep this difference in terminology), in the rest of the paper, we will use the term capabilities as a broad umbrella term that also includes skills and competences (Johnson et al., 2017).

An emerging literature has been flourishing in recent years focusing on design capability building in the public sector (Bason, 2010; Lin, 2014) where the first and easiest step to develop the design capability in a (public) organization has been identified in the ability of a given organization to hold specific skills, methods, knowledge and competences through their human resources (Malmberg & Wetter-Edman, 2016). As Malmberg & Wetter-Edman explain, design capability "can be understood as developed by increasing design competence resources, raising awareness of design and its potential contributions or through development of structures that enable use of design practice" (ibid., p. 1291).

The focus of this paper is on the human resources (e.g. the designers) that hold specific capabilities and how these capabilities are defined by the organization that is willing to grow its design potential. Private and public organizations that are looking for specific design capabilities in their future employees are in fact seeking design professionals, i.e. "those subjects whose field of interest, of research, and ultimately of work is the practice and culture of design" (Manzini, 2015, p.1). Manzini explains that design experts have specific knowledge that can be characterized as:

> In terms of content, it includes a set of tools and, most importantly, a specific culture. The tools help the experts to understand the state of things and support the co-design process, from generation of the first concept to the final results. The culture is what is needed to feed both a critical sense (of the current state of things) and a constructive attitude (proposing the values and visions on which to imagine "the new") (Manzini, 2015, p. 38)

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In a couple of publications, the strategist and design researcher, Chris Conley identified some core competences of design:

1. The ability to recognize a broad range of potential in a given problem statement.

2. The ability to work at varying levels of abstraction.

3. The ability to model and visualize solutions before all the information is available.

4. An approach to problem solving that involves the creation and evaluation of multiple alternatives.

5. The ability to add or maintain value as elements are integrated into a whole.

6. The ability to identify and respond to relationships between a solution and its context.

7. The ability to use form to embody ideas and communicate their value. (Conley, 2010, p. 46)

The abilities identified by Conley, can clearly be mapped into the ones identified by Nigel Cross in the 90s, such as "resolving ill-defined problems, adopting solution-focussed cognitive strategies, employing abductive or appositional thinking and using non-verbal modelling media" (Cross, 1990); but while Cross looks into modes of knowledge, Conley refers to abilities in a more operative way. Although Conley is referring more broadly to design, all these competences can easily apply to service design as well. In fact if we compare these seven core competences to the ones defined specifically for service design by Moritz (Moritz, 2009), it is quite evident that in addition to the before-mentioned abilities, service designers are required to have facilitation skills and skills in leading/working with cross functional and multi-disciplinary groups of people. A service designer is by definition a social animal and his/her communication skills are one of his/her core abilities. Moritz also highlights the fact that beside these competences, service designers usually have a recognized expertise in specific areas such as business, research, marketing and technology.

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Findings

The 31 jobs postings collected in this research were drawn from diverse organizations - police departments, public administrations, design consultancies, medical companies, financial businesses and retail organizations. The postings are also very diverse in terms of project(s) scope, which ranges from driving digital transformation, all the way up to improving the user experience within public administration and developing new customer services. Even though there is a common ground of design capabilities requested to fulfil the needs of the different organizations, each job posting has also its own very specific focus, requesting very precise capabilities, that reflect the specific context. This might be due to the "pluggable" characteristic of service design and its versatility of being applied in projects and contexts of a very different nature. A synthesis of the most required capabilities across the various organizations, businesses, and sectors analyzed in this paper can be seen in Figure 1.

01 Design Thinking/Human-Centred Design

The capability to apply human-centred design/design thinking throughout development processes

02 Plan, Conduct and Synthesize Research

The capability to plan, conduct and synthesize research from multiple perspectives, interpret it in new, relevant and actionable ways and identify patterns and opportunities for solution development

03 Fluency in Service Design Methods

The capability to design services across multiple sectors and channels through applying service design tools and methods appropriately

04 Visualization Techniques

The capability to apply visualisation techniques to tell stories, prototype and communicate in a manner that is engaging and generates empathy and emotion

05 Stakeholder Management

The capability to deal with diverging interest by managing and engaging stakeholders throughout projects

06 Project Management

The capability to organise and manage work efficiently in order to deliver against project time and quality requirements

07 Strategic Thinking

The capability to make choices based on business insights and trends to demonstrate the potential impact of a solution

08 Collaboration

The capability to be part of a diverse team by collaborating with clients, stakeholders and cross-functional team members

09 Agile Mindset

The capability to welcome diversity of thought, learn through failure, accept change and adapt quickly

10 Facilitation

The capability to present and facilitate sessions to stakeholders and co-workers in a manner that is appropriate according to the specific actors, professions and sectors

11 Communication

The capability to clearly communicate research findings and ideas through evidence-based argumentation both written, orally and visually.

Figure 1. Synthesis of most required capabilities

While it was initially thought that there would be a clear distinction on the desired capabilities between the three categories (organizations, private consultancies, and private-in-house), they turned out to be remarkably similar, however the emphasis

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put on certain capabilities varies slightly. In the public sector, stronger emphasis is put on the capability to manage stakeholders and facilitate collaborative processes, while the consultancies often emphasize visualization techniques as an important capability and companies looking for in-house service designers appreciate the capability to work in an agile manner. Private companies that are looking for in-house design capabilities often request that the candidate should educate future colleagues in design thinking so as to spread the knowledge and ways of working through the company and thereby create an organizational culture for human-centered design. Consultancies mention that the candidate will have tasks such as pitching to clients and publishing articles, while the postings from the public sector mention that the candidate should have good networking capabilities. Figure 2 presents a visual summary of the findings highlighting the most requested capabilities in relation to the various sectors.
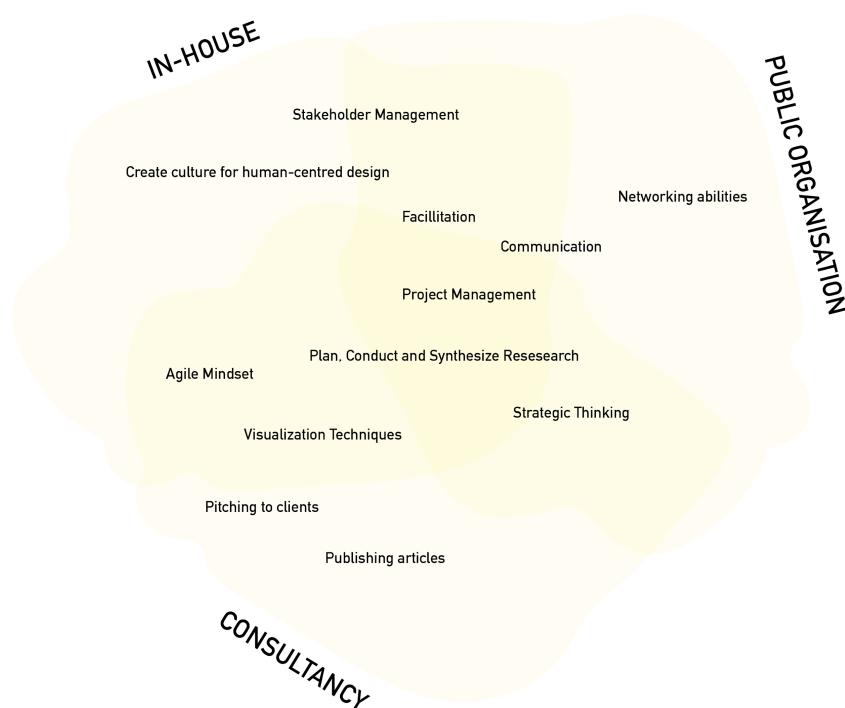
Figure 2. Capabilities across sectors

Across the categories, the majority are mentioning a master level service design education as the preferred educational background. However, many also mention that the candidate can be qualified in fields such as product design, architecture,

communication, interaction design, industrial design, behavioural psychology, and cognitive science if they have experience in working with customer experience and service design.

Besides the capabilities presented in the chart above, there are requests for capabilities stretching between fine arts, business know-how, and programming. While it might be important that a service designer has a basic understanding of those aspects, and possibly is strongly qualified in one or more, some of the postings are requesting that candidates possess all of these capabilities at an expert level. Such somewhat unrealistic expectations might suggest that service design has not yet been codified in such a way that the job market knows exactly what to expect from a service designer. It might also reflect that even though service design is at times referred (and taught) as a broad and holistic profession (Stickdorn & Schneider, 2010, p.44), the job market might require narrower and deeper specializations. Figure 3 shows a job posting that exemplifies such as desire for multiple areas of specialization.

A little about You:

- Graduate degree in IT, Finance, Business Administration, Economics, etc.
- Experience in designing and conducting ethnographic research and design research.
- Ability to synthesize data from multiple-perspectives, interpret it in new, relevant and actionable ways, and identify patterns to drive creative direction and opportunity and solution development.
- Ability to create experience maps, user journeys, process maps and service blueprints.
- Expertise in standard design software such as Sketch, InVision, Adobe Suite and the like is a must. Basic HTML5, CSS3, and JavaScript skills are a good to have.
- Knowledge of visual design and branding is good to have.
- Ability to communicate insights through powerful and clear information design i.e. reports, data visualizations, illustrations, storyboards, photographs, videos and other multimedia techniques.

Figure 3. Screenshot of job posting

While this might be an extreme example, many of the postings request a quite demanding role of the service designer in terms of tasks and responsibilities, appearing to demand not just one, but several service designers to fulfil.

Besides professional qualifications, many job postings point out that they want the candidate to have personality traits such as confidence and robustness, to be able to deal with competing interests from internal and external stakeholders and to be able

to thrive and create change in organizations undergoing transformation. Interestingly, few mention systemic thinking as a desired capability.

Final remarks

This short investigation insinuates that there is an alignment between how academia defines (service) design capabilities and the synthesis of requested capabilities from the market. It, however, also shows us that the market is requesting quite demanding roles of the service designers. Roles that they are not necessarily educated to accomplish sufficiently. As can be seen in Figure 4 the actual capabilities required by the job seekers can be clearly mapped into the categorization of the most sought after skills made by the World Economic Forum, showing that there will still be a need for service designers in the immediate future. It can be also observed that among the 6 main design skills identified by the World Economic Forum, the less requested and articulated by the market is the one related to systemic thinking. It is difficult to speculate the reason for this with the limited research that has been carried out in this investigation. We might though hypothesize that while the systemic approach to services is very often taught in service design curricula and the related capability acknowledged in the academic context, the market still associates it to a more technical role inside the organization, mostly relating the term "systems" to engineering realm rather than to design and so not relevant for the job offers under this analysis.
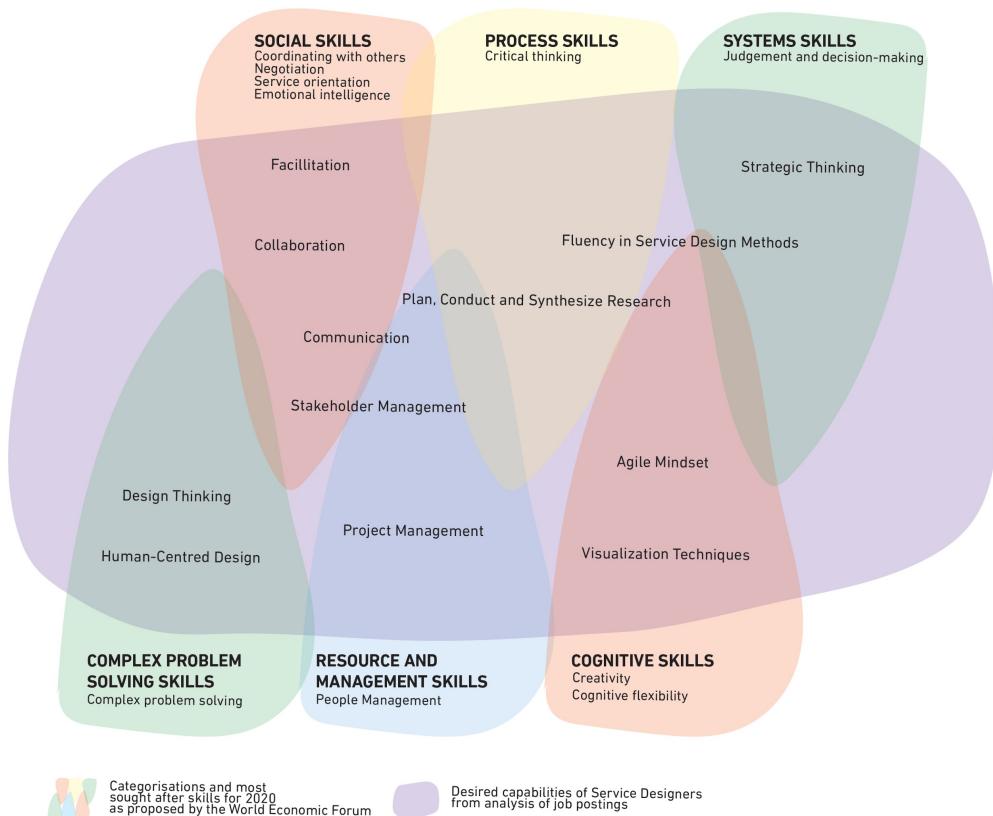
Figure 4. Mapping of service design capabilities in relation to the World Economic Forum categorization.

As mentioned earlier, service design is often described as a "pluggable" discipline, but by pluggable it is meant that service design can be applied to various fields eg. health care, public services or the financial sector. The short analysis above shows us that there is a confusion in the market about the capabilities of a service designer, or at least that the requested capabilities overlap with other professional roles, which might derive from the pluggable nature of the profession, but which also makes it difficult for inexperienced job seekers to position themselves. The analysis also shows us that while there is a demand for service designers, the demand often requires a level of specialisation that most service design educations do not offer to its students (Becermen & Simeone, 2019).

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References

Acklin, C. (2013). Design Management Absorption Model: A Framework to Describe and Measure the Absorption Process of Design Knowledge by SMEs with Little or no Prior Design Experience: Design Management Absorption Model. Creativity and Innovation Management, 22(2), 147–160. https://doi.org/10.1111/caim.12022

Ali, H., Grimaldi, S., & Biagioli, M. (2017). Service Design pedagogy and effective student engagement: Generative Tools and Methods. *The Design Journal*, 20(sup1), S1304–S1322. https://doi.org/10.1080/14606925.2017.1352659

Al-Yassini, R., Kim, M., & Selzer, S. (2011). Designing a Service Design Curriculum. *Touchpoint - the Journal of Service Design*, 3(1), 66–71.

Amit, R., & Schoemaker, P. J. H. (1993). Strategic assets and organizational rent: Strategic Assets. *Strategic Management Journal*, 14(1), 33–46. https://doi.org/10.1002/smj.4250140105

Bason, C. (2010). *Leading public sector innovation: Co-creating for a better society*. Policy Press.

Becermen, B., & Simeone, L. (2019). *Exploring the landscape of service design education: A preliminary review of current programmes in higher education. DESIGN REVOLUTIONS*. International Association of Societies of Design Research Conference IASDR 2019, Manchester, Manchester Metropolitan University.

Blomkvist, J., Holmlid, S., & Segelström, F. (2010). Service Design Research: Yesterday, Today and Tomorrow. In *This is Service Deisgn Thinking* (Marc Stickdorn, Jakob Schneider). BIS Publishers.

Blomkvist, J., Holmlid, S., & Segelström, F. (2011). Prototyping a Service Design Curriculum. *Touchpoint - the Journal of Service Design*, 3(1), 53–55.

Conley, C. (n.d.). *The Core Competencies of Design: The Basis of a Broadly Applicable Discipline*. http://www.idsa.org/sites/default/files/Chris%20Conley.pdf

Cross, N. (1990). The nature and nurture of design ability. *Design Studies*, 11(3), 127–140. https://doi.org/10.1016/0142-694X(90)90002-T

de Götzen, A., Kun, P., Simeone, L., & Morelli, N. (2018). Making sense of data in a service design education. *ServDes2018. Service Design Proof of Concept*, 177–187.

de Götzen, A., Morelli, N., & Grani, F. (2014). *Challenges and Perspectives in Service Design Curricula: The Case of the Service Systems Design Master of Aalborg University in Copenhagen.* Proceedings of the Fourth Service Design and Service Innovation Conference, 9-11 April 2014, Lancaster University, Linköping University press

Delamare Le Deist, F., & Winterton, J. (2005). What Is Competence? *Human Resource Development International*, 8(1), 27–46. https://doi.org/10.1080/1367886042000338227

Guersenzvaig, A. (2011). Teaching Service Design to Design Students. *Touchpoint - the Journal of Service Design*, 3(1), 46–48.

Johnson, G., Whittington, R., Scholes, K., Angwin, D., & Regnér, P. (2017). *Fundamentals of Strategy* (4th edition). Pearson Education.

Kirchberger & Tether. (2014). *Should Service Design Professionalize, and How?* Service Design Research UK Network. http://ualresearchonline.arts.ac.uk/7712/1/Mapping-and-Devloping-SDR-in-the-UK.

Lin, J.-Y. (2014, September 2). Design Capabilities in the Public Sector. *Proceedings of the 19th DMI: Academic Design Management Conference*. DMI, London.

Malmberg, L., & Wetter-Edman, K. (2016, July 22). *Design in public sector: Exploring antecedents of sustained design capability*. Proceedings of 20th DMI: Academic Design Management Conference Inflection Point: Design Research Meets Design Practice.

Manzini, E. (2015). *Design, when Everybody Designs* (Rachel Coad, Trans.). MIT Press.

Morelli, N., & de Götzen, A. (2017). A Multilevel Approach for Social Transformations and its Implications on Service Design Education. *The Design Journal*, 20(sup1), S803–S813. https://doi.org/10.1080/14606925.2017.1353026

Morelli, N., & Götzen, A. D. (2014). Shaping a New Service Design Programme. *Touchpoint - the Journal of Service Design*, 6(2), 86–89.

Moritz, S. (2009). *Service design: Practical access to an evolving field*. Lulu.com.

Mortati, P., Villari, B., & Maffei, S. (2014, September 2). Design Capabilities for Value Creation. *Proceedings of the 19th DMI: Academic Design Management Conference*. DMI Academic Conference, London.

Nisula, J.-V. (2012). *Searching for Definitions for Service Design - What Do We Mean with Service Design?* The third Service Design and Service Innovation Conference, 8-10 February 2012, Espoo, Finland, Linköping University Press.

Ojasalo, K. (2012). Designing and implementing an innovative Master's degree programme: A case study. *International Journal on New Trends in Education and Their Implications*, 3(3), 136–147.

Ojasalo, K., & Ojasalo, J. (2009). Developing Service Design Education. In S. Miettinen & M. Koivisto (Eds.), *Designing Service with Innovative Methods* (pp. 98–123). University of Art and Design Helsinki.

Pacenti, E. (2011). Better Services for Better Lives. *Touchpoint - the Journal of Service Design*, 3(1), 58–61.

Penin, L. (2011). A Critical Approach to Service Design Education. *Touchpoint - the Journal of Service Design*, 3(1), 62–65.

Sangiorgi, D. (2009). *Building Up a Framework for Service Design Research.* 8th European Academy of Design Conference, April 1-3 2009, Aberdeen, Scotland.

Sangiorgi, Prendiville, & Ricketts. (2014). *Mapping and Developing Service Design Research in the UK*. Service Design Research UK Network. http://ualresearchonline.arts.ac.uk/7712/1/Mapping-and-Devloping-SDR-in-the-UK.

Stickdorn, M., & Schneider, J. (2010). *This is Service Design Thinking: Basics—Tools—Cases.* Amsterdam: BIS Publishers.

White, H., & Holmlid, S. (2012). *What Do Tomorrow's Service Designers Need to Know?* Service Design and Service Innovation Conference, 8-10 February 2012, Espoo, Finland, Linköping University Press.

World Economic Forum. (2018). The future of jobs. World Economic Forum. http://www3.weforum.org/docs/WEF_Future_of_Jobs_2018.pdf

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Do (they know) they need a service designer? An investigation of service design capabilities through the lens of the market.

The non-participatory patient

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Abstract

This paper discusses tensions and paradoxes of codesign paradigms and calls for more plural approaches to participation in order to establish collaborations with non-participatory users. It builds on research experiences in the field of design for wellbeing to challenge assumptions about user participation and introduce the concept of 'the non-participatory patient'. This conceptual figure is used to represent those users who do not engage with codesign activities, or those who engage, but contribute in ways that contradict expectations of designers and industry partners. It is argued that most service design projects are not able to account for the needs and preferences of non-participatory users, who are most of the time excluded from design processes and outcomes for being considered as disengaged or disobedient. These experiences make evident the need for collaborative tools, techniques and formats beyond those traditionally used in codesign, and able to bring more plurality into service design.

Keywords: codesign, non-participatory patients, design for wellbeing

Introduction

We live in the 'era of participation' (Smith et al., 2017). The confluence of participatory design philosophies and co-creation paradigms have institutionalised the idea that not just designers, but also users, play a crucial role in design processes (Sanders & Stappers, 2008). This new era

has generated multiple transitions and assigned new roles to designers and users. Designers have become facilitators of design processes and users are considered to be creative experts of their own experiences, engaged in participatory processes and empowered. In this new era, it is almost inconceivable to create products, services or policies without active participation of people.

In healthcare, the era of participation is lived intensely. Authors talk of a 'participatory zeitgeist' to describe a new spirit of "citizen engagement, public participation and involvement of people with lived experience in health system redesign and service improvement" (Palmer et al., 2019). Designers looking into this field talk of participatory patients and patients 3.0 empowered by digital platforms (e.g. Andersen, 2010; Clemensen et al., 2016). Governments influenced by this paradigm implement new health standards requiring hospitals to engage patients in the design of new services (e.g. Australian Commission on Safety and Quality in Health Care, 2012). And hospitals and universities create codesign centres to facilitate collaborations between designers and health stakeholders (e.g. Reay et al., 2017).

This new era is far from perfect. The participatory zeitgeist has paradoxes and tensions that demand more plural approaches to collaborative design processes. As I argue elsewhere (Sanin, 2019), it is paradoxical how ideas of participation, power and democracy have been appropriated to introduce neoliberal agendas in healthcare and how corporate involvement is creating tensions between expected outcomes of industry partners and research findings. The unequal relationships across participants in healthcare projects can produce problematic group dynamics, where care providers hold power over patients by prioritising scientific points of view and clinical procedures over participants' opinions and experiences (Geuens et al., 2018). Pierri (2018) discusses the paradoxes of participation in the context of mental healthcare, and building on social studies, explains how optimistic accounts have constructed a script of a 'compliant participant' where certain types of participation are encouraged and requested from individuals, and those who disobey this script are seen as disengaged or irresponsible. Andersen (2010) has shown that when these scripts are put into practice, project outcomes meet expectations of the 'participatory patient' but disempower less-active ones and overlook their needs.

Although an extensive review of critical approaches to participation is beyond the scope of this short paper, it is important to note that participatory design practitioners have critically analysed tensions,

paradoxes and power relationships at play in the participatory process. Collaborative research can be characterised by tensions between designers and stakeholders, including industry and community partners (Grönvall et al., 2016; Newell et al., 2006). Some of these issues are the result of assumptions that non-academic stakeholders have in relation to skills and expectations of final users. However, we designers also exercise academic power when we introduce co-design methods and activities assuming they will help people to express their ideas in creative ways, and when our reports place emphasis on aspects and outcomes that advance our own research agendas.

This paper builds on personal research experiences to show that not all patients 'comply' with participatory paradigms and to point out the existence of non-participatory patients. The paper discusses a twofold paradox: the assumption that all patients want to participate in codesign projects under specific conditions, and that their participation will confirm industry and academic expectations. In doing this I provide two personal accounts of encounters with non-participatory patients that challenge these assumptions and remind us to be open to the plural character of participation (Pihkala & Karasti, 2016). In these accounts I engage with politics of self-representation, following calls for reporting not just success but also unresolved and uncomfortable aspects of design practice (Light, 2018).

Taking engagement and empowerment by granted

The participatory patient is a conceptual construct visible in academic, government and industry accounts focused on health services. Some of the most solid assumptions revolve around patient engagement with codesign activities and empowerment through Communication Technologies (ICT).

Most design accounts assume that users of health services are willing to participate in codesign projects and that those who engage represent the majority, including those who do not participate. Health organisations invite users to leave opinions in suggestion boxes or participate in committees of consumer representatives and collaborate with designers running codesign workshops where users are asked to contribute to design processes by using toolkits and making or testing prototypes. Most of the time, the outcomes of these

collaborations confirm expectations and provide positive responses to project ideas. Based on the new services, guidelines and policies are designed. The truth is that these formats are unable to capture the voice of non-participants and that disengagement, complaints or dissent are rarely captured and generally excluded from design processes.

Another assumption is a direct correlation between ICT and empowerment. Health studies argue that information is crucial for patient empowerment since it provides patients with possibilities to participate in decision making, manage treatment, play an active role in self-care and collaborate with other patients (Jørgensen et al., 2017). Designers have assumed that digitalisation makes information more available and accessible, and mobile devices, apps, and social networking sites are believed to empower patients by helping them to access information, monitor medical conditions or be part of online communities where they share experiences and get responses to their questions. It might be true that some patients feel empowered by information, but this is not a rule. And although digital platforms play an increasing role in everyday life, it does not mean that they are the best option for information delivery and access.

What most academic, government and industry documents do not account for are the forms of participation exercised by non-participatory patients: those who decide not to participate in codesign activities; or those who participate, but whose input is not taken into consideration as it is felt to be in tension with the design of digital services. The next section presents two encounters with non-participatory patients that challenge the assumptions explained above and provide insights for collaborating with them.

Collaborating with non-participatory patients

Empowered patients, disobedient participants

This account presents experiences from a codesign project run in partnership with a cancer centre, aimed at improving information delivery services. In these project patients participated in these projects, but their contribution took an unexpected path and contradicted the assumptions guiding the project's objective.

Empowering patients is a fundamental premise of the 'participatory zeitgeist'. Meeting patients' information needs is crucial for their empowerment. Academic literature and policies assume that well-informed

patients will have an active involvement in their own care, participate in decision making and engage in self-care practices. Patients are encouraged to read information delivered to them, keep a record of their treatment, find answers for their questions, participate in support groups, and gain health literacy (Jørgensen et al., 2017). In response, health organisations implement ICT (e.g. health information systems, social networking sites) to promote empowerment by meeting patients' information needs.

The project discussed here was based on the premise of digitalisation and aimed to better understand the information needs of cancer patients to inform the design of a digital health information system. My role was to run codesign workshops to bring the 'patient voice' into this process, for which I designed a series of tools that would facilitate patient participation and help them, and their relatives, to identify their information needs and propose topics they would like to find in the information portal.

As soon as the project started a series of complications related to the collaboration format and what participants had to say emerged. The physical and emotional condition of patients complicated the idea of having codesign workshops. Instead, collaborations took the form of one-on-one conversations in the oncology unit when they came to have chemotherapy and their information needs were discussed using a toolkit that was completed not by them, but by a clinician.

What patients said in these conversations contradicted initial assumptions. They did feel empowered, not by the information received, but by the treatment they were receiving and the support of relatives and healthcare professionals. Most patients were satisfied with the information delivered and thought it was enough. Many were overwhelmed by the amount and type of information given to them, reported issues trying to process it and felt threatened by some contents. Several patients preferred to leave treatment decisions to doctors, and thought that healthcare professionals, not themselves, were responsible for their care.
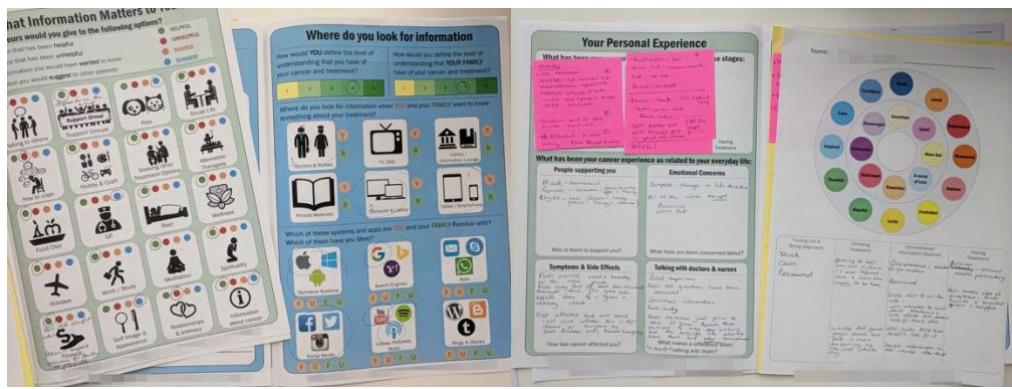
Figure 1. Toolkit used to facilitate conversations with patients and relatives

The idea that they would prefer digital platforms as information sources became problematic. All of them, old and young, owned mobile devices, knew how to use the search engines, and were active users of social media. However, most of them reported distress after using digital platforms and finding conflicting information about treatments, worst case scenarios, and sources claiming to have found miraculous cures. Overall, 'the patient voice' agreed that the most trusted information sources were their doctors, and that personal communication was by far the best option. Just a few agreed with the idea of using ICT for delivering information, but only to complement the role of healthcare professionals.

Creative people, disengaged participants

The second account presents experiences of a collaborative project to improve therapeutic services in a psychiatric unit. However, the people I was supposed to design with were not interested in becoming project participants. Since they did not take part in the activities I proposed, I had to participate in their own creative activities in order to collaborate with them.

The 'participatory era' is based on the conviction that users want to engage in design processes. The expression 'designing with people' - usually used to explain this ethos - prefigures a specific form of collaboration where designers leave the abstract space of experts, people leave the concrete space they inhabit, and both come together in the realm of collaboration (Lee, 2008). This realm, also known as third space (Muller, 2003), is created by designers using tools and techniques that facilitate creative contributions of people to the design process (Sanders & Stappers, 2014). If patients do not come to this realm or do it wrongly, they might be considered, as Pierri (2018) points out, as disengaged.

In this project, I was in charge of collaborating with staff and patients of a psychiatric unit codesigning a series of tools for assisting with the delivery of sensory therapies. In preparation for this collaboration, I revised literature on codesign projects in mental health (Jakob & Manchester, 2017; Maldonado Branco et al., 2017) and collaborated with industry partners planning a series of workshops that would help me to engage with future users. These collaborations were going to happen in a room allocated for the project – beyond patient and staff areas – which seemed an ideal third space.

After a couple of meetings with staff and initial contact with patients, I realised that they were not interested in the collaboration as I proposed it. Staff did not see the point of creating tools for sensory therapy because when the project was being prepared, their roles had changed, and these therapies were removed from their routines. The idea of attending workshops to explore and share ideas using paper tools or prototypes was completely unattractive to staff and patients, who were busy in other activities in the unit wards. Although they were interested in the idea of having a designer working with them, they did not want to become my project participants. They did not want to leave the concrete world of people to come into the realm of collaboration.

After some weeks of unsuccessful attempts and frustration, by coincidence I found out that another way of collaborating would be to step outside of the 'realm of collaboration' and step into the world they inhabit: the psychiatric ward. Once there, I became a regular participant in improvised art sessions run by staff using reclaimed clinical furniture, painting and office supplies. Although the sessions were not 'art therapy' and were not based on 'arts in health' frameworks, they had a positive therapeutic effect for participants.

As a participant of their own creative activities – rather than as a facilitator of a codesign process in a third space – I was able to work with staff to reframe the project and design tools and guidelines to introduce 'creativity and mental health' frameworks (Gillam, 2018) into the art activities and increase their therapeutic benefits. I organised a series of non-disruptive interventions in the psychiatric ward, where I introduced a series of art tools and supplies and a series of examples and ideas to show how they could be used in their activities. I took part in these interventions as a participant, rather than as a facilitator, and did not propose a specific script, but left patients and staff to appropriate the materials as part of their creative process. Based on the outcomes of these interventions, and through more formal collaborations with staff, I developed a systematic

toolkit to deliver art activities as part of a program of diversional therapies that we called 'creative wellbeing'.

Figure 2. Design interventions (left) and final 'creative wellbeing' toolkit (right)

How can we account for non-participatory patients?

Although my encounters with non-participatory patients were challenging, they provided learning experiences in relation to plurality, and in particular,

to the many forms of participations – in plural – that coexist in collaborative research (Pihkala & Karasti, 2016). The first experience showed that traditional formats can be inconvenient under specific circumstances. Having individual conversations facilitated an honest collaboration, where participants felt safe and expressed points of view that would have been difficult to share in a workshop or a committee of consumer representatives. Patients did engage in project activities but participated in ways that contradicted the idea that ICT would empower them. In the second experience, at the psychiatric unit, I had to move out of the comfort zone of a traditional codesign project to enter into the everyday of this place. There, designing as people, rather than with them, I became a participant in ongoing co-creative initiatives taking place at the psychiatric unit. As an insider, I was able to gain insights that would have remained elusive in a traditional participatory format and realised that what the project aimed to deliver was not exactly what the staff and patients wanted.

Despite the benefits of collaborative approaches to design there is still a need for more plurality in the participatory era. Pihkala & Karasti (2016) remind us that participation, more than a stable process, is a complex web of engagements and responsibilities that require constant negotiation to facilitate not singular, but plural forms of participation. The experiences shared above do not call for new methods, tools or techniques, but for forms of collaboration that go beyond traditional formats to establish dynamic engagements with non-participatory users. These are users who might not be interested in participating in traditional workshops, do not share visions and objectives of projects, or have something to say that is different to what project stakeholders expect to hear. These users, as the examples showed, have important contributions to make to design processes, and not including them will limit the scope and reduce the impact of future services.

Conclusion

This paper has challenged assumptions about user participation at the centre of codesign paradigms. Using personal research experiences in the context of design for wellbeing has made evident the existence of non-participatory patients. It is not my intention to suggest that participatory approaches to the design of health services are inappropriate. On the contrary, I feel that, most of the time, design participation projects and outcomes are beneficial for participants and future users. The contribution

to this conference is to point out the need for plurality in participatory processes, in particular for adapting mindsets, methods and outcomes to engage with non-participatory patients.

References

Andersen, T. (2010). *The participatory patient.* Proceedings of the 11th Conference on Participatory Design. November. Sydney, Australia. ACM.

Australian Commission on Safety and Quality in Health Care. (2012). *National Safety and Quality Health Service Standards.* Australia: Australian Commission on Safety and Quality in Health Care

Clemensen, J., Danbjørg, D., Damkjær, S., & Coxon, I. (2016). *The rise of patient 3.0: The impact of social media.* Paper presented at the 8th International Conference e-Health, Madeira, Portugal.

Geuens, J., Geurts, L., Swinnen, T. W., Westhovens, R., Mechelen, M. V., & Abeele, V. V. (2018). *Turning tables: a structured focus group method to remediate unequal power during participatory design in health care.* Proceedings of the 15th Participatory Design Conference. August. Hasselt and Genk, Belgium. ACM.

Gillam, T. (2018). *Creativity, Wellbeing and Mental Health Practice.* Cham: Cham: Springer International Publishing.

Grönvall, E., Malmborg, L., & Messeter, J. (2016). *Negotiation of values as driver in community-based PD.* Paper presented at the Proceedings of the 14th Participatory Design Conference. Aarhus, Denmark.

Jakob, A., & Manchester, H. (2017). *Design for dementia care: Making a difference.* Nordes 2017. Design + Power. Oslo, Norway.

Jørgensen, C. R., Thomsen, T. G., Ross, L., Dietz, S. M., Therkildsen, S., Groenvold, M., Johnsen, A. T. (2017). What Facilitates "Patient Empowerment" in Cancer Patients During Follow-Up: A Qualitative Systematic Review of the Literature. *Qualitative Health Research*, 28(2), 292-304.

Lee, Y. (2008). Design participation tactics: the challenges and new roles for designers in the co-design process. *CoDesign*, 4(1), 31-50.

Light, A. (2018). *Writing PD: accounting for socially-engaged research*. Proceedings of the 15th Participatory Design Conference. August. Hasselt and Genk, Belgium. ACM

Maldonado Branco, R., Quental, J., & Ribeiro, Ó. (2017). Personalised participation: an approach to involve people with dementia and their families in a participatory design project. *CoDesign*, 13(2), 127-143.

Muller, M. J. (2003). Participatory design: the third space in HCI. In A. J. Julie & S. Andrew (Eds.), *The human-computer interaction handbook* (pp. 1051-1068): L. Erlbaum Associates Inc.

Newell, A., Dickinson, A., Smith, M., & Gregor, P. (2006). Designing a portal for older users: A case study of an industrial/academic collaboration. *ACM Transactions on Computer-Human Interaction*, 13.

Palmer, V., Weavell, W., Callander, R., Piper, D., Lauralie, R., Maher, L., Glenn, R. (2019). The Participatory Zeitgeist: an explanatory theoretical model of change in an era of coproduction and codesign in healthcare improvement. *Medical Humanities*, 45(3), 247.

Pierri, P. (2018). Participatory Design Practices in Mental Health in the UK: Rebutting the Optimism. *Design Issues*.

Reay, S., Collier, G., Kennedy-Good, J., Old, A., Douglas, R., & Bill, A. (2017). Designing the future of healthcare together: prototyping a hospital co-design space. *CoDesign*, 13(4), 227-244.

Sanders, E., & Stappers, P. J. (2008). Co-creation and the new landscapes of design. *CoDesign*, 4(1), 5-18.

Sanders, E. B. N., & Stappers, P. J. (2014). Probes, toolkits and prototypes: three approaches to making in codesigning. *CoDesign*, 10(1), 5-14.

Sanin, J. (2019). *Research Experiences Beyond the Comfort Zone*. Nordes 2019. Who Cares? June. Espoo, Finland.

Smith, R. C., Bossen, C., & Kanstrup, A. M. (2017). Participatory design in an era of participation. *CoDesign*, 13(2), 65-69.

Pihkala, S., & Karasti, H. (2016). *Reflexive engagement: enacting reflexivity in design and for "participation in plural"*. Paper presented at the Proceedings of the 14th Participatory Design Conference. Aarhus, Denmark.

Understanding uptake to support mobile service design - towards a practical model to assess the uptake of a mobile application supporting clients with drug and alcohol addiction

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Abstract

'eRecovery' is a suite of software providing an adjunct to clinical support for clients with a substance addiction to help manage relapse behaviour. As part of working on the design and implementation of a 24-month trial of eRecovery, we have created a practical, situated model of the uptake and use of the client facing mobile application software. The model supports organising, visualising and communicating the adoption, appropriation and on-going routine use of the technology. Factors at each stage in the model provide positive and negative tensions that determine whether and how a client progresses from one stage to the next.

Keywords: service design, technology uptake, appropriation, mobile, alcohol and other drugs, justice

Introduction

The health sector has made substantial progress in the use of mobile technologies to support health care practitioners and health care consumers by translating already established eHealth systems into mobile channels (Istepanian, Jovanov, & Zhang, 2004), and comparable developments are evident in the mental health sector (Luxton, McCann, Bush, Mishkind, & Reger, 2011; Mucic, Hilty, Parish, & Yellowlees, 2016). In contrast, justice services have been slow to see the potential for mobile technologies.

This research, set in the context of a person managing substance abuse, questions how best to organize, visualize and communicate information about the uptake and use of mobile software provided to assist clinical counselling where the objective is to provide early indicators of the efficacy of the trial software and to inform and educate future trials and the rollout of the service throughout the justice sector. The approach used a general model of technology appropriation with discrete stages as a template and gathered data to inform aspects of the model within and between the stages through the journey of substance relapse prevention in a forensic context.

The Neighbourhood Justice Centre (NJC) is a 'one-stop-justice-shop' serving the City of Yarra comprising a court, support services, and specialist teams focused on crime prevention, innovation and education. This trial of relapse prevention software (eRecovery) at the NJC in Collingwood, Australia represents an opportunity to examine the service design practice issues associated with the use of mobile applications as an adjunct to clinical interventions for forensic and community clients.

Successful recovery from substance abuse involves developing effective coping responses to high-risk situations, and experiencing a sense of self-efficacy as a result. It has also been argued that a measurement of efficacy based on qualitative studies that focus on people's experience with technology can provide effective early feedback on the efficacy of the intervention (Klasnja, Consolvo, & Pratt, 2011). They explain that especially in early stages of development, a deep understanding of the *how* and *why* of the system use by its target users should be a central goal for evaluation of systems for health behavior change. They also contend that the resulting design knowledge is arguably the biggest contribution the field of Human Computer Interaction can make to the development of effective systems in domains such as this. Thus, key questions for the

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eRecovery trial are whether users adopt, appropriate and develop patterns of routine use of the application in a manner consistent with a self-governing relapse prevention model.

eRecovery trial and Connections mobile application

Developed by the Center for Health Enhancement Systems Studies at the University of Wisconsin and commercialised by CHESS Health, eRecovery (Gustafson et al, 2014) is a scientifically established behavioral health intervention for AOD addiction. It is based on cognitive social learning models of relapse prevention as described in Larimer, Palmer and Marlatt (1999) and Donovan and Witkiewitz (2012) that see people as active participants in a process of identifying precursors of a lapse and taking action to prevent it.

Since February 2019, any client of the NJC who is concerned about their substance use can participate in the eRecovery program. Most people enrolled in the trial have been charged with offences and are awaiting a hearing or have been sentenced to a community corrections order.

Connections is the client facing mobile application part of the eRecovery suite of software that assists clients in their recovery by providing a 24/7 support system in their pocket. Clients can customise the Connections app with their treatment plans, relapse triggers, intervention strategies, motivational drivers, and services and people to contact when a crisis arises. Features include: discussion groups; appointment and medication reminders; GPS-enabled warnings of high-risk locations; weekly recovery progress tracking though surveys; "Beacon button" access to a 24/7 helpline; goal setting, and a variety of content.

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Need help in your recovery journey?

Recovery is about progression, not perfection.
There are many pathways to recovery.

Connections is a new app to support people who are having treatment for alcohol and other drug issues.

The Connections smart phone app

- Install on your smartphone

- Send messages to chat individually or in a discussion group

- Get to know and support one another in teams organised by your worker

- Plan for appointments and medication with reminders and a calendar

- Discover stories and audio visual tools to motivate and inspire you

- Find support near wherever you are

- Set goals, remember motivations and keep a journal of stories and moments

- Receive daily inspirational thoughts

- Check your progress weekly

- Always at your fingertips. No one has to face addiction alone.

Figure 1: eRecovery Connections application

Clinicians use an accompanying Companion app to interact with their clients by sending messages or pushing medication or appointment reminders to them. Clinicians also receive dynamic updates through survey results that provide insight into client behaviour.

Research process

The research process entailed identifying a template model of general technology appropriation for the eRecovery trial context and collecting and

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analyzing data to understand and categorise the important factors governing processes within and progress between each stage.

The template model of appropriation is based on a general technology appropriation model by Carroll, Howard, Peck, & Murphy (2003) incorporating stages of 'technology as designed', 'technology in hand' and 'technology in use'. However, the influencing factors in this model, situated in general use of mobile devices by young people aged 16 – 18 at the introduction of mobile technology to society was less relevant. A contrasting model with different factors influencing behaviour within and between the stages is exampled in the study of mediating behaviour change in smokers as proposed by Smith, Ploderer, Wadley, Webber, & Borland, (2017). This work proposes a model describing relevant engagement factors during the use of the technology and along with non-linear trajectories including '*productive engagement*' based on positive reinforcers, negative reinforcers that contribute to 'c*ounterproductive engagement*' and consideration of the end of use conceived as '*productive*' or '*counterproductive disengagement*'. The uptake model proposed in this paper aligns with some of these findings as relevant factors for managing relapse behaviour in relation to substance addiction.

Data to validate the model and identify relevant factors at each stage were collected from:

- Interviews with clients, clinicians & workers (1-month, 3-month and 9-month)

- Surveys

- Mobile application usage reports

- Minutes of project meetings

Participants were required to sign carefully constructed and reviewed consent forms prior to participation. No personal or identifying data was entered or collected and participants used a non-identifiable alias for all communication, interviews and surveys. Participants were not allowed to communicate any data that would identify or locate them. Finally, data collected for this research concerned only technology usage and excluded any clinical information.

At September 2019, 23 clients were participating in the trial with 21 actively using the Connections application. Client interviews conducted

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include 6 x one month, 6 x three month and 3 x nine month. 17 baseline client technology survey responses had been recorded and 9 clinician and worker interviews had been conducted.

Findings – Forensic Evaluation Model

The model reflects uptake of technology by clients with three stages: **adoption** (Figure 2) where the technology is designed but as yet unused; **appropriation** (Figure 3) where the technology is in the hands of the client and being learned and evaluated; and finally, **routine use** (Figure 4) where the technology is regularly used within some sort of routine. At each stage the model exposes tensions through positive and negative influences that contribute to the pathway taken into or out of that stage. If the user is satisfied in the current stage, uptake and use of Connections proceeds to the next stage. If negative influences outweigh positives, the technology is rejected and use ceases. Each stage of the model is explained below.

Adoption stage – Technology as designed

Clinicians and workers introduce the app to clients by way of an information flyer (Figure 1) and a physical demonstration of the app. Clients are then taken through the joining-up process of completing the consent form, downloading the app and signing in. Positive and negative influences on adopting the technology are proposed as '*barriers'* and '*motivators'* first identified when Connections is introduced to clients through to when a client has completed the joining-up process (see Figure 2).

Analysis of data identified adoption barriers broadly categorized into three groups. 'Access' barriers address physical access to a smartphone device or data, access to identity documents required to register a SIM card (i.e. drivers licence, Medicare card etc), and sufficient literacy and knowledge of technology to participate.

'Value' barriers lead to non-adoption where clients decline to participate in the trial. The main barriers emerged as some combination of clients not believing participation would impact their recovery, reporting that they didn't have time, or simply were unable to see any value in engaging in any activities outside their mandatory correctional order requirements.

Finally, a lack of 'Trust' in either the eRecovery trial or the justice system more broadly was a significant barrier for some clients. For example, some participants expressed concern that using the optional GPS-enabled feature to provide alerts when entering a 'high risk' location was in reality a covert means of tracking/surveillance. Whilst this feature was designed to be a personal warning system rather than a monitoring mechanism, it was found to be a strong disincentive to some clients to join up to the trial.

Conversely, motivating influences emerged and were grouped into three categories. 'Organisational' motivators support clients entering and managing personal reminders for medication and scheduling appointments with clinicians or workers in a personal calendar.

'Communication' supports one-on-one messaging and group discussion client to clinician and client to client.

Finally, 'Personalisation' features in the application enable clients to directly enter and easily access motivational content such as pictures of family, video recordings, a list of important support contacts and journal entries.

The model illustrates the tension between barriers and motivators and the resulting 'non adoption' where the technology is rejected before use, or the path to first use of the Connections application.

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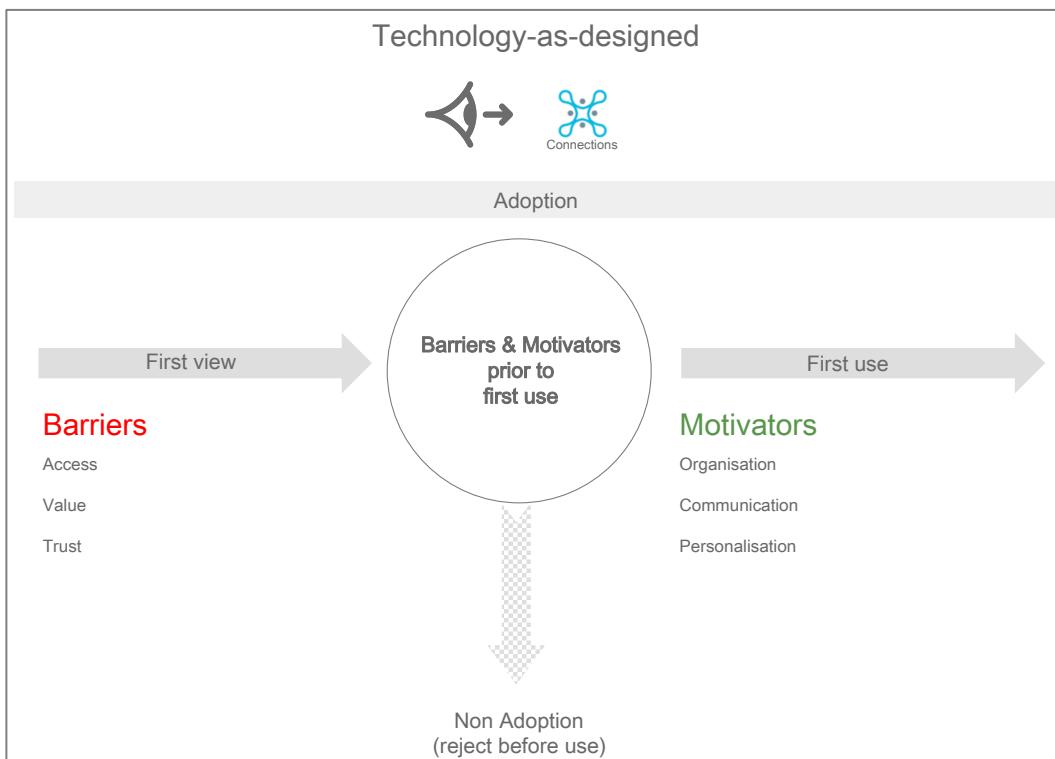
Figure 2: Adoption (technology as designed)

Appropriation Stage – Technology in hand

Following the joining-up process, participants explored, learned and personalised features during their first period of use. Influencing factors during this stage are positioned as '*hindrances'* and '*supports'* and grouped into categories. 'Access' hindrances reported during approximately the first month of use included phone-charging difficulties for clients who are homeless, and low literacy creating difficulties for a client to read and understand the app and also to fill in the surveys.

'Localisation' hindrances included accents that were difficult to understand; therapeutic focus of content (e.g. the abstinence model in the United States versus the harm-minimisation approach in Australia); and cultural issues such as content with a strong religious theme.

At this stage in the trial, whilst workers were seeding group discussions and receiving some replies, there were not the numbers or organisational resources in place to run a mature online community.

Conversely, categories of influences supporting appropriation also emerged. 'Organisation' features anticipated as motivators prior to use

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were reported by clients to be beneficial in making clinical appointments and setting reminders to take medication.

As expected 'Communication' features emerged as enabling participants to message their clinician or worker about clinical matters or easily change appointments. Whilst client to client communication did not manifest, the feature was one of the most visited in first month of use.

Also as anticipated, 'Personalisation' features were used for motivational entries and inputting personal support contacts. Other personalization features such as GPS-enabled warning feature for high-risk locations was reported by some to be a very useful feature.

Finally, the immediacy of the mobile application emerged as a category of support.

> "Bit more confident. There is immediate support. Comfortable - stress levels are low and a lot more self control" Client 10

The model illustrates hindrances and supports resulting in either 'disappropriation' or proceeding to 'Routine Use'.

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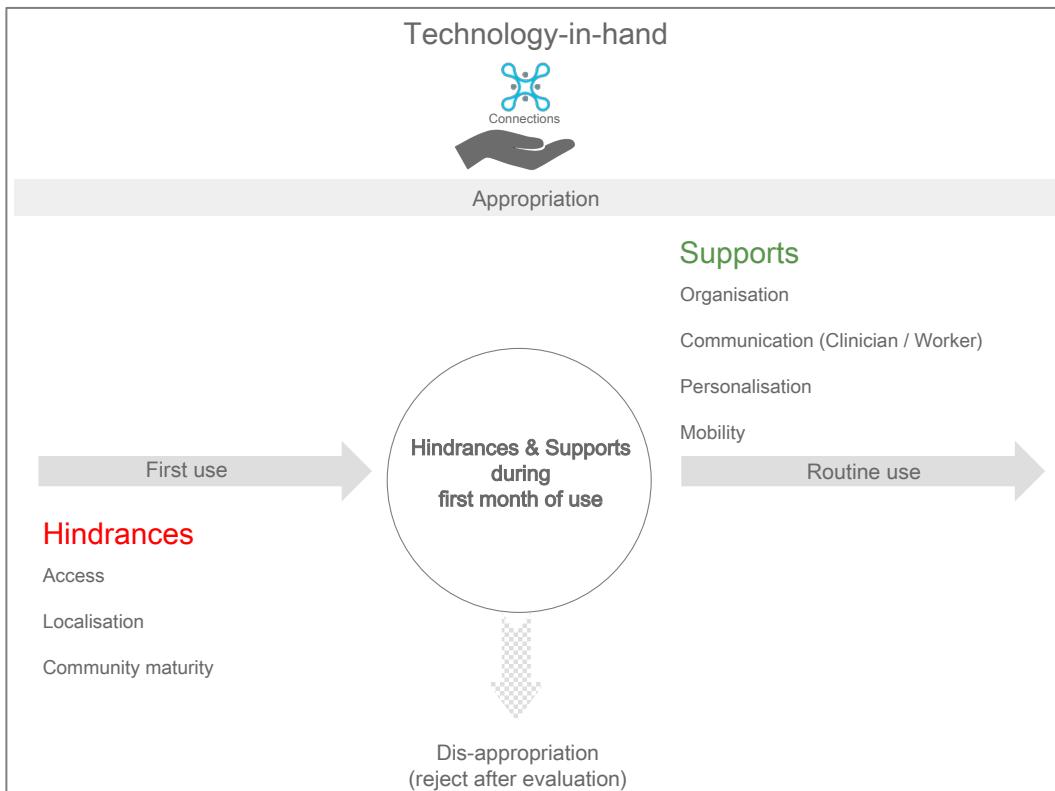
Figure 3: Appropriation (technology in hand)

Routine Use Stage – Technology in use

The final stage of the model considers the technology to be in routine use (see Figure 4) with positive reinforcers encouraging '*productive engagement'* and conversely, negative reinforcers contributing to 'c*ounterproductive engagement'* (Smith, Ploderer, Wadley, Webber, & Borland 2017)*.* End of use is considered in the model leading to the participant abandoning the software or being barred from use, thus experiencing '*counterproductive disengagement'*. Smith et al. also identified an additional pathway based on the idea that use of this type of software may not continue indefinitely despite a period of productive engagement and at some point *'productive disengagement'* occurs. In this case, the participant makes a conscious decision to cease using Connections as a positive part of their recovery process.

A productive engagement reinforcer that has emerged thus far is 'Structure and cadence' where routine use of the app is reported to provide a framework to structure the entire day of the participant, starting with reminders and prompts for appointments received in the morning.

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"Sets the morning routine. I get up, check the app, take my medication, answer the survey. Now that I have the app back I'll be getting back into the steady routine again" Client 3

Another participant found the cadence of the sobriety notification provided positive reinforcement.

"It's cool to have this thing that counts every day [of being sober]. I don't have to cross anything off a calendar. It just tells me 'hey it's been 63 days'. Even just for that, I would keep it [the app] if I got a new phone or finished my order." Client 5

A second reinforcer is 'Enriched face-to-face therapy'. Clinicians reported data from routine surveys allows them to prepare for client sessions and better understand the behavior and attitude of their client. This means clinical sessions can be more focused on therapy.

"It [Connections] covers off on stuff that we many not always raise. Gives us an insight into when things are falling apart that we may not always ask about - we get a notification about it, so know to follow up. E.g. we assume housing is stable unless told otherwise, however [their] response in app is opportunity to see this." Clinician
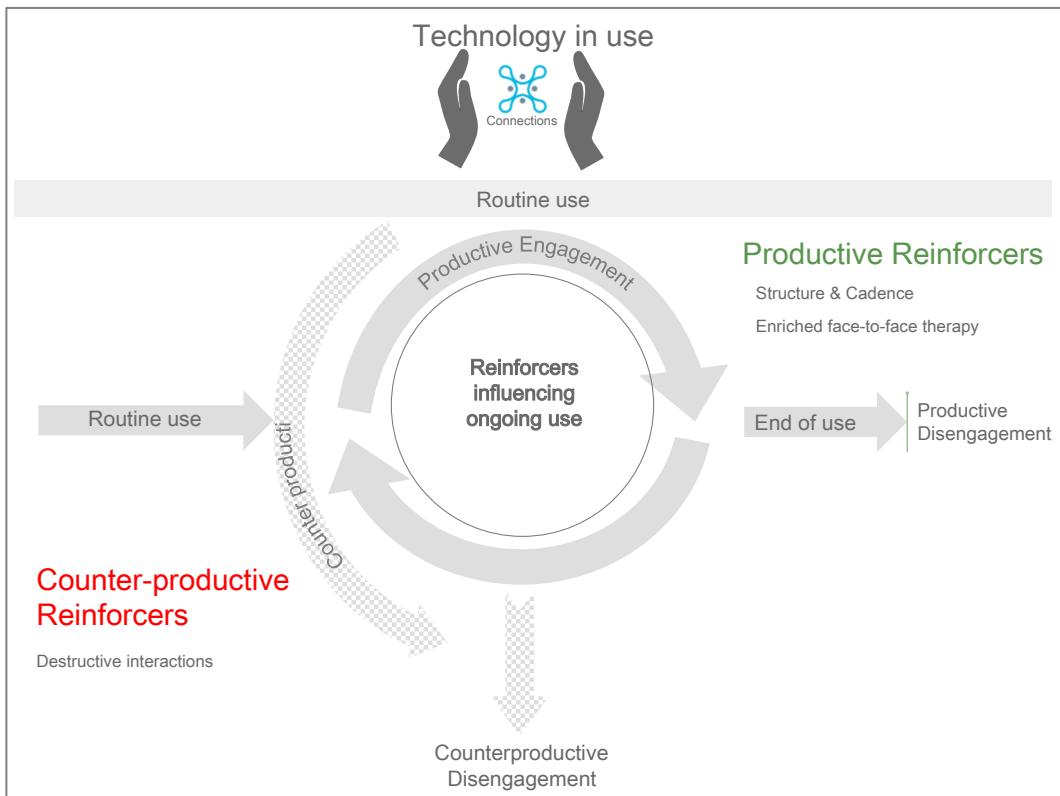
Figure 4: Routine Use (technology in use)

Conclusion, Limitations & Next steps

The model provides a mechanism to organise, visualize and communicate tensions at each stage of the uptake of technology in a forensic context. It enables the practitioner to clearly and practically think through positive participation as well as the various reasons for participants not starting or abandoning the trial. The sensitive context of justice and AOD recovery provides a particularly sharp focus to consider these factors, however it is hoped that the structure of the model will have broader application to other areas in the justice and health domains.

The trial has sixteen months to run. Thus far, it has produced enough data to form the structure of the model and populate most of the significant positive and negative factors relevant to the adoption and appropriation of the software. While it has produced some data to populate factors relevant to routine use, there have not yet been enough participants progress to the 'Routine' – Technology in Use' stage of the trial to identify a comprehensive set of factors. For example, there are potential positive

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reinforcing factors that have been discussed by clinicians such as 'Reduction in isolation'. Clinicians have reported that isolation is one of the significant problems many of their clients suffer and other studies have reported that messaging for social connection was the most used feature (Johnson et al. 2016). It is an opportunity for further work to refine the model as the trial progresses and to apply the model to similar relapse support situations where a critical community mass and routine use of peer communication has been established. The effect, if any, on reducing isolation and other factors that might emerge from routine use provide an opportunity for further work.

Acknowledgements

References

Carroll, J., Howard, S., Peck, J., & Murphy, J. (2003). From Adoption to Use: The Process of Appropriating a Mobile Phone. Australasian Journal of Information Systems 10(2). doi: 10.3127/ajis.v10i2.151

Donovan, D., & Witkiewitz, K. (2012). Relapse prevention: From radical idea to common practice. Addiction Research & Theory 20(3), 204-217.

Gustafson, D.H., McTavish, F.M., Chih, M.Y., Atwood, A.K., Johnson, R.A., Boyle, M.G., … Shah, D. (2014). A smartphone application to support recovery from alcoholism: a randomized clinical trial. JAMA Psychiatry, 71(5), 566–572. doi:10.1001/jamapsychiatry.2013.4642

Hilty DM (eds) e-Mental Health. Switzerland: Springer, pp. 173–188. doi:10.1007/978-3-319-20852-7_9

Istepanian, R., Jovanov, E., & and Zhang, Y. (2004). Guest editorial introduction to the special section on m-Health: Beyond seamless

John Murphy, Frederica Densley, Stuart Ross
Understanding uptake to support mobile service design
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mobility and global wireless health-care connectivity. IEEE Transactions on Information Technology in Biomedicine, 8, 405-414.

Johnson, K., Richards, S., Chih, M.Y., Moon, T.J., Curtis, H., & Gustafsen, D.H. (2016). A Pilot Test of a Mobile App for Drug Court Participants. Substance Abuse: Research and Treatment 10, 1-7. doi: 10.4137/SART.S33390

Klasnja, P., Consolvo, S., & Pratt, W. (2011). How to Evaluate Technologies for Health Behaviour Change in HCI Research. In ACM CHI Conference on Human Factors in Computing Systems. ACM Press, New York, NY, 3063-3072. doi:10.1145/1978942.1979396

Larimer, M., Palmer, R., & Marlatt, A. (1999). Relapse prevention. An overview of Marlatt's cognitive-behavioral model. Alcohol Research & Health 23(2), 151–160.

Luxton, D., McCann, R., Bush, N., Mishkind, M., & Reger, G. (2011). mHealth for mental health: Integrating smartphone technology in behavioral healthcare. Professional Psychology:Research and Practice 42, 505–512. doi:10.1037/a0024485

Mucic, D., Hilty, D. M., Parish, M. B., & Yellowlees, P. M. (2016). Web- and internet-based services: Education, Support,self-care, and formal treatment approaches.

Smith, W., Ploderer, B., Wadley, G., Webber, S., & Borland, R. (2017). Trajectories of Engagement and Disengagement with a Story-Based Smoking Cessation App. In ACM CHI Conference on Human Factors in Computing Systems. ACM Press, New York, NY, 3045-3056. doi: 10.1145/3025453.3026054

Human Centred Service Design in the context of sport participation

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Abstract

The positive impact of sport participation is well researched and documented worldwide and the results are nothing short of amazing. Some of the major social challenges in contemporary societies have been successfully tackled through sport: mental and physical health, job creation, poverty alleviation, community development and crime prevention to name a few. Yet, the communities most impacted by the above-mentioned challenges have been historically the hardest to recruit and retain by sport clubs and organisations.

This paper examines the application of Human Centred (HCD) and Service Design to both address the challenges of recruitment and retention of vulnerable and marginalised communities and to drive systemic and positive social change.

Keywords: systemic social change; service design in sport participation

The positive impact of sport participation is yet to be utilised by service designers

Style Sport England (2013) offers an overview of the overwhelmingly positive impact of sport participation (the act of purposeful engagement in physical sport activities). Give yourself a moment to review Sport's Impact (Chart 1, page 2). You might be reading this and you might be wondering: is sport the solution to some of humanity's most pressing problems? Well, it turns out it can be.

Some of the social benefits of doing sport are hot items on the agenda of many governments, NFP and social enterprises around the world. And this is an area increasingly familiar to designers (see Chart 1 below). What if sport could be used as a tool to address issues such as mental health, job creation and crime prevention, and some of the allocated spend for these issues diverted accordingly?

Figure 1. Sport's impact. Source: Economic value of sport in England, 2013

The economic cost of mental health in Australia exceeds $180 bn per year (Lunn, 2019). Mental health affects 16% of the population (Lunn, 2019) and is closely linked to job stability, physical activity and social interaction.

All of these are problems worthy of designers' attention and sport can be part of the solution. Sport impact on an individual and community level, combined with the fact that sport is essentially a service industry, made me wonder what designers around the world do to get more people to participate in sport more often. There is very little in the way of white papers, case studies or online discussions on service design in sport. This is peculiar because the estimated value of sport in Australia exceeded $39 bn in 2018 (Parsons, 2018).

I turned to design practitioners and members of the sport community in an attempt to close this gap. I conducted seven half hour unstructured interviews over the phone and face to face. They were exploratory in nature and the questions varied based on the participant. My primary objective was to understand the relevance and maturity of Human Centred and Service Design for sport organisations in the context of sport participation. I spoke with people who have designed for some of the top sport bodies in Australia: Tennis Australia, the National Football League, Cycling Victoria, the International Cricket Council, Sport Victoria. I discussed the nature of the projects they engaged with, the underlying reason for the project, their processes, solutions and results. I also sought their opinion on the overall relevance of HCD in sport, both in terms of participation and fan experience. An interview with management at Cycling Victoria provided insight into the challenges they face with community engagement, programme implementation, recruitment, retention as well as the sort of help they need in order to achieve their objectives. The common theme across all interviews was that understanding what people want, and designing experiences in sport which respond to this, is not only on the agenda but is also becoming a matter of survival for sport organisations. Sport, put simply, is late to the party and is now playing catch up. It is competing against a myriad of other industries hungry for people's time, attention and money.

The common challenges for sport participation

All sport disciplines I discussed with practitioners seemed to share common challenges: access to marginalised groups of society, recruitment and retention, centralisation of and therefore competition for resources, access to qual data and the "why" which drives stakeholder behaviours and motivations. Sport England (2013) features similar findings (see Chart 2 below). A growing number of large sports organisations, government

and social enterprises, however, are starting to adopt HCD to address these challenges. Please see case studies below.

Figure 2. Sport's challenges. Source: Interviews with designers and members of sport organisations in Australia

Case studies of the application of design to improve recruitment and retention

Auskick, the kids programme of the Australian Football League, is a great example of the effective use of design in sport.

Problem: Recruitment and retention rates of young players were plummeting. Kids and parents found the drills boring and the events run by volunteers uninteresting. Children's attention spans have changed over time; kids are less patient, easily bored and don't like queueing. AFL recognised the need to re-imagine the Auskick experience.

Design approach: Understanding how parent, child and volunteer needs and expectations have evolved over the last few decades was key to designing a programme which reinvigorates the sport. Leveraging external

expertise, AFL went through a number of community design sprints, co-creation, prototyping and testing sessions.

Results: The new curriculum was launched in the 2019 season. It promises better experiences and opportunities for young people to join the sport (AFL, 2019). Early signs of improvement in recruitment have been very promising.

Auskick's success inspired NRL, which has since re-designed their own juniors' programme and drew almost 4,500 new kids to rugby league for the first time (Phillips, 2019).

Case study of the application of design to drive big and meaningful social change

The effective use of sport to improve community safety by a local government in the UK demonstrates this is both possible and effective.

Problem: Rising numbers of anti-social behaviour incidents, polarisations of young and older residents and youth crime.

Design approach: The Council set up a gym in the park and later a dojo in disused pavilion buildings. Activities and programmes were co-created with and delivered by the community.

The dojo teaches martial arts and a sense of self-respect and respect for others. Every week tuition is given to 12 young people at risk of being drawn into anti-social behaviour. Martial arts present an ideal gateway for young people who might not be inclined to join any other form of organised sport group by providing easy access and a low start-up cost, irrespective of age, gender, social class or ethnicity.

Results: These developments reduced reported incidences of anti-social behaviour (e.g. graffiti and vandalism) and improved the perception of safety among older users of the park. The park also attracted more younger and older residents who were previously marginalised.

The martial arts programme brought individual benefits to young people taking part in it and improved police time efficiency.

The UK is among the few countries where sport's economic value (in relation to the real-world economy) and impact (in terms of welfare and utility) are recognised. The above example is one of many, taken from

Sport England's publication Economic value of sport in England from 2013.

Conclusion

While the maturity of Human Centred and Service Design in sport participation is low, these disciplines hold huge potential to tackle the challenges faced by many sport organisations.

The successful application of design can lead to engaging more people around the world to do more sport more often, including hard to reach marginalised and vulnerable members of society. Furthermore, it is possible for designers to employ sport participation as a tool to address some of the major social challenges in contemporary societies such as mental and physical health, crime prevention and job creation. By addressing these challenges designers and sport organisations can improve social mobility and in turn strengthen both recruitment and retention in sport participation over the long term. Put simply, the application of Human Centred Service Design in the context of sport participation holds the potential for a systemic and positive social change.

References

Australian Football League website (2019). "Fun, active play the focus of revamped NAB AFL Auskick". Retrieved from https://www.afl.com.au/news/2019-03-20/fun-active-play-the-focus-of-revamped-nab-afl-auskick

Lunn, S. (2019, Oct 31). Mental illness costs $180bn, study reveals, The Australian. Retrieved from https://www.theaustralian.com.au/nation/politics/mental-illness-costs-180bn-study-reveals/news-story/9abb60573f3ff3c6db1dcd42df703020

Parsons, S. (2018). More than a Game: Evaluating the Economic Contribution of Sport to the Australian Economy. Retrieved from https://cdn.tspace.gov.au/uploads/sites/107/2018/11/StephanieParsons-2018.pdf

Phillips, S. (2019, July 21). NRL launch answer to Auskick for next generation of League Stars, The Sydney Morning Herald. Retrieved

from https://www.smh.com.au/sport/nrl/nrl-launch-answer-to-auskick-for-next-generation-of-league-stars-20190721-p529b9.html

Sport England. (2013). Economic Value of Sport, Retrieved from https://www.sportengland.org/research/benefits-of-sport/economic-value-of-sport/

The hidden 'co-designers' of service: exploring policy instruments in e-messaging

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Abstract

Approaching services as sociomaterial constellations might bring to the fore new temporalities and accountabilities in designing, beyond that of the immediate service (Kimbell & Blomberg, 2017). This work-in-progress paper draws on a processual study (Langley, 1999) from Norwegian health care. It is inspired by objectivist strands of Science and Technology Studies (STS), especially Actor-Network Theory (ANT) (e.g. Latour, 2005) it explores in what way non-humans might partake as co-designers in the development, provision and re-design of service delivery: finding policy ideas, legislation and ICT hard at work.

Keywords: non-humans, designing for service, design for policy, sts, ant, public sector, health care

Introduction

This short work-in-progress paper aims to further resolve and conceptualize the role of non-humans in designing and delivering for service, applying an analytical approach inspired by objectivist strands of Science and Technology Studies (STS), mainly Actor-Network Theory (ANT) (e.g. Latour, 2005). By including - but also going beyond - the role

of technology, it contributes to further conceptualizing services as sociomaterial configurations (Kimbell & Blomberg, 2017), and also the urgent "need to understand the relationships between policy making, policy implementation, and designing" (Junginger, 2013, p. 1). I present a qualitative study of coordinating inter-organizational service delivery in Norwegian health care, focusing on selected insights from the development, use and re-design of a standardized and strongly regulated e-messaging system. The system was one of many measures highlighted in the 2008 "Coordination reform" in Norwegian health care (The Norwegian Ministry of Health and Care Services, 2008), aiming to improve continuity of care as patients moved between primary and specialist care (especially admittances and releases from hospital).

As services are social, invisible and perishable they are produced and reproduced in each delivery and a service situation can never be fully replicated (Penin, 2018). In health care, this constitutes a large challenge, as services must be of a certain quality - or the result could be fatal. In Norway, the inherent uncertainties of health care service delivery have led to strong top-down management, as standardized technologies, routines and regulations attempt to control at least some aspects of service delivery. However, this has sometimes resulted in an outcome which is exactly the opposite of what was intended (The Norwegian Department of Health and Care Services, 2012; The Office of the Auditor General, 2015). This forms an interesting context for exploring how non-humans might partake in the development, provision and re-design of service delivery.

Non-humans in designing for service

Co-design is a process where "different actors participate at different moments and in different ways in a sequence of diverse and sometimes even contrasting events" (Manzini, 2014b, p. 65). Service delivery and design include both social and material aspects, and several scholars have called for resolving the existing product/process and technological/ non-technological dichotomies (Mortati & Villari, 2014; Sangiorgi, 2009). Kimbell and Blomberg (2017, p. 92) include the "sociomaterial configuration" as one of three perspectives on the object of service design, enhancing the differences of underlying assumptions in service design research. Such an approach is inspired by research in anthropology, Science and Technology Studies (STS) and literatures in systems and

participatory design: "This lens proposes that together the constituents 'co-articulate' a service as it unfolds in practice, connecting material and digital touchpoints and people's experiences to participation in social practices, organizational routines and narratives about value and valuing" (Kimbell & Blomberg, 2017, p. 87).

The lens both zooms in and out simultaneously, highlighting "the specific cultural, economic and political practices and institutions that co-articulate service"(Kimbell & Blomberg, 2017, p. 89). Further, it adds to the complexity of the service configuration, bringing to the fore new accountabilities, beyond those in the immediate service.

Indeed, participatory design has long embraced the "sociomateriality" of design (e.g. Agger, 2014): referring to how the social and the material are inherently inseparable but permeate each other in practice (Orlikowski & Scott, 2008). Ehn (2008, p. 92) believes that when we ask "[h]ow do they get things done their way?" – how design happens, we should "inquir[e] into the 'agency' of not only designers and users, but also of non-human 'actants' such as objects, artefacts and design devices."

In designing for service, we recognize that services cannot ever be fully designed, but that we can design for some outcomes to be more likely than others (Meroni & Sangiorgi, 2011). Indeed, as it is so difficult to design the "social", some say designing the "technical" might be the best option. In this vein, Baek et al. (2018) propose a sociotechnical framework which aims to transform social systems through designing the technical system. They propose conceptualizing communities as sociotechnical systems, where people's relationships (social system) might develop interdependently with technological solutions, and can support each other's production in a self-enforcing virtuous cycle (Baek et al., 2018). Such a sociotechnical systems approach is one of few formal sociomaterial approaches for studying design for service. A systems approach does not consider the individual's needs (it is not user-centred design), as these might not align with the rest of the system and might cause unintended side effects (Baek et al., 2015).

Zooming out on the larger political landscape might be useful, as policy will in any case shape the conditions for designing for service (Junginger, 2013, 2017). Junginger (2013, p. 1) expressed the need to better understand the relationship between service design and policy-making, and the two previously separate realms are currently moving closer

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following the emergence of "design for policy" (Bason, 2014). Here, service design might become "central to achieving desirable policy outcomes" (Junginger, 2017, p. 8). However, as service designers might also be in danger of reifying current unsustainable logics in the public sector, such as efficiency, if they do not question larger systemic issues and underlying logics (Steinberg, 2014).

While the politics of service design and designing for service is receiving increasing attention, few studies have focused on when - and in particular in what form - political agency might emerge in designing or delivering services. This is especially relevant when designing for the public sector. A systemic approach is in opposition to a user-centred approach (Baek, Meroni, & Manzini, 2015). There is still a lack of concrete analytical approaches as well as empirical studies in designing for service that follow Kimbell and Blomberg (2017): seeing services as sociomaterial configurations, zooming out on larger accountabilities and temporalities and zooming in on users in service delivery.

Analytical approach inspired by actor-network theory

This section gives a brief introduction to how a processual approach inspired by objectivist strands of STS might illuminate some of the challenges above.

Process studies see change and innovation as ongoing, instead of a linear approach consisting of phases. It focuses on "how and why things emerge, develop, grow, or terminate over time" (Langley et al., 2013, p. 1). As in services, this means that rather than the world being made up of substantial entities it consists of events and experiences. When change is constantly ongoing, design attempts to provide some order – to reach some envisioned pattern (Hernes, 2007): making some outcomes more likely than others (Meroni & Sangiorgi, 2011). As such, a processual approach is ideal for studying design as ongoing accomplishments by heterogeneous actors over time: studying design as always inherently incomplete and ongoing.

Inspired by ANT, design (and innovation) happens over time through processes of "translations" (Latour, 1999, 2005). We might say we begin with a "controversy", a wicked design problem or some desired end goal. However, if it involves many actors, there will be a number of options,

interpretations and ideas. As we try to archive the aforementioned order, it becomes a political process where someone's interests must "win" (Mørk et al., 2006). Actors enrol other actors into their networks through translations, increasingly speaking on their behalf (representing them) (Callon, 1999), to the point where a network starts appearing as single actor, stabilizing temporarily. However, in the process, all actors involved in the translation change (e.g. joining forces and gaining new capabilities). Establishing relations between actors becomes a question of power: the power to speak for others and the power to hold configurations together. This power is not limited to human actors.

As a part of objectivist strands of STS, ANT scholars apply the "principle of symmetry": striving to apply the same analytical and descriptive framework in the face of both humans and non-humans, "provided it is granted to be the source of action" (Latour, 1996, p. 373): "An actor network is most simply defined as any collection of human, non-human, and "hybrid" human/non-human actors who jointly participate in some organized (and identifiable) collective activity in some fashion for some period of time" (Kaghan & Bowker, 2001, p. 258).

Some find this troubling, but is not a matter of intentionality, but of capability to act (e.g. translate). The principle simply suggests that for non-humans "there might exist many metaphysical shades between full causality and sheer inexistence," and that in addition to being backdrops and scaffolding for the social, non-humans might "authorize, allow, afford, encourage, suggest, influence, block, render possible, forbid and so on" (Latour, 2005, p. 72). It is not only "social" and "material", but many shades of humans and non-humans that make up these relations, networks, or configurations. Such an approach might illuminate the agency of non-humans across time in design processes - and in practice as the agency to co-construct emergent outcomes.

Case and methods

This study is part of a qualitative research project funded by the Norwegian Research Council for the period of 2013-2017. It includes two academic institutions, a large Norwegian hospital and two large municipalities in the hospital's catchment. The project's mandate was to explore changes in professional practice after the implementation of standardized electronic messaging (e-messages) between hospital wards and municipal service-providers along the patient pathway - from admittance to discharge (Figure 1).
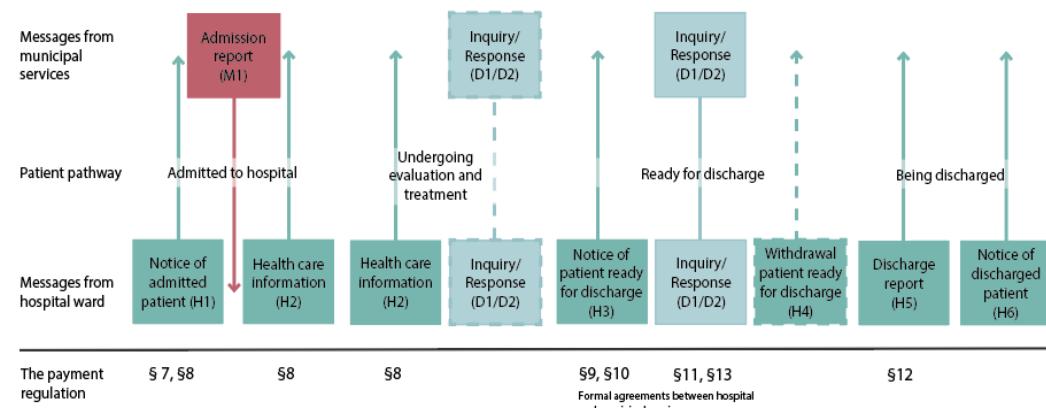
Figure 1: E-messages and regulation along the patient pathway

The study in this paper is part of the authors PhD, and has focused in particular on coordination in collaborative service delivery, as the e-messaging system was highlighted as a key instrument in the 2008 Coordination Reform (The Norwegian Ministry of Health and Care Services, 2008). The reform was initiated due to problems with working together across levels of care (hospital and municipal services). Different cultures, traditions, and opposing interpretations of what care to provide for a patient made it difficult for hospitals and municipal services to cooperate (e.g. Hellesø et al., 2004). Such issues often led to unintended consequences for the patient, often caught in the middle. Figure 1 also gives an overview of e-messaging as part of the service delivery between hospitals and municipal services. It also includes a "Payment Regulation", implemented as part of the Coordination Reform. Different paragraphs of this regulation came into effect with/was enacted by different messages.

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The study has 135 respondents from hospitals, municipalities, suppliers and government agencies. It includes 48 semi-structured interviews (recorded and transcribed), approximately 250 hours of participatory observation, two workshops and the analysis of 31 public documents. The material was coded using the software NVivo, and written into a narrative which formed the basis for the conceptual analysis inspired by Actor-Network Theory (ANT) (e.g. Latour, 2005). This short work-in-progress paper gives some examples from the analysis.

This processual study (Langley, 1999), focuses on three interrelated "events" in time (the past, the present and the future) to explore accountabilities and consequences beyond the design project (Almquist, 2017; Kimbell & Blomberg, 2017; Overkamp & Holmlid, 2016). Table 1 summarizes methods related to each event. The first event focuses on the policy-development process, and the development and implementation of e-messaging between "the Hospital" and municipality A and B in 2013[1] (past). In the second event, we explore the messages in inter-organizational collaborative service delivery (present). The last event is a local re-design initiative focused on the future. Please note that in the findings section below, I present the events in the order of present, past, future.

Methods		Past	Present	Future
Methods	Document analysis	▨	▨	▨
	Interviews	▨	▨	
	Observation		▨	▨
	Workshop			▨

Table 1: Methods related to each event in the study

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1 This is a national system, but this study focuses on "the Hospital",
"municipality A" and "municipality B".

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Emergent findings: agencies from the past and present

Based on the insight from the overall processual study, I provide three examples of non-human agency. I relate these emergent findings to current knowledge on designing for service.

Intertwined agencies in the present

In 2013, 17 years after the idea of e-messages was born, a system was implemented in service delivery between "the Hospital" and municipality A and B. Soon, users experienced multiple challenges to collaboration and coordination. First, the standardized interface had few cues, making it difficult to know what to include in the communication. Nurses at the hospital did not know what nurses in the municipal services needed to know and vice versa. Second, the payment regulation and formal agreements required them to communicate certain information at specific times in the pathway – not always complementary to local routines or ways of operating. Third, the payment regulation's delegation of responsibility, enacted by the sending of certain messages, sparked arguments and "workarounds". Forth, a financial penalty related to the payment regulation caused arguments over issues about accountability.

Multiple actors were co-designing service delivery: users, legislation (the payment regulation), formal agreements between hospitals and municipalities, and the e-messages as standardized ICT. This sociomaterial configuration "locked in" certain patterns of collaboration between the Hospital and its municipalities, and the emergent effects were often negative: the exact opposite to what one was aiming for in the Coordination Reform. Figure 2 summarizes some of the non-humans actors at work as "technolegislative agency": conceptualizing how non-humans might influence service delivery, and the power they might have in sociomaterial configurations (Kimbell & Blomberg, 2017). However, why was the system like this in the first place? Can we simply refer to it as "terrible design"? Can we even describe design as such?
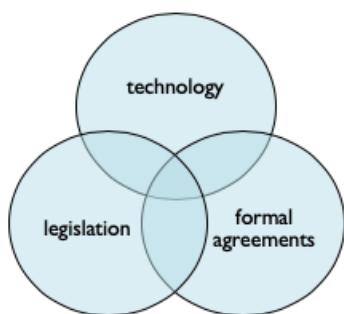
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Figure 2: Non-human agencies in service delivery: technolegislative agency

Agencies of the past

Lack of coordination between levels of care means information does not follow the patient, and the patient or dependents are left to bridge the resulting information gap – if possible.

Coordination had been on the policy agenda since the first health care ICT strategy published in 1996 (The Norwegian Department of Health and Care Services, 1996). In the period 1996-2008, e-messages were continuously highlighted in Norwegian health care policy as the best solution to the "wicked problem" of coordination: reflected in the aims, measures and priorities set. Indeed, "coordination by e-messaging" became a powerful agenda-setting actor speaking for the issue of coordination, enrolling developments in organizing, technology, architecture and legislation. See Figure 3 for a simple visualization.
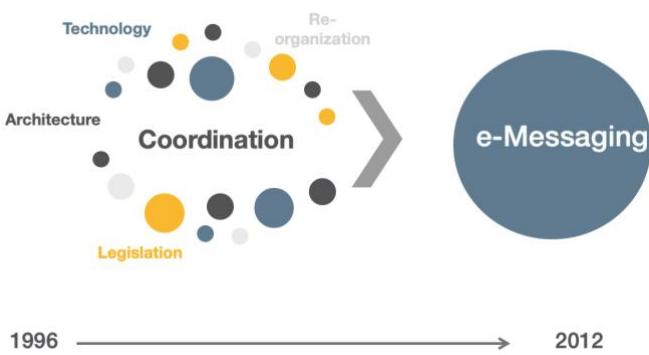
Figure 3: e-messaging as solution to e-messaging, enrolling other actors

Between the years 2005-2012, several continuous public innovation projects developed national standards, architecture, methods and legislation focused on e-messaging. When design professionals (ICT-suppliers) finally made their solutions close to the date of implementation, they had to utilize the previously-developed standards, legislation and frameworks.

These findings are in line with the insight that services "begin" with policy making, and that all those who seek to design services should have a conscious relationship to the role of policy (Buchanan et al., 2017;

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Junginger, 2013). However, it also provides insights into the role of non-humans as co-designers over time, specifically as powerful "agenda-setters", enrolling other actors. When design professionals entered the process, standards and regulations were indeed as – or more – powerful in designing e-messaging: enrolling designers into *their* network, rather than the other way around.

Agencies for the future: barriers to change

The first part of this section of the paper introduced the challenges which emerged in service delivery, and as a result the Hospital initiated a local re-design project. However, at this point, e-messages were no longer assumed to be the best solution to coordination between levels of care: a new policy document from 2012 argued that they might even be part of the problem, and that *access to* should be prioritized over the *exchange of* information (The Norwegian Department of Health and Care Services, 2012). It was then difficult to get national support to change e-messages, and re-design had to be "squeezed in between" restrictions set by existing standards, legislation, the existing interface and local information security measures.

However, the technology was not the only part of the service delivery. There was some leeway in "the social" (Baek et al., 2018) meaning local routines, as well as non-digital aids/tools such as paper lists. Figure 4 below illustrates some of the possibilities and restrictions in service delivery as local sociomaterial practice at the Hospital.
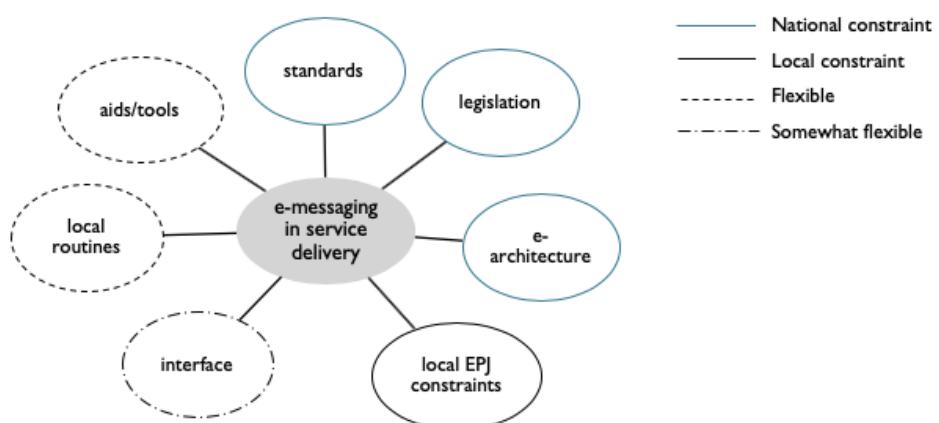
Figure 4: E-messaging as a solution to e-messaging

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A new solution which exploited the flexibilities of service delivery was implemented at the Hospital in 2017. However, it was not like any of the creative and ambitious solutions suggested by users in co-design workshops. Aspects of the existing technology, standards and regulations formed barriers to re-design outside the mandate of local users. Changing standards and regulations would require support at a national level and would take years (Manzini, 2014a). The new solution was a small hospital-wide technological "fix" within the existing standards and regulations. It was to be complimented by a small paper list, but this was never really used in practice. In many ways, this exemplifies how there are accountabilities far beyond a (re-)design project, related to larger political priorities as well as policy-development processes (Kimbell & Blomberg, 2017).

Emerging conclusions

In this short work-in-progress paper, I explore how applying a processual approach and objectivist strands of STS might bring to the fore new accountabilities and new temporalities as suggested by Kimbell and Blomberg (2017). I found that non-humans such as policy ideas, instruments such as regulation and ICT indeed had the capacity to influence the design, practice and re-design of public service delivery.

This might be useful when attempting to conceptualize the relationship between policy, service delivery and design – and might help explain why so many innovations fail, or spark unexpected consequences in the Norwegian public sector (The Norwegian Department of Health and Care Services, 2012; The Office of the Auditor General, 2015). This is in line with Junginger's (2013) critique of the divide between the realm of policy and design, and an argument for designers to familiarize themselves with this dynamic – to avoid becoming the ICT-suppliers in this study.

This work-in-progress paper has two main emerging implications for conceptualizing designing for service. The first is that non-humans have the capabilities to co-design service delivery in practice and influence its design and re-design. Second, non-humans should not be equated with the material/technological– there are many "shades" of agency indicated by Latour (1996): non-humans such as policy ideas might also enroll actors into its network. Third, this invites us (again), to look beyond the immediate design project – to what happens in practice after design

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(Kimbell, 2009), but also what leads up to it (past) and the initiatives that might follow (future). Indeed, this paper suggests the value of a processual approach to designing as part of larger developments, mapping influences over time and space.

References

Agger, M. E. (2014). *What triggers us?! A close look at socio- material situations of co-designing services.* In proceedings of the fourth Service Design and Service Innovation Conference. 9-11 April 2014. Lancaster University, UK. Lindköping University Press. p. 259-269.

Almquist, F. (2017). The fuzzy front-end and the forgotten back-end: User involvement in later development phases. *The Design Journal*, 20, 2524–2533. https://doi.org/10.1080/14606925.2017.1352765

Baek, J. S., Kim, S., Pahk, Y., & Manzini, E. (2018). A sociotechnical framework for the design of collaborative services. *Design studies,* 55, 54-78. https://doi.org/10.1016/j.destud.2017.01.001

Baek, J. S., Meroni, A., & Manzini, E. (2015). A socio-technical approach to design for community resilience: A framework for analysis and design goal forming. *Design studies,* 40, 60-84. https://doi.org/10.1016/j.destud.2015.06.004

Bason, C. (Ed.) (2014). *Design for Policy*. Surrey, UK: Gower Publishing Limited.

Buchanan, C., Junginger, S., & Terrey, N. (2017). Service design in policy making. In D. Sangiorgi & A. Prendiville (Eds.), *Designing for Service. Key Issues and New Directions* (pp. 183-198). London: Bloomsbury Academic.

Callon, M. (1999). Actor-network theory - the market test. In J. Law & J. Hassard (Eds.), *Actor Network Theory and after* (pp. 181-195). Oxford, UK: Blackwell Publishing.

Ehn, P. (2008). *Participation in design things*. The Tenth Anniversary Conference on Participatory Design. September 30- October 4. Indianapolis, USA.

Hellesø, R., Lorensen, M., & Sorensen, L. (2004). Challenging the information gap- the patients transfer from hospital to home health care. *International Journal of Medical Informatics,* 73, 569-580. https://doi.org/10.1016/j.ijmedinf.2004.04.009

Adeline Hvidsten
The hidden 'co-designers' of service: exploring policy instruments in e-messaging
Linköping University Electronic Press

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Hernes, T. (2007). *Understanding organization as process: Theory for a tangled world.* London, UK: Routledge.

Junginger, S. (2013). Design and Innovation in the Public Sector: Matters of Design in Policy-Making and Policy Implementation. *Annual Review of Policy Design,* 1(1), 1-11. https://ojs.unbc.ca/index.php/design/article/view/542

Junginger, S. (2017). *Transforming Public Services by Design: Re-Orienting Policies, Organizations and Services around People.* London, UK: Routledge.

Kaghan, W. N., & Bowker, G. (2001). Out of machine age?: complexity, sociotechnical systems and actor network theory. *Journal of Engineering and Technology Management,* 18, 253-269. https://doi.org/10.1016/S0923-4748(01)00037-6

Kimbell, L. (2009). *Beyond design thinking: Design-as-practice and designs-in-practice.* The CRESC Conference. September 2009. Manchester, UK. http://www.lucykimbell.com/stuff/Practicedesignthinking.pdf

Kimbell, L., & Blomberg, J. (2017). The object of service design. In D. Sangiorgi & A. Prendiville (Eds.), *Designing for Service. Key Issues and New Directions* (pp. 81-92). London: Bloomsbury Academic.

Langley, A. (1999). Strategies for Theorizing from Process Data. *Academy of Management Review,* 24(2), 691-710.

Langley, A., Smallman, C., Tsoukas, H., & Van de Ven, A. H. (2013). Process Studies of Change in Organization and Management: Unveiling Temporality, Activity, and Flow. *Academy of Management Journal,* 56, 1-13. https://doi.org/10.5465/amj.2013.4001

Latour, B. (1996). On actor-network theory: A few clarifications. *Soziale welt,* 47, 369-381. https://www.jstor.org/stable/40878163

Latour, B. (1999). On Recalling ANT. In J. Law & J. Hassard (Eds.), *Actor Network Theory and after.* Oxford, UK: Blackwell Publishing.

Latour, B. (2005). *Reassembling the Social. An Introduction to Actor-Network-Theory.* Oxford, UK: Oxford University Press.

Manzini, E. (2014a). Design and policies for collaborative services. In C. Bason (Ed.), *Design for Policy* (pp. 103-112). Surrey, UK: Gower Publishing Limited.

Adeline Hvidsten
The hidden 'co-designers' of service: exploring policy instruments in e-messaging
Linköping University Electronic Press

455

Manzini, E. (2014b). Making Things Happen: Social Innovation and Design. *Design Issues,* 30(1), 57-66. https://doi.org/10.1162/DESI_a_00248

Meroni, A., & Sangiorgi, D. (2011). Introduction to Design for Services. In A. Meroni & D. Sangiorgi (Eds.), *Design for Services* (pp. 9-36). Aldershot, UK: Gower.

Mortati, M., & Villari, B. (2014). *Design for Social Innovation. Building a framework of connection between Design and Social Innovation.* In proceedings of the fourth Service Design and Service Innovation Conference. 9-11 April 2014. Lancaster University, UK. Lindköping University Press. p. 79-88.

Mørk, B. E., Hoholm, T., & Aanestad, M. (2006). Constructing, enacting and packaging innovations. *European Journal of Innovation Management,* 9, 444-465. https://doi.org/10.1108/14601060610707867

Orlikowski, W. J., & Scott, S. V. (2008). 10 Sociomateriality: Challenging the Separation of Technology, Work and Organization. *The Academy of Management Annals,* 2(1), 433–474. https://doi.org/10.5465/19416520802211644

Overkamp, T., & Holmlid, S. (2016). Views on Implementation and How They Could Be Used in Service Design. In N. Morelli & G. F. de Götzen (Eds.), *Service design geographies* (pp. 205–214). Linköping, SE: Linköping University Electronic Press.

Penin, L. (2018). *An Introduction to Service Design: Designing the Invisible.* London, UK: Bloomsbury Publishing.

Sangiorgi, D. (2009). *Building Up a Framework for Service Design Research.* In proceedings of the 8th European Academy of Design Conference. April 1-3, 2009. Aberdeen, UK. http://ead09.rgu.ac.uk/Papers/037.pdf

Steinberg, M. (2014). Strategic Design and the Art of Public Sector Innovation. In C. Bason (Ed.), *Design for Policy* (pp. 87-100). Surrey, UK: Gower Publishing Limited.

The Norwegian Department of Health and Care Services. (1996). *More Health for Every Byte (1997-2000).* Oslo: Department of Health and Care Services.

The Norwegian Department of Health and Care Services. (2012). *One citizen - one journal: Digital services in the health and care sector.* (Meld. St. 9 (2012-2013)). Oslo: The Norwegian Department of Health and Care Services.

Adeline Hvidsten
The hidden 'co-designers' of service: exploring policy instruments in e-messaging
Linköping University Electronic Press

456

The Norwegian Ministry of Health and Care Services. (2008). *Summary in English: The Coordination Reform: Proper treatment – at the right place and right time.* (Report No. 47 (2008-2009) to the Storting). Oslo: The Norwegian Department of Health and Care Services.

The Office of the Auditor General. (2015). *The Office of the Auditor General's examination of the realization of gains in public ICT-projects* (Administrative report no. 1 (2015)). Oslo: The Office of the Auditor General.

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Being community and culturally-led: Tensions and pluralities in evaluating social innovation

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Abstract

Evaluating benefits for society is a common requirement for most social innovation programmes, yet evaluating social impact is one of the most challenging tasks. This challenge has salience for service design and designing social innovation – both fields that seek to make social impact. This paper shares insights from researching social innovation practices in Southeast Asia. We draw attention to intelligent ways practitioners in Cambodia, Indonesia, Malaysia, Myanmar and Thailand are evaluating work with social outcomes, and from this, we generate a propositional framework that supports the core principles observed. We place this framework alongside dominant and traditional models of evaluation to highlight epistemic, political and power differences between them, and reinforce the importance of diversifying evaluative approaches. We demonstrate how alternative evaluative practices are community and culturally-led through specific examples, to reinforce the core principles of building trust, participatory collaboration and being grounded in place, culture and locality.

Keywords: evaluation, social impact, designing social innovation, community, culturally-led

Challenges of evaluating impact

While it is a common requirement for most social innovation programs, monitoring and evaluating generated benefits for society, often referred to as social impact, is a significant challenge. For example, an OECD (2010) report on social sector innovation describes a lack of clarity in what constitutes social impact, and this in turn, disables ways to recognise and account this in current practices (Nicholls, 2009). When we trace how, where and why there are significant barriers to evaluating social impact, it becomes evident that these are complex and compounded. One key issue identified is that evaluation is predominantly driven from a funder's perspective to evidence accountability and measure against predefined criteria. Various studies have found that the majority of the methods used in evaluating social impact are based on financial accounting and reporting tools (Antadze and Westley, 2012; Mulgan, 2010; Nicholls, 2015). Another study into existing evaluation methods for social innovation argues that methods originating from an economic-based model are "ill-suited to explore, account for, or to support potentially-transformative social innovation" (Weaver & Kemp, 2017, p. 1). Furthermore, the cause and effect mechanism usually linked to results-oriented methods are especially problematic in initiatives that aim to be transformative, due to its engagement with complex systems, sectors and communities.

Other fundamental issues include differing assumptions, expectations and practices relating to evaluation between the funder and practitioners. Top-down evaluation by funders reinforces the power-dynamics of aid (Hinton & Groves, 2004). This is a disempowering experience for communities. Standard models of evaluation that are usually preferred and deployed in the West, are assumed to transfer seamlessly to the rest of the world (Bala-Miller et al, 2008), inadvertently obscuring or replacing cultural, traditional and heterogeneous practices. All together, these present a significant challenge in current evaluation discourse, requiring alternative models that can capture and evaluate multi-dimensional impacts for various stakeholders.

In response to these challenges, calls have been made to develop alternative frameworks that would not only address current limitations of conventional approaches (Antadze & Westley 2012), but support and enable transformative innovation to emerge. For example, Preskill and Beer (2012, p. 2) suggest the importance of meaningful evaluation of

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social innovation needs to be "designed to give innovators the information and data they need to discover new patterns and pathways, to rapidly test solutions and abandon the ones that fail, and to detect what's emerging in response to their efforts" and "to support adaptation and leave space for the unexpected". Similarly, the 2016 British Council's report (Dovey et al., 2016) on Creative Hubs highlighted the problematic nature in using quantitative metrics to measure the broad range of social impact arising from creative activities. Efforts to address this gap have emerged from different sectors, evidenced by interest from the British Council (2019), Design and Evaluation symposium (2019) organised by the Australian Evaluation Society, and this interest is also emerging in service design (see Foglieni et al., 2018).

More current interest in exploring synergies between design and evaluation coincides with the research program underway through Designing Social Innovation in Asia-Pacific (DESIAP). The first two authors are co-founders of this learning platform. Since 2015, we have been working with various practitioners and researchers in this region through frequent, co-located events to connect, share and generate mutual understanding of designing social innovation, driven by the growing need to support communities in addressing social problems in Asia-Pacific (Akama et al, 2019; Akama & Yee 2016). DESIAP 2017 Kuala Lumpur workshop and public symposium on impact evaluation invited leading researchers and change-makers from Malaysia, Thailand, Myanmar, Cambodia, Indonesia and the Philippines to share their experiences and identify challenges and opportunities related to evaluating the impact of their work. These practitioners represented a broad spectrum of working with communities across different countries on a variety of pressing social issues. The discussion also confirmed the obstacles summarised above from published literatures regarding the challenges of evaluation in this sector.

We have analysed the insights from this event and synthesised it into a propositional Designing Social Innovation (DSI) Evaluation framework (see Figure 1). A complete account can be read in our report (Akama et al, 2019). The next section describes the framework's principles and evidences them through examples from DESIAP KL participants' work, followed by discussion on navigating some of the tensions and paradoxes of the social impact landscape.

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Principles of DSI evaluation

Many of the initiatives we observed are focused on building capacity through learning and transformation. The practitioners value insider and lay knowledge, respecting experience grounded in particular cultures. We found that practitioners often have to be flexible and use improvisatory tactics in order to adapt to dynamic shifts in projects. It is in these contexts that we explore how alternative evaluative practices have emerged.

The emergent nature of designing social innovation (DSI) means that the primary purpose of doing evaluation is to understand what has been done, what has been achieved to date and how best to progress the work. In contrast to traditional evaluation that assumes or predefines what 'success' is and seeks to evaluate it as an outcome of a project, the practitioners that we observed are continually reframing what 'success' means. They do this by evaluating their process, progress and emerging outcomes with the communities they serve. This means evaluative criteria and processes do not exist outside of a project, but instead are fully embedded and continually changing during the project. Framing evaluation this way allows a shift from a judgemental tone that can be discouraging towards one that aligns with common processes and outcomes that most practitioners understand. This shift also places emphasis on learning, adaptation and an assessment function, in contrast to traditional evaluation that stresses objective, distant, summative, top-down appraisal and measurements that connote numerical quantification.

Another significant feature we observe and highlight is how DSI evaluation is community-led. This means evaluation is based on parameters that make sense to the community, which requires practitioners, funders and intermediaries to understand and address community needs and co-define what 'success' and 'achievements' means. Tensions can arise when there is a lack of meaningful relationship and understanding built between these constituents. When funders or commissioning parties lack understanding and ways to value co-design, participatory or human-centred design process as an important outcome in and of itself, this can lead to a misalignment of expectations and challenges in implementation, and risks outcomes for all concerned.

DSI evaluative practices co-define aims and criteria with community beneficiaries and often follow a learning-by-doing approach. The keystone, articulated in Figure 1, is building trust; participatory collaboration; and

being grounded in place, culture and locality. These are common and consistent features that manifest themselves in all nine principles. We observed that impactful DSI practices already have evaluative practices embedded in their approach, hence it is important to acknowledge that these keystone principles are important for both DSI and evaluative practice and are in fact synergetic. In other words, embedding evaluative approaches enables the observed DSI practices to be impactful, and this is the key difference with traditional summative models that separates evaluation as a post-project phase or principle. The following section introduces these principles and summarises how these are enacted in different contexts.
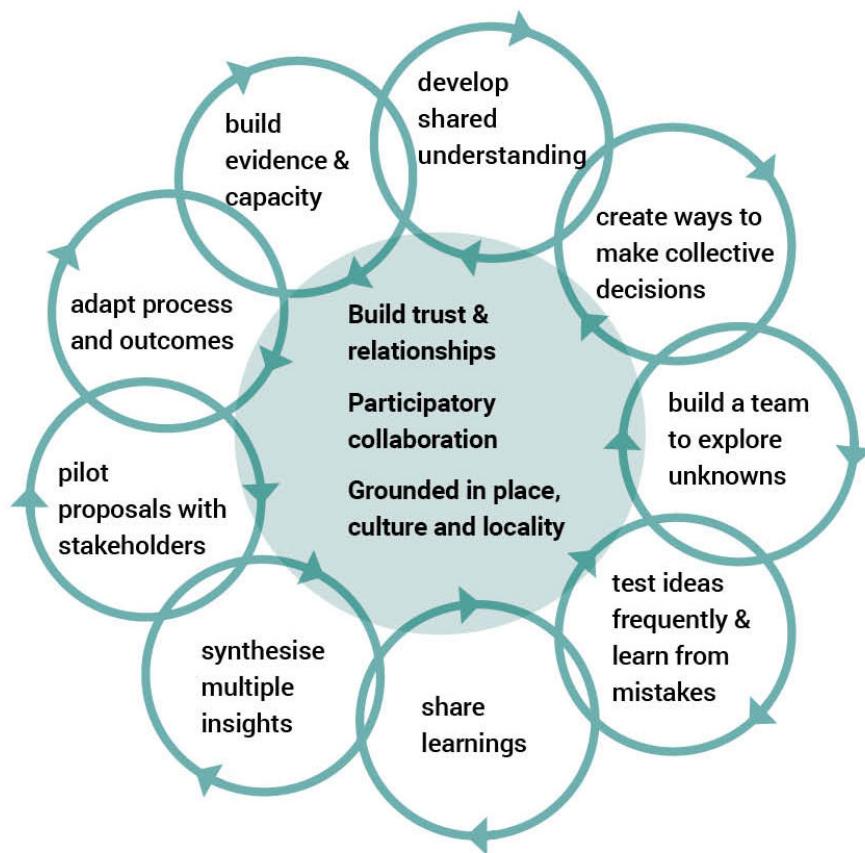
Fig. 1 Designing Social Innovation Evaluation framework

Build evidence and capacity

This principle describes how work is structured and findings are shared in a way that informs, enables and empowers the community. Point B Design and Training is a learning and social innovation lab based in Mawlamyine,

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Myanmar. Since 2014, they have been delivering programmes aimed at introducing explorative and creative learning approaches to young Myanmar nationals. Htet Yin Tun and her colleagues at Point B describe evidence of impact as identifying and demonstrating how learning took place. When UNICEF commissioned them to work with Myanmar's Ministry of Social Welfare to embed human-centred values, Htet's team began by understanding case workers' needs and how to scaffold their learning. 2015 was the first time in Myanmar's history that governmental children's social services were introduced. To help Htet evaluate how human-centred tools and practices they introduced have impacted on the case workers' way of thinking, they used the 'most significant change' (Dart & Davies, 2003) method to invite accounts. This could be success stories, challenges or problems that they had to overcome through the use of the methods. Using this dialogical, story-based approach also helped bring self-awareness, courage and motivation for the case workers to move forward in their newly defined roles, evidencing ways they have built capacity. This enabled Htet's project team to recognise both large and small impacts that matter to the case workers.

Adapt process and outcomes

This principle aims for a balanced and grounded perspective, ensuring that the evaluation is useful and purposeful for all stakeholders. This is evidenced by INSTEDD iLab Asia which designs and uses open source technology to better deliver critical services to vulnerable populations living in the Mekong Basin. They have created a real-time smart phone app reporting on malaria incidents using mobile technology, requiring usability and technical evaluation of their products, but the compelling demonstration of this principle is seen in the way they also adapted existing tools to meet the needs and limitation of the local contexts. Sokmesa Khiev in the Cambodia office described using a co-design process with communities during the development of the prototype to consider the capacity and barriers (such as time and skills) to ensure that feedback and evaluation can happen easily, continuously, dynamically, and according to the community's timing and information they need. Providing training, support, and evaluating outcomes through a cycle of continuous improvement shows how they overcame common obstacles – lack of time, skills and capacity – to communities participating in evaluative practices.

Pilot proposal with stakeholders

This principle highlights the importance of co-designing and implementing data collection tools with the community. This ensures that the outcomes are locally grounded and relevant to community needs. Often this practice involves supporting community members to be active co-evaluators and co-researchers. Professor Fadzilah Majid Cook from the National University Malaysia works on projects in East Malaysia relating to environmental sustainability in coastal communities. It is more sustainable and effective to train community researchers to conduct interviews with the local community, rather than parachuting external researchers. This approach overcomes issues of trust and also ensures that the questions asked are grounded in local context and knowledge. This also helps build capacity with the local community in which skills of self-reflection, critical evaluation and questioning would often be helpful in areas where land ownership is commonly contested with the local authorities.

Synthesise multiple insights

This principle aims to be inclusive in how evaluation is conducted. An unconventional method shared by Dr Zeeda Mohamad, an Associate Professor from University Malaya (Malaysia) working on campus sustainability involved the use of social media. She is part of the Water Warriors initiative, a volunteer group made up of staff and students interested in water conservation on campus. They have been using social media (in particular Facebook) to crowdsource opinions and evaluate what they are doing over time. The group uses social media not just for real-time reporting of the campus lake's water quality but also to crowdsource opinions on possible solutions when problems arise. This has enabled them to respond to emergent issues in a more dynamic way. Responses to their Facebook posts have also given them the opportunity to collate different perspectives and engage stakeholders from outside the group. These interactions have enabled them to prioritise issues and led to the formation of special interest sub-groups. Whatsapp groups (Voice over IP service) are used to conduct a more deep-dive approach into a particular issue. This simple approach has proven to be an effective way for the group to gather a diversity of insights, generate interests and enable a collective problem-solving approach.

Share learning

This principle encourages practitioners to share their learning as a key part of their evaluation practice. They do this by recording and sharing what they have done, and what they have learnt through that with others. It also highlights the importance of celebrating effort, progress and achievements. Tandemic, based in Kuala Lumpur, partners with organisations to build innovation capabilities internally and does this in a way that considers the bigger picture – systems, incentives, business models. Emma Rhule (Chief Operating Officer) discussed how they used evaluation to improve their own practice, specifically looking at the efficiency and effectiveness of their approach in order to improve the impact they make. They approach this by using data to analyse and improve their process. For example, they wanted to know how many interviews were required before in-depth insights started to emerge. This learning informs future projects, and was used to better train staff in how they interview and the types of questions asked.

Test ideas frequently and learn from mistakes

This principle supports iterative learning and helps practitioners be more aware of unintended consequences and outcomes. SecondMuse Indonesia supported a North American incubator to design and deliver emergency solar-powered light for disaster settings. It needed to be cheap, lightweight, transportable, and a renewable light source. Simon Baldwin, SecondMuse Director, shared how they helped the organisation embed prototyping as a form of evaluation. As a result, the product went through 40-50 design iterations before the design was finalised. An unintended consequence of the prototyping and continuous engagement with users led the company to change their business model from a straightforward retail model, to a 'buy-one, give-one to community in need' model. Insights that emerged from the prototyping phase revealed that the product was not only useful in communities lacking access to infrastructure but also seen as a desirable 'hip' item for North American consumers. They realised that these consumers were willing to pay a premium for a product that was well designed and had a meaningful story behind it. This example illustrates how testing ideas and learning from them not only resulted in a better product, it helped create a different value proposition.

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Build a team to explore unknowns

This principle stems from an acknowledgement that we do not know everything and that we need to ensure we have the appropriate people, processes and approaches in place to reveal what we do not know. Doing so in a sustainable and realistic manner ensures that the initiative continues even when the main funding or project implementers have left. The example of the Water Warriors (WW) community group described earlier demonstrated the use of social media to share problems and recruit interested citizens and experts in other communities to collectively problem-solve. The WW team uses a heartware approach (Mohamad et al, 2015) to engage and attract a broad range of stakeholders to contribute to the initiative. A heartware approach prioritises shared values, local traditions, folk stories and a sense of community to reconnect people back to a place. Activities such as 'gotong-royong' sessions (communal work towards a shared goal) and the use of citizen science are some of the ways the heartware approach has enabled the WW team to call on people with different expertise to work together towards a common goal.

Create ways to make collective decisions

This principle recognises positional and personal authority and power, and the need to acknowledge, reveal, understand and work to manage unequal power relationships. Cyril Tjahja, a PhD student at Northumbria University, illustrated the importance of understanding the social hierarchy of a community to enable collective decision making. CROSSs, a social architecture agency, often works in rural areas of Thailand using a participatory approach on a wide range of projects, from the redesign of interior spaces to city-wide urban renewal. For the city-wide renewal project in the town of Chumsaeng, CROSSs proposed that the participants sit in a circle during community meetings. This physical reconfiguration changed the social dynamic of the participants and contributed (at least during the meetings) to the equalisation of the power relationship present in the community. The community clearly saw the value in this new form of communication and has since adopted this model for subsequent community meetings.

Develop shared understanding

This principle explores bias and assumptions built up through culture, context, lived experience, training, role etc. It requires that we test against

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our own and others perspectives and belief systems in order to create an open space for shared understanding to develop. For example, what does success mean to people, and to the community and what might it look like? Assistant Professor Boonanan Natakun, Thammasat University, Thailand uses co-design and participation methods to build community resilience for disaster. He uses various objects, maps and visualisations in a fun, accessible, learning action approach to identify and share resources used every day on a community map. This allows people to express what they see as important, enabling different living cultures and lifestyles to contribute to community resilience. Using creative methods to visualise and articulate these values is important, since they are often hidden or at worst assumed. Making values, perspectives and assumptions tangible enables conversations about them to occur and opens up a space for the development of a new set of shared values and understanding.

Discussion: navigating paradoxical landscape

While the principles and practices of DSI Evaluation are evident and may guide ways to encourage alternative approaches to impact evaluation, there are significant challenges and tensions in navigating the paradoxical landscape of social impact. This paradox is characterised by asymmetries in epistemologies, perspectives, priorities, power and norms. Funding organisations based in the West, the Global North and wealthy economies often commission projects on behalf of (rather than by) the recipient communities. This means the projects are already pre-defined by goals, objectives and success based on Western knowledge, critique and analysis, which has a tendency to privilege independence and objectivity. This is why traditional, formative and summative evaluation aims to test and assure accountability by an outsider. Projects are required to respond to a predefined issue, problem or opportunity identified by the commissioning party. These asymmetries, compounding existing power asymmetries of aid, can omit epistemologies from marginal cultures and communities, whose perspectives, experiences and approaches are arguably just as central. These are entrenched, paradoxical realities for many we spoke with at DESIAP KL, like in Cambodia, where a majority of local organisations are dependent upon foreign aid for survival and delivery of services to their communities, a condition reflected in the Philippines and Thailand (Khieng & Dahles, 2014).

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Evidence of practitioners navigating this complex landscape attests to their intelligence and ingenuity. They may not self-identify as 'designers', as they have not been formally trained in design, but their work involves communities in ways that resembles co-design, human-centred design and participatory approaches. For example, their project activity is iterative, based on real-time learning by doing, iteration and adaption to explore opportunities, needs, interests, priorities and potential responses at a grassroots level. They listen to communities and value insider, lay knowledge and experience. Community members act as project informants, participants, co-creators and co-researchers to define goals, objectives and successes. The highly collaborative nature and shared ownership means there is a significant investment of time and effort to build trust and relationships with and within the community and other relevant stakeholders towards community empowerment. It is reflexive and intuitive, providing multiple points of connection to build a shared understanding of the opportunity / problem being worked on and how best to respond to it.

Evaluation in DSI practices is used to continually develop and improve the outcomes of the work. Here, we have shown how evaluative practices inform the focus and design of the project, understand what is happening (at a system, community and activity level) and what is being achieved. These practices provide sources of information through which those engaged in an initiative can reflect on and adapt to what they are learning, to improve and innovate in a real-time basis. We believe our propositional framework shows promise as an alternative evaluation framework for community-led, culturally grounded and iterative social innovation initiatives.

Conclusion

Arguably, there is more work, research, education and guidance needed to shift from a structured, externally-defined evaluation to an emergent, community-led, culturally-grounded practice for the social impact sector. Yet our research also evidences how co-design, service design and participatory approaches show significant potential in aligning and enabling such opportunities. However, we also caution that the same asymmetries in epistemologies, perspectives, priorities, power and norms

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of evaluation are mirrored in design, and thus, must be interrogated as part of this work. For researchers and practitioners who are willing to embrace this challenge and opportunity, we invite you to try out the propositional DSI Evaluation Framework and test, break, adapt and make it fit with the constituents, communities and social issues that are being addressed. We do not claim universality or guarantees, rather, we welcome input and possibility for its further iteration, as fellows sharing the same aims in exploring designing social innovation.

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References

Akama, Y. & Yee, J (2016). Seeking stronger plurality: Intimacy and integrity in designing for social innovation. In C. Kung, E. Lam & Y. Lee (Eds). Cumulus Hong Kong 2016 – Open Design for E-very-thing, Cumulus Association.

Akama, Y., Yee, J., Hill, R., & Tjahja, C. (2019). Impact and Evaluation in Designing Social Innovation. Insights from the DESIAP KL Workshop & Symposium, DESIAP. https://desiap.org/insights/impact-evaluation-in-designing-social-innovation-report/

Antadze, N., & Westley, F.R. (2012). Impact metrics for social innovation: Barriers or bridges to radical change? Journal of Social Entrepreneurship 3(2), 133-150. https://doi.org/10.1080/19420676.2012.726005

Australian Evaluation Society (2019). Design and Development Symposium. 22-23 July 2019. Jointly organised by Australian Evaluation Society, Auckland Co-design Lab, the Australian Centre for Social Innovation (TACSI), Developmental Evaluation Institute and Clear Horizon Consulting.

Bala-Miller, P., Marras, I. & Zacarias, A. (2008). Creative Communities: Their role and impact on welfare and development. In F. Jégou & E. Manzini (Eds.), Collaborative Services: Social Innovation and Design for Sustainability, (pp. 133-136). Edizioni POLI.design.

British Council (2019). Open call for researcher: Landscape and Social Impact of Creative Hubs in the Philippines. https://creativeconomy.britishcouncil.org/blog/19/07/05/open-call-researcher-landscape-and-social-impact-c/

Dart, J. & Davies, R. (2003). A Dialogical, Story-Based Evaluation Tool: The Most Significant Change Technique. American Journal of Evaluation. 24(2), 137–155. https://doi.org/10.1177/109821400302400202

Dovey, J., Pratt, A.C., Moreton, S., Virani, T.E., Merkel, J. & Lansdowne, J. (2016). The Creative Hubs Report: 2016. UK: British Council. Retrieved from: https://creativeconomy.britishcouncil.org/media/uploads/files/HubsReport.pdf

Foglieni, F., Villari, B. & Sleeswijk Visser, F. (2018). About evaluation in service design: As it is and how it could evolve. In A. Meroni, A. M. O. Medina & B. Villari (Eds.). ServDes 2018, Linköping University Electronic Press.

Hinton, R. & Groves, L. (2004). The complexity of inclusive aid. In L. Groves & R. Hinton (Eds.), Inclusive Aid: Changing power and relationships in international development. (pp.3-21). Earthscan.

Khieng, S. & Dahles, H. (2014). Resource dependence and effects of funding diversification strategies among NGOs in Cambodia. VOLUNTAS: International Journal of Voluntary and Nonprofit Organizations 26(4), 1412–1437. https://doi.org/10.1007/s11266-014-9485-7.

Mohamad, Z. F., Nasaruddin, A., Kadir, S. N. A., Musa, M. N., Ong, B., & Sakai, N. (2015). Community-based shared values as a 'Heart-ware' driver for integrated watershed management: Japan-Malaysia policy learning perspective. Journal of Hydrology, 530, 317-327.

Mulgan, G. (2010). Measuring social value. Stanford Social Innovation Review, Summer, 38-43. https://ssir.org/articles/entry/measuring_social_value#

Nicholls, A. (2009). 'We do good things, don't we?': 'Blended value accounting' in social entrepreneurship. Accounting, Organizations and Society, 34(6-7), 755-769.

Nicholls, A. (2015). Synthetic Grid: A critical framework to inform the development of social innovation metrics. CRESSI Working Papers No. 14/2015.

Organization for Economic Co-operation and Development [OECD] (2010). Measuring innovation: a new perspective. http://https://www.oecd.org/site/innovationstrategy/measuringinnovationanewperspective-onlineversion.htm

Preskill, H. & Beer, T.C. (2012). Evaluating Social Innovation. FSG & Centre for Evaluation Innovation, USA. https://www.fsg.org/publications/evaluating-social-innovation

Weaver, P. M. & Kemp, R. (2017). A review of evaluation methods relevant for social innovation: with suggestions for their use and development (TRANSIT working paper #14, July 2017), TRANSIT: EU SSH.2013.3.2-1 Grant agreement no: 613169.

Joyce Yee, Yoko Akama, Khemmiga Teerapong
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Can design thinking techniques drive citizen engagement in public sector consultation?

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Abstract

Human-centred design gains ever more traction within the Australian public sector.

But what of the application of design thinking in driving citizen engagement in public sector consultation? Which techniques add the most value?

In a behind-the-scenes look at a design-led public consultation, we (Splendid Studio) evaluate our choice of techniques and review project challenges.

Keywords: human-centred design, service design, public consultation, design thinking.

The ask

The City of Ballarat is the largest regional city in western Victoria with a population of 105,000.

The Council's Ballarat is Open project will deliver a 'Ballarat Prosperity Framework', comprising of:

- A vision for the City which describes what Ballarat stands for and aspires to as a city.

- A range of ideas and suggestions from the community about how they might play a part in demonstrating this 'brand' for Ballarat.

The framework seeks to deliver:

- Higher economic value for Ballarat.

- Greater population retention, resident and business attraction, and tourism visitation.

- Enhanced community resilience, empowerment and inclusion for all.

The Council was keen to employ a design-led approach to the citizen engagement portion of this project.

They requested 10 two-hour sessions for 20 participants, open to any interested Ballarat community member, and a six-hour session for an invited audience of 40 community and business leaders.

Sessions would be in a variety of locations.

Methodology

We devised activities with flexible running times which required no background knowledge or preparation by participants.

One activity set, more 'current state' focussed, evaluated previous council activities, and explored perceptions of the City. We examined what was valued in both a regulatory and community sense and pinpointed perceived roadblocks. There was some exploration of perceived solutions.

The second set was more exploratory, teasing out citizens' vision for the future and encouraging concepts to deliver on this vision.

Here are our choices:

Current state analysis

Bullseye diagramming

A review and evaluation of key statements from the project discussion paper was required. Bullseye diagramming (see Figure 1) invited groups to prioritise statements. Follow-up conversations, from which we captured key feedback and verbatim quotes, drilled into the 'why' behind the selections.
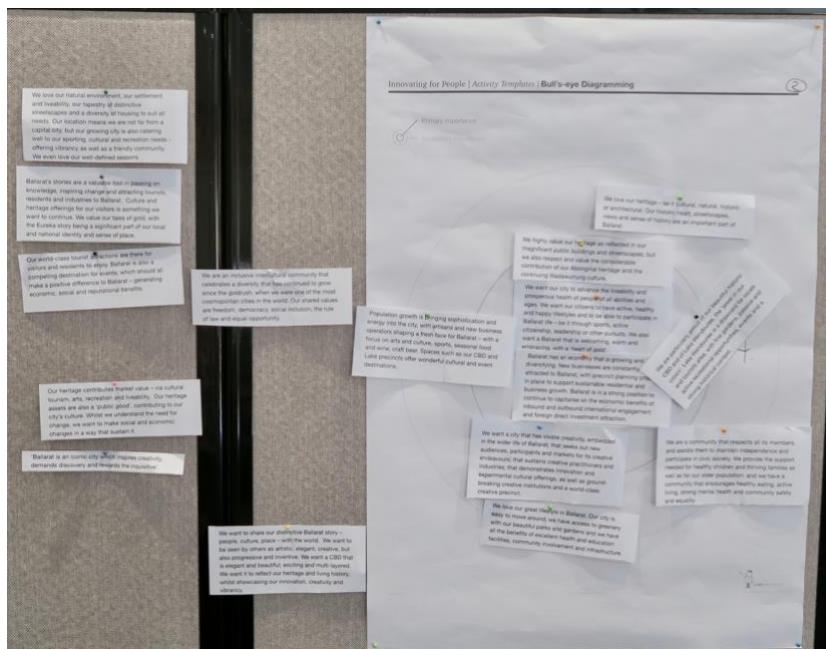
Figure 1: Bullseye diagram

Boat and island game

We adapted the speedboat game (see Figure 2), a technique in the book Innovation Games (Hohmann, n.d.) to identify roadblocks, and to explore

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aspirations. Groups placed post it notes on the following elements of a drawing:

- The boat: symbolising the City of Ballarat.

- The island: representing where we want to head.

- The anchors: representing the elements holding us back.

Each group affinity-mapped their submissions. Again, follow-up conversations explored the 'why' behind the submissions.

Figure 2: Boat and Island game

Brand personality

The Council wanted to define a current and future 'brand personality' for the City based upon Faber and Meyer's 12 brand personality archetypes, as explored by Candice Roberts at East Tennessee State University (Roberts, 2010).

We selected three descriptors from each 'personality', displaying them on 'now' and 'future' posters and inviting dot voting (see Figure 3).

Figure 3: Brand poster

Future Vision

Creative matrix and concept posters

Our creative matrix exercise (Figure 4), based upon a Luma Institute technique (Mural, n.d.), invited groups to generate creative solutions at the intersection of 'how might we….' questions and 'solution enablers' such as technology and digital media.

We used dot voting to shortlist ideas, and concept poster production (Figure 5) for these shortlisted ideas, adapting from another Luma technique (Mural, n.d.).

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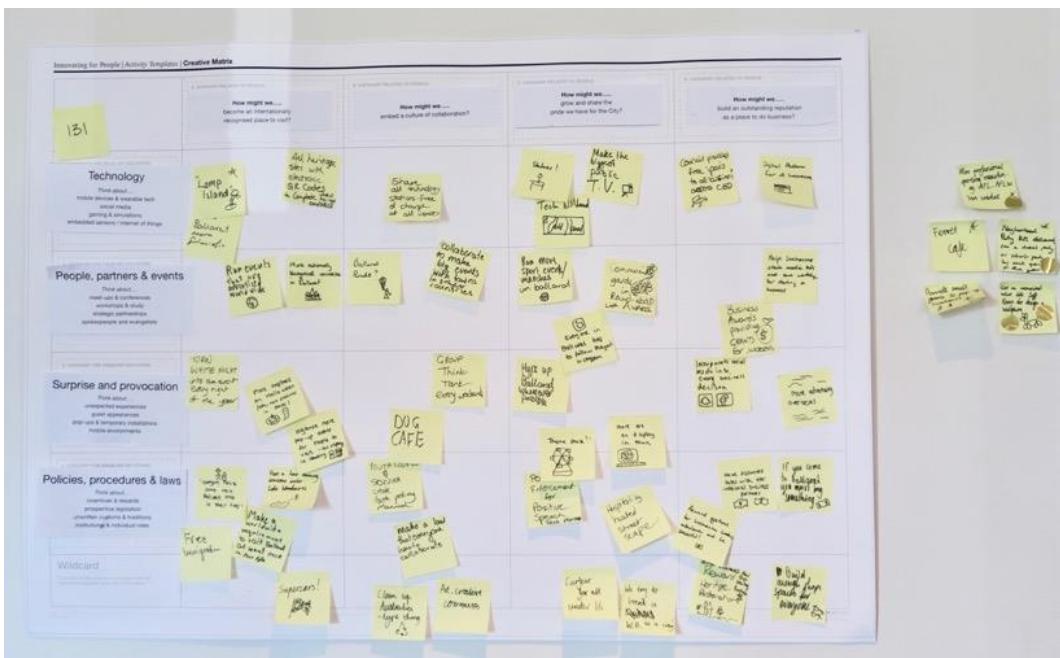
Figure 4: Creative Matrix

Figure 5: Concept poster

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Key Learnings and Outcomes

Recruitment and participation

Sessions were publicised through the local press (Attwooll, 2019), TV and via the Council's website and social media.

Despite a range of dates, times and locations, initial public response was mixed. Citizens in lower socio-economic areas, younger people, and CALD citizens were under-represented in the responses.

The Council consulted with a number of representative bodies to address this, but gaps remained.

Future enhancements could include:

- Offering financial incentives to attend (as we do with customer research projects).

- 'Going where the people are' (fetes and shows, shopping centres etc).

- Running shorter sessions to lower the barrier to entry.

- Proactive dialogue with community groups to aid recruitment.

Format and choice of exercises

The format and exercises were highly effective in engaging citizens.

The statements used in the bullseye diagramming exercise were overlong and confused some participants. Judicious editing would have helped.

We encouraged individual working within teams before sharing. This ensured everyone had input and we didn't stifle divergent opinion.

Group discussion at the end of each exercise added more context and depth to our findings by quickly revealing and building upon key themes. It also gave us a 'safe' space to check out areas where opinions differed.

It is clear that strong facilitation, thoughtfully structured follow-up questions and rigorous note taking are extremely important in ensuring success.

Despite warm-up exercises, we found a small minority of participants snapped back into 'pet ideas', presenting concepts they already liked or were working on.

Raising the level of challenge through more abstract 'enablers' and adding constraints (such as 'no apps allowed') would potentially have driven even higher levels of creativity.

Reporting

We used 'light touch' synthesis, grouping comments and verbatim quotes thematically by session.

There was a high level of quality among the non-shortlisted creative matrix ideas, so we transposed all exercise outputs.

Outcomes and feedback

Over 680 unique ideas were generated. The final framework highlighted 59 of the concepts.

Our engagement also informed the overarching principles of the framework, which are:

1.   Our appetite for innovation, entrepreneurship, and technology.

2.   Our innate creativity.

3.   Our heritage.

4.   Our future sustainability.

5.   Our resilient and supportive community.

We've received the following client feedback:

> "It was one of our first attempts at using creative design thinking for a strategic and city-wide conversation. Splendid provided us with the

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inspiration and confidence we needed to push on into the uncertainty and produce the outcome we are so happy with. Every workshop was greeted with positive feedback from the participants, who found the engagement method refreshing and fun. Splendid built a good rapport with their reassuring, open and inquiring style. Their recording of the sessions was thorough and enabled a high level of thematic analysis to produce the final Ballarat Prosperity Framework."

References

Attwooll, J. (2019, October 8). *Public called to contribute to 'design thinking workshops' for new Ballarat is Open strategy*. Retrieved from The Courier: https://www.thecourier.com.au/story/6427526/call-for-contributions-to-design-thinking-workshops-for-ballarat-is-open-strategy/

Hohmann, L. (n.d.). *Innovation Games: Creating Breakthrough Products Through Collaborative Play*. Retrieved from Innovation Games: https://www.innovationgames.com

Mural. (n.d.). *Concept Poster*. Retrieved from Mural: https://www.mural.co/templates/concept-poster

Mural. (n.d.). *Creative Matrix*. Retrieved from Mural: https://www.mural.co/templates/creative-matrix

Roberts, C. (2010). *Exploring Brand Personality through Archetypes.* Retrieved from Electronic Theses and Dissertations: https://dc.etsu.edu/cgi/viewcontent.cgi?article=3046&context=etd

Relational identities: how service co-design can help improve the minority experience and becoming ourselves

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Abstract

Research shows that conventional care for older immigrants across the UK remains inaccessible. Cultural and system ensued barriers impact on self-confidence and personal agency. Often evading dealing with the state altogether, this user group rely heavily on word of mouth and informal family care. This significant lack of personal agency is shown to negatively impact on the construction of the 'self'. In answer to this impending social challenge, this preliminary paper explores how co-design methods can help strengthen the citizen-state relationship and cultivate community engagement. Through a review of literature and expert interviews, the study aims to shed light on the service experience of non-native peoples and uncover some of the service and system challenges that impact on the lives of this often-overlooked group. This forms part of a larger study that aims to improve social care services and the overall system of care for elderly immigrants in the UK.

Introduction

According to the Office of National Statistics in 2016, an estimated 21% of the UK-born population was at least 65 years old, where 10% are foreign-born residents (ONS, 2016). The largest ethnic groups in the UK are 'White other', 'Caribbean', 'South East Asian' and 'African' (ONS, 2016). Along with the main BME minority subgroups, most of whom are considered collectivist in their dynamic (Willis, 2012), if we were to break down the 'white other' subcategory further, we will also find traces of collectivist behaviour exhibited within communities of Turkish descent (Göregenli, 1997). The main characteristic of collectivist societies in the context of this study is explored in their approach to family and care dynamics. Specifically, in that they behave in a network reliant fashion, often having a close, long-term commitment to their family, extended family and community network. Stereotypes on increased informal care giving amongst ethnic groups in Britain is often a common dynamic (Willis, 2012). Assumptions that impact the provision of care in that user need is typically met through family and there is often a lack of need for institutional support (Schoenmakers et al., 2017).

The key driver for this study is that despite small changes that have recently been developed to consolidate care services in the UK around this user group, almost 70% of them still feel they do not know enough about current care system changes, services and opportunities (Healthwatch, 2018). Consequently, some authors argue that due to the limited use of care services by immigrant populations, institutions aren't stimulated enough to offer services tailored to their needs (Ahaddour et al., 2016). In his book presenting a selection of research in the field ('Migrants Unbound'), Paolo Ruspini argues that a lack of research and understanding often leading to simplistic assumptions have 'problematised' aspects of living for older immigrants (Ruspini, 2019). Overall, poor mental health adjustment, feelings of threat to identity and general well-being are found to be negatively impacting factors in the lives of ethnic older people (Radermacher & Feldman, 2015), aspects of which will be explored further in this paper.

By taking these considerations into account, co-design methods can be employed not only to provide better knowledge of existing structures of care. By using co-design, as tools-based activity and involving multiple stakeholder into the design process and using collaborative team approaches to allows non-designers to become equal members of the design team (Sanders and Stappers ,2008), we can increase engagement with hard to reach user groups and provide services that align with needs much more closely. Overall, this type of community participation is seen to strengthen the role of the citizens, which is identity-establishing and is considered a part of positive community development (Mueller et al., 2018).

The primary purpose of this exploratory, inductive study is to explore how the design of services and aspects of stigmatisation impact on the immigrant public service experience, including aspects of care. In consideration of how service co-design can help improve the current citizen-state relationship, the study explores social theory and its alignment with service interaction. Expert interviews, on the other hand, aim to uncover some challenges and aspects of improvement within said interactions. This is to form initial blocks of a larger study, which aims to establish a framework of co-design principles with insights from elderly immigrants for the use of service designers in the public and private sector, to help improve social care service appropriateness and engagement for this user group. As one study outlines, shifting focus away from experts and towards service users much more drastically is vital for service improvement: "the "ageing society" will not only generate higher demand for health and social care but could also help improve services much more efficiently" (Löffler et al., 2008).

Literature review

The literature review for this part of the study aims to uncover processes and structures in public services, as well as to show an understanding of the service experience of minority groups, with a special focus on immigrant elders. Social theory on the other hand, is used to better understand interactions and dynamics of the experience in minority groups. Finally, by identifying some of the current approaches and benefits of co-design in the public realm, processes and methods are outlined in order to provide a basis for development in later stages of this research.

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Access and service experiences of minority ethnic groups

Research shows that often unrealistic assumptions that needs are met through this user group's own family and community are made by service institutions put in place to support them (Schoenmakers et al., 2017). Access to statutory health and care services depict a comparable difference in health and well-being as well as care service utilisation amongst native and non-native service users (Verhagen et al., 2014). A significant lack of health literacy and support in making sense of the service structure are listed to contribute significantly to disengagement with state health and social care services. A study conducted on Black Ethnic Minority Elders (BME) in London by the King's Fund in 2002, referred to a lack of adequate care service advertising, poor service access, lack of interpretation services and lack of liaison with external independent sector service provider seriously harm BME service engagement (Kapasi et al., 2002). Ultimately, research suggests that we must place large importance on the feature of identity, specifically in co-design processes. Aspects of representation and identity formation play a large role in understanding how to transform relations of power and encourage civic service engagement processes (Renedo & Marston, 2011).

Benefits of co-design in public sector

As method that requires shared values, deep empathy and trust, co-design has been able to better understand, design and deliver public services, not only "as loosely coupled networks but as closely coupled systems'' (Laitinen et al., 2018). Research shows that since its inception in the health and care sector, co-design has supported active participation of patients, where it has significantly enhanced project outcomes in clinical care and quality improvement (Bowen et al., 2010). The quality of service design in co-design projects, however, has been listed as depending largely on four main parameters: how easy it is to get information, how useful the information is, what information is available, and how easy it is to use online services (where applicable) (Sinni, 2017). Keeping this in mind, co-designing social care services for marginalised, vulnerable users cannot be approached in the same way as regular co-design projects are structured, where studies list increased empathetic empowerment and enablement as two vital aspects in addressing the needs of older non-native people (Dietrich, 2017).

Research shows that inclusive and participatory approaches can lead to improved overall well-being outcomes, all the while, providing accessible services, increasing social capital and people's self-confidence as well as health and well-being enhancing attitudes (Sangiorgi, 2011).

Aligning with social theory

A study that aimed to examine the key socio-psychological elements of community engagement and participatory processes established that even where there was an institutional infrastructure to promote civic engagement with state services, successful public and community participation was hindered due to negative underlying processes (Renedo & Marston, 2011). Consequently, a link was made between the user's own self-image and the general social representations in participatory public processes. In conclusion, the study explored users' construction of their personal identities through engagement with professional discourse and how this could help foster community processes that are 'positive and enabling rather than negative and limiting'. Inhibitions, misplaced fear, and feelings of anxiety are just some of the factors associated with the dynamics of dealing with state services. These emotional responses cultivate a loss of agency and impact on the formation of our individual identities, preventing us from becoming our true selves, and instead adopting the identity or label that is being assigned to us as 'nomadic' individuals (Barrett, 2019).

One argument presented on the phenomena of culture is that one cannot study ethnicity, minority groups or the behaviour and characteristics of immigrant communities without in itself understanding the majority of culture in that society (Jenkins, 1994). It is therefore, important to point out that in understanding cultural difference and social dynamics, influential anthropologist Fredrik Barth's take on the philosophy dictates that what makes social groups different from one another is not exactly the feature of specific characteristics, but rather the interaction with other social groups (Freedman & Barth, 1970). In building a clear picture of the guiding principles of human behaviour, this means that there is a key intersection that must be considered: values and consciousness of the parent society as well as macro versus micro social interactions. The guiding principle here is the theory of relational identity, which communicates that on an individual level, we continuously position ourselves in relation to others,

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often defining ourselves according to these perceived relations (Shapiro, 2010).

Expert interviews

Six hour-long, semi-structured exploratory interviews were conducted with specialists in the following fields: service design in UK local government; co-design specialists (community orientated projects); social policy, citizenship and migration (academia); social identity (academia and practice); service design for nomadic communities (academia and practice). The purpose was to explore service and co-design challenges in the public sector, and to better understand the impact of the minority ethnic and immigrant experience with regard to public services. Thematic analysis was used to group these findings, as the problem themes emerged out of raw data.

Service administration

As marketed private services become more readily available to the public, social care services fail to be more universal and often do not converge with the overall system of care. This severely impacts on the way elderly people use services as increasingly, not enough is being done to manage recovery when users become a part of a disjointed system of care. Policy on the other hand, gives a 'backdrop to hostility' with assumptions often made that immigrant elderly are being taken care of by their family members on an informal basis. This becomes a part of the generational stream & expectation, with what is seen as the burden of care being deployed elsewhere. A way to manage some of these challenges, experts agree, is to ensure thorough citizen-state involvement, where the service user becomes 'expert by experience', allowing for family members who are also carers to participate in the research dialogue and service development process. Most importantly, within these processes, service users can learn about the care service structure and eligibility. It is important also to note that specific discussion was formed along the themes of social identity and prejudice against marginalised groups of people within the system of care. It was suggested that a way to mitigate this issue is to provide consistent, compassionate forms of training and care amongst service representatives on all levels of practice, including but not limited to service development and user testing.

Issues of user research in public service design

Respondents outlined two major issues in service administration, design and delivery in the public sector. Pointing to a lack of 'discovery phase', described on the UK Government website as a means of 'learning about your users and their context', a process that helps to reduce uncertainty and assumptions made about consumer needs. Despite the UK Government Digital Service, which formed in 2010 to help improve and consolidate digital public services within central government, it seems much less has been done about the spread of the same user-centred values outside of UK central government. Another key issue discussed is a significant lack of user testing before service roll-out. At this stage of the process, it is already too late to make any significant improvements to the service. Public services would often go through major transformations such as a channel shift from a physical to a digital representation, without acknowledging user requirements. Described as taking a passive view, institutions would assume the view of simply knowing what's best for the service user, and often unwittingly excluding elderly citizens and digitally illiterate service users. When prompted about the cause of these major discrepancies, respondents listed issues of management, lack of resources and time restraints. One way to overcome these issues, experts agree, is to apply incentives that focus on quality and process management during the service design process. This motivates service designers and providers to adhere to the whole process of user testing and permit usability measurement. As suggested, a 'mandate discovery phase', could be the answer to fostering a better designer-citizen synergy.

The role of the designer on creating conditions for identity and representation

In research, the designer is referred to as sense-maker, one that establishes collective communication among different groups. Fostering familiarisation by establishing a common ground, in order to 'bring everyone to the same level', disintegrating feelings of fear often felt in dealing with the state among vulnerable groups. As part of the collective community building process, experts agree that it is up to the designer to build personal and collective awareness of cultural nuance and help the wider community adapt themselves, in order to create better conditions for participation. When often met with resistance, the only way to overcome it is through establishing a rapport with community key-holders and creating a reference panel group that represents marginalised groups within the

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community. The final element of this process is expectation management. From the beginning of the co-design research process, it is important for the designer to clearly relay an understanding of project outcomes and how findings will later be relayed to the wider community, actively closing the feedback loop. This important step establishes a reciprocal, on-going relationship.

Conclusion

To summarise, this paper has gathered a preliminary understanding of the minority and immigrant state service experience, outlining some of the key challenges gathered from literature. Anxiety in dealing with state-run services negatively impacts the user experience and identity formation. What social theory can teach us about service interactions is that often stigmatisation, instability and prejudice impact on user self-esteem and feelings of worthiness. This aspect of perceived group membership impacts on the way people relate themselves and to the state and therefore their ability to interact with state services. This permits consideration on the way in which co-design methods can be better integrated into the service design framework in impacting identity formation for marginalised groups during service co-design processes. The dynamics of collectivist societies, it could be argued are somewhat similar to those of familial societies, in that inter-generational living takes place and assumptions lay bare on who is responsible for older people's care needs.

This paper invites you to discuss how the aspect of collectivist societies and their family and care structures, flourishing within western societies can be a rich source for building improved care services, service development and co-design processes overall. Considering mainly the impact of citizen-state interactions.

The paradigms explored help build the foundations for research to follow. By building upon expert discussion, the next steps of the study will see to produce a co-design framework that focuses on service improvement via personalisation and appropriateness of services for elderly immigrants. Through the use of focus group sessions and expert feedback, these guidelines should help improve the overall service design process within social care.

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References

Ahaddour, C., van den Branden, S., & Broeckaert, B. (2016). Institutional Elderly Care Services and Moroccan and Turkish Migrants in Belgium: A Literature Review. Journal of Immigrant and Minority Health, 18(5), 1216–1227. https://doi.org/10.1007/s10903-015-0247-4

Bowen, S., Dearden, A., Wright, P., Wolstenholme, D., & Cobb, M. (2010). Co-designing Better Outpatient Services for Older People: Inspiration stories for Participatory Design with Health and Social Care Institutions Workshop, PDC 2010. PDC 2010, November 29 - December 3, 2010, Sydney, Australia, 1–3. http://www.uchd.org.uk/wp-content/uploads/2010/09/PDCworkshopStoriesUCHD.pdf

Dietrich, T. (2017). Co-designing services with vulnerable consumers | Journal of Service Theory and Practice | Vol 27, No 3. Journal of Service Theory and Practice. https://www-emeraldinsight-com.ezproxy.brunel.ac.uk/doi/full/10.1108/JSTP-02-2016-0036

Freedman, M., & Barth, F. (1970). Ethnic Groups and Boundaries: The Social Organization of Culture Difference. In The British Journal of Sociology (Vol. 21, Issue 2). Waveland Press. https://doi.org/10.2307/588416

Göregenli, M. (1997). Individualist-collectivist tendencies in a Turkish. Journal of Cross-Cultural Psychology, 28(6), 787–794. https://doi.org/10.1177/0022022197286009

Healthwatch, (2018). https://www.healthwatch.co.uk/context/numbers

Jenkins, R. (1994). Rethinking ethnicity: Identity, categorization and power. Ethnic and Racial Studies, 17(2), 197–223. https://doi.org/10.1080/01419870.1994.9993821

Kapasi, B. R., Silvera, M., & Consultants, S. (2002). A Standards Framework For Delivering Effective Health and Social Care Advocacy for Black and minority ethnic Londoners. Health (San Francisco), 11–13. http://files/461/Kapasi et al. - A Standards Framework For Delivering Effective Hea.pdf

Laitinen, I., Kinder, T., & Stenvall, J. (2018). Co-design and action learning in local public services. Journal of Adult and Continuing Education, 24(1), 58–80. https://doi.org/10.1177/1477971417725344

Löffler, E., Parrado, S., Bovaird, T., Van Ryzin, G., Gaillot, J., Allard, M.-A., Capes, D., Fanta, P., Griffin, K., Hegnsvad, M., Kuhlmann, S., & Nemec, J. (2008). "If you want to go fast, walk alone. If you want to go far, walk together" Citizens and the co-production of public services. 48. http://www.govint.org/good-practice/publications/if-you-want-to-go-fast/

Malzer, S. (2013). A Report On Barriers to Accessing Health and Social Care Services for Older People from Black and Minority Ethnic Backgrounds in South Glasgow By. October, 27. http://files/34/Malzer - A Report On Barriers to Accessing Health and Socia.pdf

Mueller, J., Lu, H., Chirkin, A., Klein, B., & Schmitt, G. (2018). Citizen Design Science: A strategy for crowd-creative urban design. In Cities (Vol. 72, pp. 181–188). https://doi.org/10.1016/j.cities.2017.08.018

Office for National Statistics. (2016). Explore 50 years of international migration to and from the UK. In International Migration. https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/internationalmigration/articles/explore50yearsofinternationalmigrationtoandfromtheuk/2016-12-01

Radermacher, H., & Feldman, S. (2015). "Health is their heart, their legs, their back": Understanding ageing well in ethnically diverse older men in rural Australia. Ageing and Society, 35(5), 1011–1031. https://doi.org/10.1017/S0144686X14001226

Renedo, A., & Marston, C. (2011). Healthcare professionals' representations of "patient and public involvement" and creation of "public participant" identities: Implications for the development of inclusive and bottom-up community participation initiatives. Journal of Community and Applied Social Psychology, 21(3), 268–280. https://doi.org/10.1002/casp.1092

Ruspini, P. (2019). Migrants Unbound. https://books.google.co.uk/books?id=2GCuDwAAQBAJ&pg=PA54&lpg=PA54&dq=Ebrahim+(1996)+noted+that+even+when+elderly+migrants+may+make+little+use+of+existing+services,+it+must+not+be+t

aken+as+an+indication+of+a+lack+of+need&source=bl&ots=QRdgU
QLXjh&sig=ACfU3U

Sangiorgi, D. (2011). Transformative services and transformation design. International Journal of Design, 5(2), 29–40. http://files/27/Sangiorgi - 2010 - Transformative Services and Transformation Design.pdf

Schoenmakers, D., Lamkaddem, M., & Suurmond, J. (2017). The role of the social network in access to psychosocial services for migrant elderly—a qualitative study. International Journal of Environmental Research and Public Health, 14(10), 1215. https://doi.org/10.3390/ijerph14101215

Shapiro, D. L. (2010). Relational Identity Theory: A Systematic Approach for Transforming the Emotional Dimension of Conflict. American Psychologist, 65(7), 634–645. https://doi.org/10.1037/a0020004

Sinni, G. (2017). Participatory Design for Public Services. Innovation in Public Administration. The Design Journal, 20(sup1), S3368–S3379. https://doi.org/10.1080/14606925.2017.1352841

Verhagen, I., Ros, W. J. G., Steunenberg, B., & de Wit, N. J. (2014). Ethnicity does not account for differences in the health-related quality of life of Turkish, Moroccan, and Moluccan elderly in the Netherlands. Health and Quality of Life Outcomes, 12(1), 138. https://doi.org/10.1186/s12955-014-0138-8

Willis, R. (2012). Individualism, Collectivism and Ethnic Identity: Cultural Assumptions in Accounting for Caregiving Behaviour in Britain. Journal of Cross-Cultural Gerontology, 27(3), 201–216. https://doi.org/10.1007/s10823-012-9175-0

Service tools linking values with technology in a sustainable home refurbishment

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Abstract

Sustainable home refurbishments are part of the many efforts needed in climate change mitigation. This practice note presents service tools that aim to link the residents' values with the technology they will use after a sustainable refurbishment of their home. This technology will affect their daily living practices. In a recent sustainable refurbishment pilot project, my and colleagues' role was to advise a building company running this process. With colleagues, I developed service tools to communicate with residents about what the refurbishment would mean for them. The service tools and an initial reflection on each one are presented and discussed here. Two types of tools are presented: tools to support residents in bringing their interests to bear, and tools to communicate with the residents about the new technology. I found that level of abstraction, timing, form and familiarity of the tools to stakeholders affect their effectiveness in the process.

Keywords: sustainable refurbishment, service tools, communication tools, values, technology, inclusion

Introduction

Sustainable refurbishment of homes is one of the many efforts needed to meet climate change. In the project presented here, my colleagues and I worked as advisers to a building company who applied facade refurbishment and energy-efficient technologies to convert technically obsolete porch houses into zero energy homes. A pilot block of 12 social housing units was refurbished while residents stayed put. For the residents it was a transition process to new practices in their existing homes. Much can be gained by approaching sustainable home refurbishment as a service design task. It is a way to involve and include residents in the process and its outcomes. It can help facilitate the process so that in the end the residents are able to use the new technology in their home. Without this, the home is less likely to be a zero-energy home in practice, because this outcome partly depends on what residents do in their home. With colleagues I previously presented this reasoning as well as the theoretical underpinnings of the tools presented here (Guerra-Santin et al., 2017). We reported previously that important values for the residents in relation to refurbishment of their home are: having a grip on the future, being treated fairly throughout a refurbishment process, seeing their ideals reflected in process and result, being supported in their activities and lifestyle, and having control over their health, their comfort and the new home systems. These values guided our team in developing service tools to support the residents in their refurbishment journey. In our advising position we had no influence on the technology choices themselves (although we tried), nor did the residents of the pilot project. This was the building company's domain. The technology choices are beyond the scope of this paper. This paper focuses on the service tools colleagues and I developed and evaluated in order to support the residents in articulating their values and in preparing for the changes that were to come. With service tools is meant here: visualisations, artifacts and activities to direct the stakeholders' attention to the service qualities being created – or not created – alongside and through the refurbishment process. This falls within Segelström & Holmlid's (2009) categorization of visualisations as tools for research. I present some initial personal reflections on the effectiveness of the tools in the pilot project, in order to invite commentary and evaluation from the service design community. Due to space constraints I focus on the pre-refurbishment phase only.

Methodology

My colleagues and I had an advisory role to the building company in charge of the pilot refurbishment project. We met regularly with the building company and thus were able to respond to and develop these service and communication tools based on what was needed at each point of the process. Since some of my colleagues either have different foci in their own research or provided only brief contributions at various points in the process in which they helped with research, design and communication, this paper is a first-person reflection account in which their contributions are acknowledged.

Tools developed

Two types of tools we developed and used are presented here. (Figure 1). They served to:

- Support residents in bringing their interests to bear on the process, and

- Communicate with the residents about the new technology in their home.

- A third set of tools that served to facilitate the residents' journey through the refurbishment process has been presented elsewhere (Boess et al, 2018).
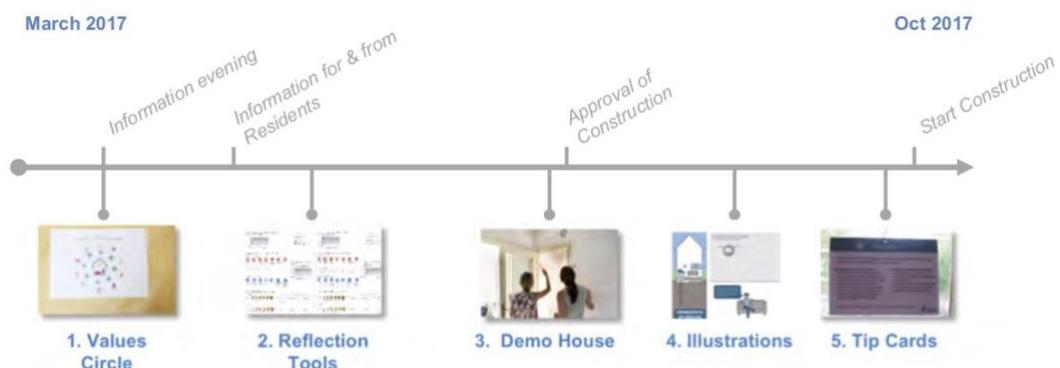

Figure 1: overview of the tools presented in this paper that we developed and used and their positioning on the timeline of refurbishment preparation.

Tools to support residents in bringing their interests to bear on the process

The first type of tools were tools to support residents in bringing their interests and values to bear on the process. There were two of them: the value circle (Figure 2) and the reflection booklet (Figure 3).

Interests tool 1: value circle

The value circle was adapted from the values we had researched previously with other residents (Guerra-Santin et al., 2019). The results were presented in a simplified version for the purposes of communication with this new group of residents. During the first resident information evening in which the tenants learned about the plan for refurbishment, we presented the value circle to them and invited them to add their own experiences and values to it, either verbally or by drawing or writing on it. Its purpose was to enable the residents to develop a vocabulary for their wishes in terms of their own values. This should serve to reveal requirements beyond the financial and technical considerations that are normally discussed at this stage. In turn, this should facilitate the residents' influence on the process and results of refurbishment.

Figure 2, left: the value circle as it was used to communicate with residents about their values for their home. It shows the categories derived from prior research with residents: comfort, health, usability, a grip on the future, habits, control, diverse needs and cost. Right: two residents using the value circle to aid discussion during the first resident evening.

Initial reflection

Though intended as a communication tool, the value circle as presented was alienating for residents even though it was based on prior in-depth research with residents. These residents preferred to talk about values using concrete examples from their own lives, rather than using an

abstract overview like this. This was a valuable insight to carry forward into later upscaling of the process. The presentation of the value circle did not impede the rest of the process. In my subsequent interactions with residents and building company stakeholders, I addressed and elicited values by means of short anecdotes or images from residents' lives.

Interests tool 2: reflection booklet

We invited the residents to let us know more about their daily practices and indoor comfort via reflection booklets we designed, informed by earlier similar methods designed to reconstruct day life experiences (Herrera, 2017). The purpose was to use the learnings to then be able to support residents later. For example, to inform the residents of how the refurbishment would affect them in a way that connects with their prior experiences. They could fill in the booklets whenever they wanted, in the privacy of their own home. Four of the 12 households chose to participate in this. Parts of the reflection booklets were put to all 12 households and they filled them in during information events (Figure 3).
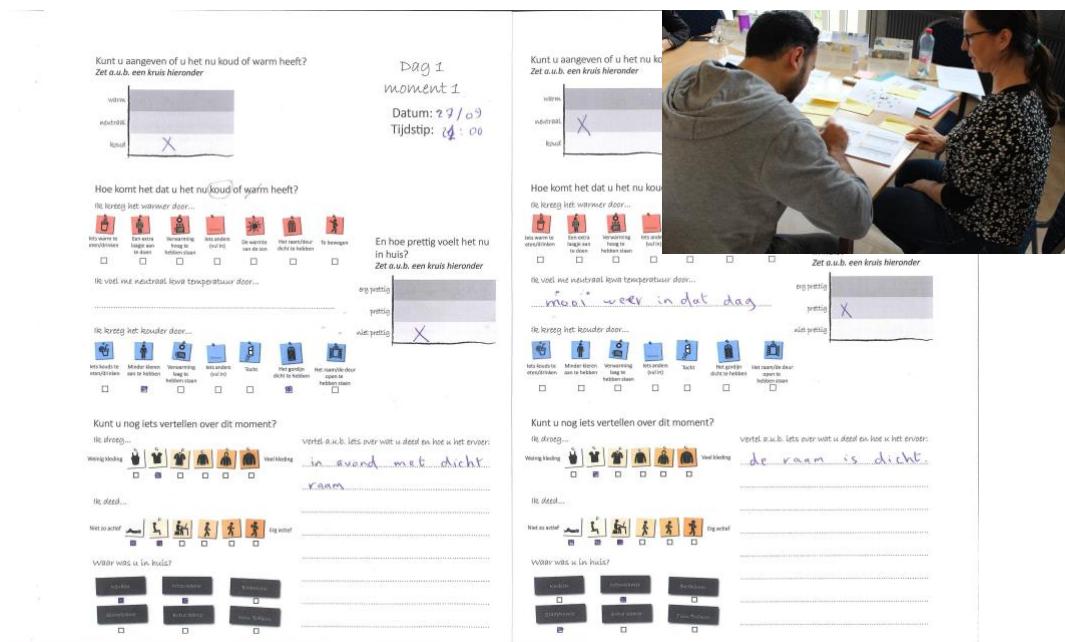
Figure 3: pages from the reflection booklet filled in by a resident. For example, temperature preference, related to what a resident was wearing. Inset, upper right: A researcher asks a resident to fill in reflection materials during an event.

Initial reflection

The reflection booklets were adapted from earlier work designed to elicit day-to-day accounts of residents' practices in their home, with the purpose

of eliciting practice-oriented insights into energy consumption. Reflection tools such as these are not suitable for all residents. Several residents emphatically rejected using them, while others were enthusiastic and filled them in several times. They were valuable resources for conversation with the residents. They revealed, for example, the variation in indoor temperature preferences among residents, and how this was connected to their activities and what they wore.

Tools to communicate with residents about the new technology

The second type of tools were tools to communicate with the residents about the new technology they would be using after the refurbishment. Three tools were designed for this: Demo house (Figure 4), Cards with Tips (Figure 5), and Illustrations (Figure 6).

Technology tool 1: Demo house

This was a currently empty apartment of the same type as the apartments of the current residents. To create the demonstrations in it, we use cardboard props, similar technology (such as a portable infrared cooker) and an experiential guided tour in which participants got to experience their future technologies in simulation.

Figure 4, left: the communication expert from the building company shows a resident what the ventilation will look like in a demo home, and asks her to give her response as if it was her own home. Right: the resident tries out cooking on an induction stove in the demo home.

Initial reflection

It might be expected that the demo house would be the most insightful tool for residents to understand how they would engage with the future technology in their home. It was certainly effective in addressing all aspects of the refurbishment and prompted residents to ask numerous questions. Most importantly, it built trust with the residents. However, the refurbishment was still three months away at this point. Lessons from the demo house did not turn out to be clearly discernible in what residents said later about their understanding of their home. Later they only mentioned lessons learnt after the refurbishment completion.

Technology tool 2: Cards with tips

Following the reflection booklets as well as the active forms of communication described above, the insights were collected and a set of tips and recommendations was generated for residents that took up their values so that they could prepare for the changes the refurbishment would bring for their lives. I decided to create this in the form of cards that were distributed neatly bundled as 'gift packages' to the residents together with the regular newsletters they received in the run-up to the refurbishment. Magnets and suction cups were added to the package so that residents could hang up the cards in their home. This was a period of low time resource for us as academic researchers in the project, so we were only able to produce these cards in text form, and not hand them over personally.

Figure 5: Card with tips for residents explain what will change and what will remain the same after the refurbishment. For example, a change: inlets will provide fresh air in the house, so windows do not have to be opened. Example of what stays the same: if you feel cold, it might help to move about a little.

Initial reflection

My estimation is that the cards did not have the desired effect of preparing residents for the change in their daily life practices. Several of the

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residents shied away from reading most text-based materials, including these. The fact that the cards were nicely bundled up had the effect that the residents stored them away with the rest of the materials, as one resident said: "Oh yes I have them. I store them all safely in a drawer". Later I also learned from some residents that understanding the changes, and changing their habits, took half a year to a year after the refurbishment, and was a gradual process. It follows that the cards are unlikely to have had the desired effect of preparing residents for the changes.

Technology tool 3: Illustrations

The last type of tool that we developed to help residents understand their systems, were illustrations about the systems. They were presented to residents in an information session shortly before the refurbishment. Later, some of them were re-used in the user manuals the residents received for their new systems. The illustrations spanned several aspects. They showed schematically where the systems were located in the house and how they were connected, to help the residents develop ownership. Additionally, the illustrations contained simple explanations of the user interfaces. Lastly, the illustrations contained tips similar to the cards described in the previous section, only this time, in illustrated form. These served to help residents adapt their daily life practices and understand the new systems' behaviours. For example, that heating system only slowly reaches a temperature set on the thermostat.
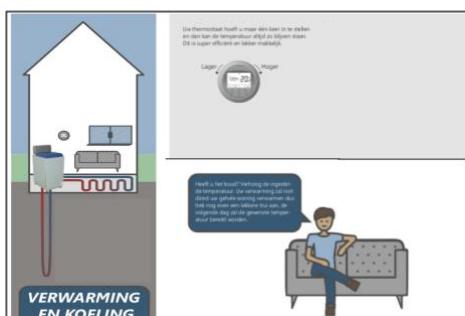
Figure 6: Illustration to explain the technology to the residents: what it is, how it works in principle, how it can be adjusted. This example provides explanation on the heat pump and tips for use.

Initial reflection

The illustrations served well to give the residents an accessible, visual understanding of their new home systems. It enabled them to ask follow-

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up questions about what their home systems do for them. The illustrations are not sufficient to uncover and highlight all usability problems. They do not reflect the dynamics of daily use, nor the partially faulty functioning that often goes hand in hand with newly installed home systems. An unexpected additional aspect was that the building industry and installation professionals were not used to communicating with residents in this way. Some of these stakeholders preferred to continue relying on thorough verbal explanations of how the systems work.

Discussion

I have presented some of the tools we developed throughout this pilot project to bridge between new technical configurations and residents' values and the (future) changes in their daily life practices. Adding to the analysis of residents' values (Guerra-Santin et al, 2018), colleagues and I developed and evaluated the specific tools that can help carry residents' values forward in a refurbishment process. I found that level of abstraction, timing, form and familiarity of the tools affect the tools' effectiveness in the process in terms of including residents' values. The tools were partly effective in that they increased the residents' trust of being treated fairly and gave them some grip on the future, but there were also shortcomings. For example, a representation based on thorough research with residents turned out to be alienating to a new group of residents because of an undesirable level of abstraction. The shortcomings were however also compounded by the fact that technological decisions were made that were not optimised for the residents' control over their new technological configurations but rather for generalised models of energy efficiency.

As more sustainable home solutions get introduced and applied over time, more tools of the kind presented here will be needed to engage residents. They go beyond the role of user manuals, because the technologies require significant changes in daily life practices in the home. We do not have a language yet that helps people to navigate these developments. Technical home systems are traditionally introduced to residents with instructions of correct use rather than an engagement with their values. The challenge is compounded by the need for rapid upscaling to increase environmental sustainability.

This practice note has presented the tools used within a recently conducted pilot case study. I hope to generate discussion on suitability of these and other tools in accompanying technological home

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refurbishments. We have yet to find the best ways to facilitate the inclusion of residents' values in future technical configurations. This would help facilitate the important and topical task of making housing sustainable, as well as helping the residents to be included and not disadvantaged by this change.

Acknowledgements

References

Boess, S., Silvester, S., de Wal, E., & de Wal, O. (2018, August). *Acting from a participatory attitude in a networked collaboration.* In Proceedings of the 15th Participatory Design Conference: Short Papers, Situated Actions, Workshops and Tutorial, *2,* 1-6. https://doi.org/10.1145/3210604.3210642

Guerra-Santin, O., Boess, S., Konstantinou, T., Herrera, N. R., Klein, T., & Silvester, S. (2017). Designing for residents: Building monitoring and co-creation in social housing refurbishment in the Netherlands. *Energy research & social science*, *32*, 164-179. https://doi.org/10.1016/j.erss.2017.03.009

Herrera, N. R. (2017). In-situ and mixed-design interventions. In *Living Labs*, 157-167. Springer, Cham. https://doi.org/10.1007/978-3-319-33527-8_12

Segelström, F., & Holmlid, S. (2009). *Visualizations as tools for research: Service Designers on visualizations.* Paper presented at Nordes, (3).

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Overarching servitization processes in industrial manufacturing – a scoping review

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Abstract

This paper summarises servitization research concerning product-service system design processes in the manufacturing industry, considering the overarching value chain. We used a methodological scoping framework to create a systematic overview of scientific papers in the context of the B2B manufacturing industry.

We identified five main topics: business models, organisational aspects, value creation, collaborative networks, and servitization strategies. Moreover, servitization research appeared to be concentrated in Europe, in particular in the United Kingdom and Nordic countries. We found only one paper that met all our selection criteria: service design and business model design within technology-intensive manufacturing firms, collaborating in networks and addressing end-customer needs. This research gap provides a direction for a further deep dive in what we call *overarching Servitization*; we will focus on designing product-service systems throughout customer supply networks.

Keywords: business model design, service design, overarching, end-customer, value creation, collaborative networks, servitization strategies

1. Introduction

Servitization is a useful strategy for technology-intensive manufacturers to extend their current product portfolio with linked services. In essence, Kohtamäki et al. (2018) defined Servitization as a transition process from selling products to selling product-service systems (PSS). Due to the increasing competition of newcomers disrupting current industries with data platform technologies offering different types of service propositions, technology-intensive manufacturers in the capital goods industry show a growing interest in servitization processes. Previous studies learned that manufacturers that adopted Servitization were able to increase their business profitability (Baines et al., 2010; Reim et al., 2013; Story et al., 2017)

Rolls Royce is an example of an industrial manufacturing firm that has gone through a servitization process. Visnjic et al. (2017) studied the Rolls Royce business case which provides a result-oriented PSS, called Power-by-the-Hour. Instead of selling engines to the aircraft industry, it sells operational up-time of the engines to airlines. In their study, Collier et al. (2018) identified Uber as an example of a newcomer that disrupts the business of taxi services by providing a data platform that enables mobility services in two ways. First, it provides on-demand taxi services for commuters, the so-called Mobility-as-a-Service (MaaS). Second, it offers taxi drivers the opportunity to become self-employed mobility providers.

However, servitization literature currently lacks a systematic overview of knowledge about designing product-services in the technology-intensive manufacturing industry, addressing customer needs throughout the value chain. Therefore, this study aims to explore the servitization research domain, to identify studies on topics related to our research question (see 2.1), to discover research gaps and to draw conclusions regarding research activities. We might find answers to our research question by studying processes and methods that manufacturers could apply in designing PSS to serve customers and stakeholders throughout a business-to-business-to-consumer supply network (B2B2C).

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2. Method

In spring 2019, we reviewed scientific papers to examine servitization practices in business-to-business industries (B2B) and to identify researchers and research groups. We conducted a literature scoping study, using the methodological framework for scoping of Aksey & O'Malley (2005), which will be explained in the subparagraphs below. Although the first servitization studies appeared in the 1980s, we decided to limit our scoping study to a time frame of ten years since we want to focus on more recent and emerging research. For practical reasons, we used the digital search engine Scopus: according to Baines et al. (2009), most leading servitization scholars use Scopus as their source for scientific literature.

2.1. Identifying the research question

Arksey & O'Malley (2005) state that it is essential to find the key aspects of the research question, defining the initial search string in order to identify related studies. Considering too many aspects, translated in a search string with many keywords, can lead to a limited outcome, and may risk missing relevant articles. However, a search string definition on a limited number of aspects could lead to an unmanageable number of references.

We particularly wanted to study cases identifying processes and methods to design PSS in the B2B manufacturing industry. Therefore, we formulated the following research question, used as the subject of our scoping process: "How can technology-driven manufacturers of investment goods make a transition towards providers of PSS, creating user experiences and value propositions throughout the customer value chain?" (B. Bluemink et al., 2020)

2.2. Identifying relevant studies

In this phase of the scoping process, we performed a literature study. We composed a search string, based on keywords related to the research question, and applied it into a search engine. The initial search string resulted in 80 journal articles. It contained the words Servitization (or servitisation) and business model, searching in the article title, abstract and keywords, as well as the words transition and network in all fields of the database records. We limited our search to the English Language (see the first row of Table 1). A first refinement of the search result by excluding

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conference papers, press articles and book chapters, limited the number to 61, as listed in the second row of Table 1.

2.3.   Study Selection

In a second refinement, we selected papers that resonated with Servitization in technology-driven manufacturers of investment goods. Therefore, we decided to exclude all studies that did not relate to this part of our research question. We excluded articles describing studies of Servitization in healthcare, FMCG, business-to-consumer (B2C), governmental, NGO's and mathematical approaches of Servitization. The third row of Table 1 shows that these exclusion criteria reduced the relevant number of papers to 50.

Table 1: Search String and Number of Search Results

Search Engine	Search String	Selection Criteria	Number of papers
Scopus search results	"serviti*ation" AND "business model" AND "transition" AND "network" AND LIMIT-TO (LANGUAGE, "English")	Article Title/Abstract/Keywords All Fields All Fields	80
1st refinement of Scopus Results		Exclusion criteria: Conference papers Press articles Book chapters	61
2nd refinement of Scopus Results		Exclusion criteria: PSS related to healthcare PSS related to FMCG industry PSS related to government and NGO's PSS related to pure B2C Mathematical approach of PSS	50

2.4. Charting the Data

After identification and selection, we collected and classified our search results in an Excel-file according to following criteria: Title, Abstract, First Author, Institute, Journal, Year of Publication, Citation Score, Type of Study, Originating Country, Research Subject, Originating Country of all Authors and the Overall Theme. We then analysed the data from different angles, as described in Chapter 3.

2.5. Summarising and Reporting the Scoping Results

The fifth stage of the scoping framework involves summarising and reporting the scoping results, which we included in Chapter 3.

3. Summarising and Reporting the Scoping Results

3.1. Centres of Servitization Research in Manufacturing

To determine in which part of the world servitization research in industrial manufacturing is located, we first analysed the originating countries of the authors and co-authors of the selected papers. Table 2 provides the number of authors with their originating countries in descending order. Second, we analysed the number of citations of all authors per country, listed in Table 3 in descending order. Based on Table 2 and 3, we concluded that research on Servitization concentrates in Europe. In particular, UK-based researchers are leading the way in Servitization in the manufacturing industry, closely followed by Finland, Sweden, Italy and Spain.

Table 2: Top-5 of Originating Country of Authors (we excluded countries with two or less first authors from the list)

Originating Country of Authors	Number of Authors
United Kingdom	34
Finland	21
Sweden	19
Italy	17
Spain	11

Table 3: Top-5 Number of Citations per Country

Originating Country of Authors	Number of Citations
United Kingdom	1169
Sweden	342
Spain	247
Finland	140
Italy	66

Moreover, we found that servitization research finds its domicile in universities that focus on research in the technical domain, described as industrial engineering, industrial manufacturing, manufacturing operations, information technology, technology management or industrial economics.

We also observed that the UK, Sweden and Spain score relatively high in the citations ranking of Table 3. An explanation might be that three universities in these countries stimulate and facilitate servitization research. First. The Aston University of Birmingham founded the

Advanced Services Group (ASG), specialising in research in advanced services and Servitization. The ASG organises the yearly Spring Servitization Conference, sharing knowledge about servitization processes. Second, the Business School of Deusto University, Bilbao, Spain hosts the annual International Conference on Business Servitization. Third, Linköping University carries out a research program called 'Value Creation in Innovative Service Systems', studying service transitions in industrial networks. The program, funded by the Bank of Sweden, has a spinoff of several publications, discussing value creation in industrial manufacturing networks.

3.2.   Main Topics Addressed

By reading the abstract and keywords of each of the selected studies, we clustered them based on the central theme addressed. After this, we found five main topics, shown in Table 4, listed in descending order of the number of studies.

By reading the abstracts, we were able to map the specific subjects and themes of each paper. After clustering, we could identify five main topics, each of them dealing with a different issue: business models in Servitization, organisational aspects, value creation, collaborative networks, and servitization strategies.

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Table 4: Number of Studies per Main Topic Addressed

Main Topic	*Number of Studies*	*Short Description of Topic*
Business Models	*16*	*Discussing Business Models in Servitization*
Organisational Aspects	*11*	*Discussing Organizational Aspects of Servitization*
Value Creation	*9*	*About Value Creation through Servitization*
Collaborative Networks	*6*	*Discussing Providing PSS's through Cooperation in a Network*
Servitization Strategies	*8*	*Discussing Strategic Frameworks and practices for Servitization*

In the next subchapters, we will highlight each topic, discussing the papers that cover our interest most.

3.3. Studies Related to Business Models in Servitization

Table 5 shows 16 studies about business models in Servitization in descending order of citation scores. Reim et al. (2015), Lulea University of Technology, Sweden, contributed with their systematic literature review 'Product-Service-Systems Business Models and Tactics' to the understanding of applying business models in PSS. The paper provides a valuable overview of studies, discussing business models implemented in the servitization practice. Tongur & Engwall (2014) examined the difficulties manufacturing industries face in innovation processes. He concluded that technological innovation should go hand in hand with service innovation to create a viable business model.

Table 5: Studies Related to Business Models in Servitization

ID*	Title	Originating Country	Citation Score	Type of Study	Journal
34	Product-Service-Systems (PSS) Business Models and Tactics - A Systematic Literature Review (Reim et al., 2015)	Sweden	183	Literature review	Journal of Cleaner Production
36	The Business Model Dilemma of Technology Shifts (Tongur & Engwall, 2014)	Sweden	52	Case Study	Technovation
5	Meta-Model of Servitization: The Integrative Profiling Approach (Brax & Visintin, 2017)	Finland	35	Literature Review	Industrial Marketing Management
32	Strategy Map of Servitization (Rabetino et al., 2017)	Finland	30	Case Studies (3)	International Journal of Production Economics
15	A Decision Methodology to Support Servitisation of Manufacturing (Dimache & Roche, 2013)	Ireland	24	Framework	International Journal of Operations and Production Management
29	Constructing A Sustainable Service Business Model: An S-D Logic-Based Integrated Product Service System (IPSS) (Liu et al., 2014)	Taiwan	15	Literature Review	International Journal of Physical Distribution and Logistics Management
39	What Brings The Value to Outcome-Based Contract Providers? Value Drivers in Outcome Business Models (Visnjic et al., 2017)	Spain	10	Case Studies (4)	International Journal of Production Economics
4	The Digitalization and Servitization of Manufacturing: A Review on Digital Business Models (Luz Martín-Peña et al., 2018)	Spain	9	Literature Review	Strategic Change
9	PSS Business Model Conceptualization and Application (Adrodegari & Saccani, 2017)	Italy	9	Framework	Production Planning and Control
10	Business Models for the Service Transformation of Industrial Firms (Adrodegari et al., 2017)	Italy	9	Literature Review	Service Industries Journal
38	The Path to Outcome Delivery: Interplay of Service Market Strategy and Open Business Models (Visnjic et al., 2018)	Spain	8	Case Studies (12)	Technovation
20	Do Outcome-Based Contracts Exist? The investigation of Power-by-the-Hour and Similar Result-Oriented Cases (Grubic & Jennions, 2018)	United Kingdom	5	Case Study	International Journal of Production Economics
1	The Transition towards Service-Oriented Business Models: a European Survey on Capital Goods Manufacturers (Adrodegari et al., 2018)	Italy	3	Quantitative Survey	International Journal of Engineering Business Management
13	A Design-Thinking Perspective on Capability Development: The Case of New Product Development for Service Business Model (Beltagui, 2018)	United Kingdom	2	Case Study	International Journal of Operations and Production Management
30	Lessons Learned from a Successful Industrial Product-Service System Business Model: Emphasis on Financial Aspects (Oliveira et al., 2018)	Brazil	2	Case Study	Journal of Business and Industrial Marketing
31	Servitization as Business Model Contestation: A Practice Approach (Palo et al., 2018)	United Kingdom	1	Case Study	Journal of Business Research

*) ID refers to the identification number of the paper

In general, we primarily focused on papers with a high citation score. However, we acknowledge that recent studies reflect emerging research more. Despite a low citation index, these papers might be of more interest in answering our research question. For example, Adrodegari et al. (2018) identified different servitization business models used in the capital goods industry. With their framework to create their future business, they support industrial companies to make a manageable shift from products to services (Adrodegari & Saccani, 2017). In their paper, Visnjic et al. (2017) explained how the Power-by-the-Hour PSS changed the business model of Rolls Royce, creating *user values* and *experiences* throughout a B2B2C network. Rolls Royce used to supply engines to the aircraft industry, such as Boeing and Airbus, but changed its strategy by addressing the new needs of the customer-of-customer. Rolls Royce now offers maintenance and up-time services during the operational lifetime of aeroplane engines. As a result, airlines have changed from buying aeroplanes from the aircraft industry to purchasing aeroplane up-time services at Rolls Royce, covering a more significant part of the supply chain. It evolved from B2B to B2B2C.

In general, all papers show that in a servitization process, a change in business model is inevitable. When developing services, companies should pay particular attention to the redesign of their business model, related to the changed interactions with customers and stakeholders.

3.4. Studies Related to Organizational Aspects of Servitization

Table 6 shows 11 studies about organisational aspects of Servitization in descending order of citation scores. With his review, Baines et al. (2017) created a clear overview of studies that highlight the impact of Servitization on organisational processes. Kindström & Kowalkowski (2014) discussed specific organisational resources and capabilities needed across the eight different dimensions of his proposed service business model. His model can be used to visualise changes, associated with new service opportunities, to create better understanding and awareness in the internal organisation. The more recent papers of Crowley et al. (2018), Amboise et al. (2018) and Hasselblatt et al. (2018) discussed the required conditions and the organisational 'mind-set' which are beneficial for a successful product-service transition. Overall, all papers acknowledge the vital role that the organisation is playing in product-service innovation processes and give directions to optimise them.

Table 6: Studies Related to Organisational Aspects of Servitization

ID*	Title	Originating Country	Citation Score	Type of Study	Journal
62	Servitization: Revisiting State-of-the-Art and Research Priorities (T. Baines et al., 2017)	United Kingdom	119	Literature Review	International Journal of Operations and Production Management
25	Service Innovation in Product-Centric Firms: a Multidimensional Business Model Perspective (Kindström & Kowalkowski, 2014)	Sweden	106	Qualitative Study	Journal of Business and Industrial Marketing
14	Servitization and Competitive Advantage: the Importance of Organizational Structure and Value Chain Position (Bustinza et al., 2015)	Spain	37	Qualitative Study	Research Technology Management
22	Resource Realignment in Servitization: a Study of Succesful Service Providers Explores How Manufactures Modify their Organisational Structures (Huikkola et al., 2016)	Finland	16	Case Studies (9)	Research Technology Management
18	Organizational Capabilities for Pay-Per-Use Services in Product-Oriented Companies (Gebauer et al., 2017)	Switzerland	13	Case Study	International Journal of Production Economics
6	Challenges of Servitization: a Systematic Literature Review (Zhang & Banerji, 2017)	United Kingdom	10	Literature Review	Industrial Marketing Management
43	Organisational Change towards Servitization: A Theoretical Framework (Ziaee Bigdeli et al., 2017)	United Kingdom	6	Literature Review	Competitiveness Review
21	Modelling Manufacturer's Capabilities for the Internet of Things (Hasselblatt et al., 2018)	Finland	2	Qualitative Study	Journal of Business and Industrial Marketing
11	Financial Performance of Servitized Manufacturing Firms: A Configuration Issue between Servitization Strategies and Customer-Oriented Organizational Design (Ambroise et al., 2018)	France	1	Quantitative Study	Industrial Marketing Management
24	Exploring the Dynamic Capabilities Required for Servitization (Kanninen et al., 2017)	Finland	1	Case Studies (14)	Business Process Management Journal
44	Servitization Intent as a Factor in the Servitization Process (Crowley et al., 2018)	United Kingdom	1	Qualitative Study	Journal of Business and Industrial Marketing

*) ID refers to the identification number of the paper

3.5. Studies Related to Value Creation

Table 7 shows nine studies about value creation through Servitization in descending order of citation scores. Visnjic et al. (2013) of the ESADE Business School, Barcelona, Spain, is heading the citation scores with her paper 'Servitization, disentangling the impact of service business models innovation on manufacturing firm performance'. This scholar pinpointed

that implementation hurdles potentially lead to lower profitability. Although she discussed business models, her paper merely addresses value creation through Servitization. In her survey among manufacturing industries, she reported an increased turnover of those companies that successfully managed to provide additional services, inherently connected to their products. She also found that investments to create an economy of scale of their services contributed positively to higher profitability. However, companies offering services separated from their products are less successful and suffer a decline in profitability over time. The more recent studies of Lindhult et al. (2018), Resta et al. (2017) and Ayala et al. (2017) address the importance of identifying value flows (both upstream and downstream) between the different stakeholders in cooperation networks.

Table 7: Studies Related to Value Creation

ID*	Title	Originating Country	Citation Score	Type of Study	Journal
40	Servitization: Disentangling The Impact of Service Business Models Innovation on Manufacturing Firm Performance (Visnjic Kastalli & van Looy, 2013)	Spain	191	Quantitative Study (44)	Journal of Operations Management
60	Servitized Manufacture: Practical Challenges of Delivering Integrated Product and Services (Baines, Lightfoot, & Kay, 2009)	United Kingdom	52	Case Study	Journal of Engineering Manufacture
16	Seeking Competitive Advantage with Service Infusion: A Systematic Literature Review (Eloranta & Turunen, 2015)	Finland	46	Literature Review	Journal of Service Management
26	Industrial Services - The Solution Provider's Stairway to Heaven or Highway to Hell? (Kohtamäki & Helo, 2015)	Finland	13	Literature Review	Benchmarking: An International Journal
17	Driver Configurations for Successful Service Infusion (Forkmann et al., 2017)	USA	9	Quantitative Study	Journal of Service Research
12	Knowledge Sharing Dynamics in Service Suppliers' Involvement for Servitization of Manufacturing Companies (Ayala et al., 2017)	Brazil	6	Case Studies (9)	International Journal of Production Economics
28	Value Logics for Service Innovation: Practice-Driven Implications for Service-Dominant Logic (Lindhult et al., 2018)	Sweden	1	Literature Review	Service Business
35	Enhancing The Design And Management of Product-Service Supply Chain: An Application to The Automotive Sector (Resta et al., 2017)	Italy	1	Qualitative Study	Service Science
37	Servitization in Contract Manufacturing - Evidence from Polar Business Cases (Viitamo et al., 2016)	Finland	1	Qualitative Study	Strategic Outsourcing

*) ID refers to the identification number of the paper

3.6. Studies Related to Collaborative Networks

Table 8 shows six recent papers relating to collaboration in networks. With their qualitative study, Story et al. (2017) focused on identifying capabilities that actors (manufacturers, customers and intermediaries) in a collaborative network need, to develop and maintain advanced services successfully. Moreover, Jamie et al. (2016) discussed types and sources of tensions that may occur between actors in a collaboration. Ziaee Bigdeli et al. (2018) discuss the risks associated with implementing strategic partnerships with network partners. At the same time, he concludes that a strategic alliance improves its competitiveness and arms against newcomers to the market. The main takeaway of the listed papers is that cooperation in collaborative networks increases the resilience of individual companies.

Table 8: Studies Related to Collaborative Networks

ID*	Title	Originating Country	Citation Score	Type of Study	Journal
58	Capabilities for Advanced Services: a Multi-Actor Perspective (Story et al., 2017)	United Kingdom	8	Literature Review	Industrial Marketing Management
23	Identifying Tensions in the Servitzed Value Chain (Jamie et al., 2016)	United Kingdom	7	Qualitative Study	Research Technology Management
42	Network Positioning and Risk Perception in Servitization: Evidence from the UK Road Transport Industry (Ziaee Bigdeli et al., 2018)	United Kingdom	7	Qualitative Study	International Journal of Production Research
19	Two Strands of Servitization: a Thematic Analysis of Traditional and Customer Co-Created Servitization and Future Research Directions (Green et al., 2017)	United Kingdom	6	Literature Review	International Journal of Production Economics
8	Conceptual Approach for Value Driven Performance in Servitising Companies (Adel & Wiesner, 2015)	Egypt	1	Literature Review	International Journal of Services and Operations Management
27	Cost-efficient Co-Creation of Knowledge Intensive Business Services (Kuula et al., 2018)	Finland	1	Literature Review	Service Business

*) ID refers to the identification number of the paper

3.7. Studies Related to Servitization Strategies

Table 9 shows eight studies we found regarding servitization strategies in the manufacturing industry. Although not quite recent, we consider Baines' literature review as valuable for further research due to its citation score (see Table 9). He found a wide range of servitization strategies in the

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manufacturing industry (Baines et al., 2009). After his survey among industrial firms in the UK, he reported increased turnovers and revenues at those manufacturers that successfully added services to their product offerings. He also noticed that these manufacturers were able to create a clear customer focus, rather than solely having a technology focus. Finally, he concluded that after an initial decline due to the change to another business model, the profitability of product-service propositions turns into growth. A recent study of Ryu et al. (2018) raised our interest in discussing the application of UX design and collaborations in manufacturing industries as a strategy to mitigate risks and overcome implementation issues.

Table 9: Studies Related to Servitization Strategies

ID*	Title	Originating Country	Citation Score	Type of Study	Journal
59	The Servitization of Manufacturing: A Review of Literature and Reflection on Future Challenges (Baines et al., 2009)	United Kingdom	667	Literature Review	Journal of Manufacturing Technology Management
63	Towards an Operations Strategy for Product-Centric Servitization (Baines et al., 2005)	United Kingdom	227	Literature Review	International Journal of Operations and Production Management
3	Product Service System: a Conceptual Framework from a Systematic Review (Annarelli et al., 2016)	Italy	44	Literature Review	Journal of Cleaner Production
61	The Adoption of Servitization Strategies by UK-Based Manufacturers (Baines et al., 2010)	United Kingdom	36	Survey	Journal of Engineering Manufacture
33	Motivations for Servitization: The Impact of Product Complexity (Raddats et al., 2016)	United Kingdom	23	Qualitative Study	International Journal of Operations and Production Management
41	The Development of a Generic Servitization Systems Framework (Weeks & Benade, 2015)	South Africa	2	Case Study	Technology in Society
2	Servicizing Solutions for Manufacturing Firms: Categorizing Service Ideas from Product-Service Integrated Examples (Ryu et al., 2018)	South Korea	1	Literature Review	Design Journal
7	Uncovering the Topic Landscape of Product-Service-System Research: From Sustainability to Value Creation (Lee et al., 2018)	South Korea	1	Literature Review	Sustainability

*) ID refers to the identification number of the paper

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4.   Conclusions

4.1.   Theoretical Contribution

The scoping process provided us with useful insights into the servitization research field, related to our research question. First, research concentrates in Europe (especially in the UK), where three universities in the manufacturing domain play an initiating role by organising conferences and research programs. Second, we saw five main research themes discussed: business models, organisational aspects, value creation, collaborative networks and servitization strategies. Third, technological innovation in manufacturing industries has to go hand in hand with service innovation to create viable business models since servitization processes inevitably entail a change in business models. Fourth, all papers acknowledge the vital role that organisations play in the successful transition to product-service solutions. Fifth, recent studies show an increasing interest in the identification of upstream and downstream value flows in collaborating networks. Sixth, collaboration increases the competitiveness and resilience of networking industrial manufacturers. Seventh, companies adopting servitization strategies show an increase in turnover and revenues. Finally, we see an emerging interest to adopt UX-design as a product-service innovation strategy in the manufacturing industry. However, as of yet, we have not found servitization research in the industrial design or service design domain, targeting manufacturing industries.

Moreover, we concluded that most studies mainly discussed the impact of servitization on the manufacturer's business. In many cases, the companies reorganised their value creation process or changed their business models. Generally speaking, manufacturing industries usually operate in a B2B market, with a strong focus on the needs of their direct customers. Most studies we found mainly focused on this one-to-one relationship between the manufacturer and its customer, creating PSS within its current B2B context. This fact may explain why we found only one paper discussing PSS design and business model design within technology-intensive manufacturing firms Visnjic et al. (2017). In this Rolls Royce case, surprisingly, we recognised a different design approach. We argue that Rolls Royce designed a PSS, considering its new B2B2C supply network. Although it bypassed the aircraft industry, it also addressed the needs of airlines. Here, Rolls Royce collaborated with

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airlines and the aircraft industry and co-created a PSS in a network. We call this *overarching servitization*.

4.2. Limitations and Further Research

Of course, a quantitative overview, such as this scoping study, does not evaluate the quality of the research. Although we found numerous studies, the search was limited to journal articles in the Scopus database. Due to this, there is a chance that we may have missed related articles in design journals, such as the *Journal of Design Issues* and *Design Science* since Scopus does not index design journals.

We found that when starting a servitization innovation process, B2B manufacturers lacked knowledge and practices for PSS design. Many questions remain about the capabilities and methods that R&D organisations need to become successful servitizers, changing their product portfolio from bare products to PSS. We therefore conclude that further servitization research should focus on designing PSS, including their related business models. We recommend exploring the service design domain more deeply, to understand how to apply service design methods for servitization in the B2B industry. Moreover, to better understand PSS design in collaborative networks, future research should focus on serving customers throughout the B2B2C value chain. In a forthcoming paper, we will create an *overarching servitization* framework that the manufacturing industry can use to design PSS in complex network collaborations.

References

Adel, R., & Wiesner, S. A. (2015). Conceptual approach for value driven performance in servitising companies. *International Journal of Services and Operations Management*, *21*(4), 504–531. https://doi.org/10.1504/IJSOM.2015.070258

Adrodegari, F., Bacchetti, A., Saccani, N., Arnaiz, A., & Meiren, T. (2018). The transition towards service-oriented business models: A European survey on capital goods manufacturers. *International Journal of Engineering Business Management*, *10*. https://doi.org/10.1177/1847979018754469

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Overarching servitization processes in industrial manufacturing – a scoping review
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Adrodegari, F., & Saccani, N. (2017). Business models for the service transformation of industrial firms. *Service Industries Journal*, *37*(1), 57–83. https://doi.org/10.1080/02642069.2017.1289514

Adrodegari, F., Saccani, N., Kowalkowski, C., & Vilo, J. (2017). PSS business model conceptualization and application[*]. *Production Planning and Control*, *28*(15), 1251–1263. https://doi.org/10.1080/09537287.2017.1363924

Ambroise, L., Prim-Allaz, I., & Teyssier, C. (2018). Financial performance of servitized manufacturing firms: A configuration issue between servitization strategies and customer-oriented organizational design. *Industrial Marketing Management*, *71*, 54–68. https://doi.org/10.1016/j.indmarman.2017.11.007

Annarelli, A., Battistella, C., & Nonino, F. (2016). Product service system: A conceptual framework from a systematic review. *Journal of Cleaner Production*, *139*, 1011–1032. https://doi.org/10.1016/j.jclepro.2016.08.061

Arksey, H., & O'Malley, L. (2005). Scoping studies: Towards a methodological framework. *International Journal of Social Research Methodology: Theory and Practice*, *8*(1), 19–32. https://doi.org/10.1080/1364557032000119616

Ayala, N. F., Paslauski, C. A., Ghezzi, A., & Frank, A. G. (2017). Knowledge sharing dynamics in service suppliers' involvement for servitization of manufacturing companies. *International Journal of Production Economics*, *193*, 538–553. https://doi.org/10.1016/j.ijpe.2017.08.019

Baines, T. S., Asch, R., Hadfield, L., Mason, J. P., Fletcher, S., & Kay, J. M. (2005). Towards a theoretical framework for human performance modelling within manufacturing systems design. *Simulation Modelling Practice and Theory*, *13*(6), 486–504. https://doi.org/10.1016/j.simpat.2005.01.003

Baines, T. S., Lightfoot, H., Benedettini, O., Whitney, D., & Kay, J. M. (2010). The adoption of servitization strategies by UK-based manufacturers. *Proceedings of the Institution of Mechanical Engineers, Part B: Journal of Engineering Manufacture*, *224*(5), 815–829. https://doi.org/10.1243/09544054JEM1567

Baines, T. S., Lightfoot, H. W., Benedettini, O., & Kay, J. M. (2009). The servitization of manufacturing: A review of literature and reflection on future challenges. *Journal of Manufacturing Technology Management*, *20*(5), 547–567. https://doi.org/10.1108/17410380910960984

Baines, T. S., Lightfoot, H. W., & Kay, J. M. (2009). Servitized manufacture: Practical challenges of delivering integrated products and services. *Proceedings of the Institution of Mechanical Engineers, Part B: Journal of Engineering Manufacture*, *223*(9), 1207–1215. https://doi.org/10.1243/09544054JEM1552

Baines, T., Ziaee Bigdeli, A., Bustinza, O. F., Shi, V. G., Baldwin, J., & Ridgway, K. (2017). Servitization: revisiting the state-of-the-art and research priorities. *International Journal of Operations and Production Management*, *37*(2), 256–278. https://doi.org/10.1108/IJOPM-06-2015-0312

Beltagui, A. (2018). A design-thinking perspective on capability development: The case of new product development for a service business model. *International Journal of Operations and Production Management*, *38*(4), 1041–1060. https://doi.org/10.1108/IJOPM-11-2016-0661

Bluemink, B., Simonse, L., Santema, S., & Lenior, O. (2020). Overarching Servitization Processes in Industrial Manufacturing - a Scoping Review. *Internal Report Delft University of Technology*

Brax, S. A., & Visintin, F. (2017). Meta-model of servitization: The integrative profiling approach. *Industrial Marketing Management*, *60*, 17–32. https://doi.org/10.1016/j.indmarman.2016.04.014

Bustinza, O. F., Bigdeli, A. Z., Baines, T., & Elliot, C. (2015). Servitization and competitive advantage : The importance of organizational structure and value chain position. *Research Technology Management*, *58*(5), 53–60. https://doi.org/10.5437/08956308X5805354

Collier, R. B., Dubal, V. B., & Carter, C. L. (2018). Disrupting regulation, regulating disruption: The politics of uber in the United States. *Perspectives on Politics*, *16*(4), 919–937. https://doi.org/10.1017/S1537592718001093

Bart Bluemink, Lianne Simonse, Sicco Santema, Odeke Lenior
Overarching servitization processes in industrial manufacturing – a scoping review
Linköping University Electronic Press

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Crowley, E., Burton, J., & Zolkiewski, J. (2018). Servitization intent as a factor in the servitization process. *Journal of Business and Industrial Marketing*, *33*(8), 1125–1140. https://doi.org/10.1108/JBIM-08-2016-0199

Dimache, A., & Roche, T. (2013). A decision methodology to support servitisation of manufacturing. *International Journal of Operations and Production Management*, *33*(11), 1435–1457. https://doi.org/10.1108/IJOPM-07-2010-0186

Eloranta, V., & Turunen, T. (2015). Seeking competitive advantage with service infusion: A systematic literature review. *Journal of Service Management*, *26*(3), 394–425. https://doi.org/10.1108/JOSM-12-2013-0359

Forkmann, S., Henneberg, S. C., Witell, L., & Kindström, D. (2017). Driver Configurations for Successful Service Infusion. *Journal of Service Research*, *20*(3), 275–291. https://doi.org/10.1177/1094670517706160

Gebauer, H., Saul, C. J., Haldimann, M., & Gustafsson, A. (2017). Organizational capabilities for pay-per-use services in product-oriented companies. *International Journal of Production Economics*, *192*, 157–168. https://doi.org/10.1016/j.ijpe.2016.12.007

Green, M. H., Davies, P., & Ng, I. C. L. (2017). Two strands of servitization: A thematic analysis of traditional and customer co-created servitization and future research directions. *International Journal of Production Economics*, *192*, 40–53. https://doi.org/10.1016/j.ijpe.2017.01.009

Grubic, T., & Jennions, I. (2018). Do outcome-based contracts exist? The investigation of power-by-the-hour and similar result-oriented cases. *International Journal of Production Economics*, *206*, 209–219. https://doi.org/10.1016/j.ijpe.2018.10.004

Hasselblatt, M., Huikkola, T., Kohtamäki, M., & Nickell, D. (2018). Modeling manufacturer's capabilities for the Internet of Things. *Journal of Business and Industrial Marketing*, *33*(6), 822–836. https://doi.org/10.1108/JBIM-11-2015-0225

Huikkola, T., Kohtamäki, M., & Rabetino, R. (2016). Resource realignment in servitization: A study of successful service providers explores how manufacturers modify their. *Research Technology Management*, *59*(4), 30–39. https://doi.org/10.1080/08956308.2016.1185341

Jamie, J. B., Story, V., Zolkiewski, J., Raddats, C., Baines, T. S., & Medway, D. (2016). Identifying tensions in the servitized value chain. *Research Technology Management*, *59*(5), 38–47. https://doi.org/10.1080/08956308.2016.1208042

Kanninen, T., Penttinen, E., Tinnilä, M., & Kaario, K. (2017). Exploring the dynamic capabilities required for servitization: The case process industry. *Business Process Management Journal*, *23*(2), 226–247. https://doi.org/10.1108/BPMJ-03-2015-0036

Kindström, D., & Kowalkowski, C. (2014). Service innovation in product-centric firms: A multidimensional business model perspective. *Journal of Business and Industrial Marketing*, *29*(2), 96–111. https://doi.org/10.1108/JBIM-08-2013-0165

Kohtamäki, M., Baines, T., Rabetino, R., & Bigdeli, A. Z. (2018). Practices and tools for servitization: Managing service transition. In *Practices and Tools for Servitization: Managing Service Transition*. https://doi.org/10.1007/978-3-319-76517-4

Kohtamäki, M., & Helo, P. (2015). Guest editorial: Industrial services – The solution provider's stairway to heaven or highway to hell? *Benchmarking*, *22*(2), 170–185. https://doi.org/10.1108/BIJ-01-2015-0002

Kuula, S., Haapasalo, H., & Tolonen, A. (2018). Cost-efficient co-creation of knowledge intensive business services. *Service Business*, *12*(4), 779–808. https://doi.org/10.1007/s11628-018-0380-y

Lee, H., Seo, H., & Geum, Y. (2018). Uncovering the topic landscape of product-service system research: From sustainability to value creation. *Sustainability (Switzerland)*, *10*(4). https://doi.org/10.3390/su10040911

Lindhult, E., Chirumalla, K., Oghazi, P., & Parida, V. (2018). Value logics for service innovation: practice-driven implications for service-

dominant logic. *Service Business*, *12*(3), 457–481.
https://doi.org/10.1007/s11628-018-0361-1

Liu, C. H., Chen, M.-C., Tu, Y.-H., & Wang, C.-C. (2014). Constructing a
sustainable service business model: An S-D logic-based integrated
product-service system (IPSS). *International Journal of Physical
Distribution and Logistics Management*, *44*(1), 80–97.
https://doi.org/10.1108/IJPDLM-02-2013-0039

Luz Martín-Peña, M., Díaz-Garrido, E., & Sánchez-López, J. M. (2018).
The digitalization and servitization of manufacturing: A review on
digital business models. *Strategic Change*, *27*(2), 91–99.
https://doi.org/10.1002/jsc.2184

Oliveira, M. G., Mendes, G. H. S., Albuquerque, A. A., & Rozenfeld, H.
(2018). Lessons learned from a successful industrial product service
system business model: emphasis on financial aspects. *Journal of
Business and Industrial Marketing*, *33*(3), 365–376.
https://doi.org/10.1108/JBIM-07-2016-0147

Palo, T., Åkesson, M., & Löfberg, N. (2018). Servitization as business
model contestation: A practice approach. *Journal of Business
Research*. https://doi.org/10.1016/j.jbusres.2018.10.037

Rabetino, R., Kohtamäki, M., & Gebauer, H. (2017). Strategy map of
servitization. *International Journal of Production Economics*, *192*,
144–156. https://doi.org/10.1016/j.ijpe.2016.11.004

Raddats, C., Baines, T., Burton, J., Story, V. M., & Zolkiewski, J. (2016).
Motivations for servitization: the impact of product complexity.
International Journal of Operations and Production Management,
36(5), 572–591. https://doi.org/10.1108/IJOPM-09-2014-0447

Reim, W., Parida, V., & Örtqvist, D. (2013). Strategy, business models or
tactics -what is product-service systems (PSS) literature talking
about? *Proceedings of the International Conference on Engineering
Design, ICED*, *4 DS75-04*, 309–318.

Reim, W., Parida, V., & Örtqvist, D. (2015). Product-Service Systems
(PSS) business models and tactics - A systematic literature review.
Journal of Cleaner Production, *97*, 61–75.
https://doi.org/10.1016/j.jclepro.2014.07.003

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Resta, B., Gaiardelli, P., Cavalieri, S., & Dotti, S. (2017). Enhancing the design and management of the product-service system supply chain: An application to the automotive sector. *Service Science*, *9*(4), 302–314. https://doi.org/10.1287/serv.2017.0193

Ryu, H., Song, H., Seo, K., & Kim, J. (2018). Servicizing Solutions for Manufacturing Firms: Categorizing Service Ideas from Product-Service Integrated Examples. *Design Journal*, *21*(2), 267–302. https://doi.org/10.1080/14606925.2018.1431456

Story, V. M., Raddats, C., Burton, J., Zolkiewski, J., & Baines, T. (2017). Capabilities for advanced services: A multi-actor perspective. *Industrial Marketing Management*, *60*, 54–68. https://doi.org/10.1016/j.indmarman.2016.04.015

Tongur, S., & Engwall, M. (2014). The business model dilemma of technology shifts. *Technovation*, *34*(9), 525–535. https://doi.org/10.1016/j.technovation.2014.02.006

Viitamo, E., Luoto, S., & Seppälä, T. (2016). Servitization in contract manufacturing – evidence from Polar business cases. *Strategic Outsourcing*, *9*(3), 246–270. https://doi.org/10.1108/SO-04-2016-0014

Visnjic, I., Jovanovic, M., Neely, A., & Engwall, M. (2017). What brings the value to outcome-based contract providers? Value drivers in outcome business models. *International Journal of Production Economics*, *192*, 169–181. https://doi.org/10.1016/j.ijpe.2016.12.008

Visnjic, I., Neely, A., & Jovanovic, M. (2018). The path to outcome delivery: Interplay of service market strategy and open business models. *Technovation*, *72–73*, 46–59. https://doi.org/10.1016/j.technovation.2018.02.003

Visnjic Kastalli, I., & van Looy, B. (2013). Servitization: Disentangling the impact of service business model innovation on manufacturing firm performance. *Journal of Operations Management*, *31*(4), 169–180. https://doi.org/10.1016/j.jom.2013.02.001

Weeks, R., & Benade, S. (2015). The development of a generic servitization systems framework. *Technology in Society*, *43*, 97–104. https://doi.org/10.1016/j.techsoc.2015.09.003

Zhang, W., & Banerji, S. (2017). Challenges of servitization: A systematic literature review. *Industrial Marketing Management*, *65*, 217–227. https://doi.org/10.1016/j.indmarman.2017.06.003

Ziaee Bigdeli, A., Baines, T., Bustinza, O. F., & Guang Shi, V. (2017). Organisational change towards servitization: a theoretical framework. *Competitiveness Review*, *27*(1), 12–39. https://doi.org/10.1108/CR-03-2015-0015

Ziaee Bigdeli, A., Bustinza, O. F., Vendrell-Herrero, F., & Baines, T. (2018). Network positioning and risk perception in servitization: evidence from the UK road transport industry. *International Journal of Production Research*, *56*(6), 2169–2183. https://doi.org/10.1080/00207543.2017.1341063

Actionable attributes of service design for business

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Abstract

The role of service deliverables in the early phases of service development has been studied both in academia and practice. We lack knowledge on the impact of service deliverables for the later phases of the service development process in which service designers are usually not engaged. In this paper, we aim to understand what attributes of service deliverables help business clients to act upon the deliverables on their own after service designers are gone.

To elicit actionable attributes of service deliverables, e.g., reports, we conducted semi-structured interviews with five leading and recognizable service design consultants from Poland who lead service design consultancies. We identified three categories of actionable attributes of service deliverables: communication, contextual, and transformative attributes. The attributes might support service designers in empowering their clients to make use of the service deliverables in later phases of service development.

Keywords: service design, service design deliverables, actionable attributes, service development

The absence of service design consultants in later phases of service development

The integration of service design into service development enhances a company's competitiveness (Gemser & Leenders, 2001; D'Ippolito, 2014; Patricio et al., 2011; Ostrom et al., 2015). Therefore, an increasing number of companies are reaching out for the support of external service design consultants (Yu, 2015). Large service providers, such as banks, decide to collaborate with service design consultancies to support the delivery of the optimal customer experience (Johnston & Kong, 2011), or develop capabilities necessary to offer new services that fit customer needs (Gericke & Maier, 2011).

When collaborating with companies, service designers are usually involved only in the service design phase of the service development process (Overkamp, 2019). We understand service design as the Double Diamond process model (The Design Council, 2015) which is an approach to designing service concepts. The implementation of the service concepts takes place in the later phases of the service development process (Overkamp, 2019), in which service designers are often not engaged. Therefore, the responsibility and ownership of the implementation is on the clients (Han, 2010; Overkamp & Holmlid, 2016). Karpen et al. (2017) indicate there is a lack of research on organizational capabilities supporting service design, rendering the implementation of service design challenging. Ostrom et al. (2015) included "fostering service design thinking throughout the organization" among key service design research priorities.

Service deliverables empowering clients in later phases of service development

Many scholars have studied the role of service deliverables in early phases of service development, e.g., in the context of communicating user insights or engaging stakeholders (Sleeswijk Visser, 2009; Segelström, 2013). The impact of service deliverables produced early in later phases has received little attention. Almqvist (2018) argues that service deliverables can act as a material supporting clients in later phases of service development after service designers are gone. Therefore, we are interested in understanding what attributes of service deliverables help clients to act upon service deliverables in later phases of service development. The aim of this paper is also to support service design

consultants in communicating the outcomes of their work and empower clients from large companies.

This initial exploration aims to contribute to research on the later phases of the service development process. The focus is on service deliverables (co-)produced and delivered by service design consultants in the early phase of service development before they exit the company. Three categories of actionable attributes of service deliverables: communication, contextual, and transformative attributes are the main contribution of this paper.

Background

There exist richness of methods and tools that assist service designers in the early phase of service development, e.g., in idea generation. Still, there are only a few methods and toolkits to support the later phases (Martins, 2016). In this section, we present aspects of service deliverables that are important for the study and which are required to add value to the later phases of service development.

Service design deliverables

Service design is a visual discipline (Segelström, 2013). By using visualization techniques, e.g., personas (Cooper, 1999), customer journeys (Parker & Heapy, 2006) or blueprints (Bitner et al., 2008), service designers aim to externalize their thinking (Schon, 1983), communicate user insights (Sleeswijk Visser, 2009), and capture the intangible aspects of services. Visualizations are service deliverables that service design consultants usually deliver to clients during the service design process. Visualizations can also be included in the *final* forms of service deliverables, that is *project documentation* and *service concepts* that service design consultants usually deliver to clients before they leave the service design project (Almqvist, 2018). The focus of this research is with an emphasis on *final* service deliverables. These are descriptive and more open forms of service deliverables, such as summaries and project reports, which received little attention compared to personas (e.g., Chang et al., 2008; Miaskiewicz & Kozar, 2011).

Supporting the success of later phases of service development *on day one*

Weisser et al. (2018) identified 24 factors that influence the success of implementing service design concepts. They argue that service implementation "*starts on day one*" of the project. Out of the 24 factors, they distinguished the six *hygiene* factors. These are factors that indicate how to create the conditions at the beginning of the service development necessary for favoring result-oriented implementation in later phases. Also, Overkamp & Holmlid (2017) indicated the importance of developing an early understanding of future implementation by proposing the concept of *implementation during design*. Almqvist (2018) proposed the concept of service design roadmapping to assist clients in using service design deliverables after service designers are gone. Karpen et al. (2017) discussed multilevel conditions facilitating service design throughout an organization. Many authors discussed organizational agility, flexibility or adaptability as important aspects for service design (Bernardes & Hanna, 2009; Kindström et al., 2013; Weigelt & Sarkar, 2012). Our research contributes to this with the exploration of attributes that empower clients to act upon service deliverables in later phases of service development.

Method

The main aim of this paper is to understand which attributes of service deliverables help organizations to act upon the deliverables on their own after designers are gone.

To elicit actionable attributes of service deliverables, the first author of this paper conducted semi-structured interviews with five leading and recognizable service design consultants from Poland who lead service design consultancies.

Service designers were identified in the Polish service design community. We selected senior service designers who recognize the challenges in delivering actionable results for their clients.

Only one of the five interviewed service designers were trained in the tradition of industrial design. The remaining four have backgrounds in political science, the humanities, economics, and management. Such diversity in designers' backgrounds is common in Poland, where service design is not yet well developed. Therefore, we were interested in conducting interviews in Poland where service design presents itself to

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clients as a novelty approach, and, as a result, consultants rarely participate in service implementation.

Design in Poland is recognized in categories of aesthetics. The socio-historical background of the country - its high tendency towards risk-taking, its vertical management model, its low level of empathy and social capital, amongst others – means that incorporation of service design presents a challenge to teamwork and co-creation. This insight into the practice of service in Poland enables us to explore the phenomenon of how clients are empowered by acting upon service deliverables from demanding angles.

We prepared the scenario for the interviewing session using the elements of generative design research (Sanders & Stappers, 2012) to support service designers in reflecting and expressing experiences, observations and ideas during the interviews. We created a storyline toolkit composed of visual and textual elements addressing the following areas:

- service design practice - what are the background and distinguishing characteristics of the interviewed service designer?
- cooperation with large organizations - what are the goals of the cooperation? what are the role(s) and responsibilities of a service designer when cooperating with large organizations?
- forms and roles of the tangible and intangible service deliverables - does the decision-making support the choice of the given deliverables?
- understanding of the roles of service deliverables - what are the challenges in producing deliverables that will be used after designers are gone?
- discussing practices of empowering clients through tangible and intangible service deliverables.

To explore these themes and support the interviewees in sharing their experiences, the storyline toolkit included supporting materials such as:

- exemplary strategies for embedding actionable attributes in service deliverables based on the results of the literature review,
- insights from the service design practice of the first author of this paper,
- visual and textual analogies to support service designers in telling stories about how they communicate service deliverables to their clients (Figure 1).

The duration of interviews ranged from 80 minutes to 170 minutes.
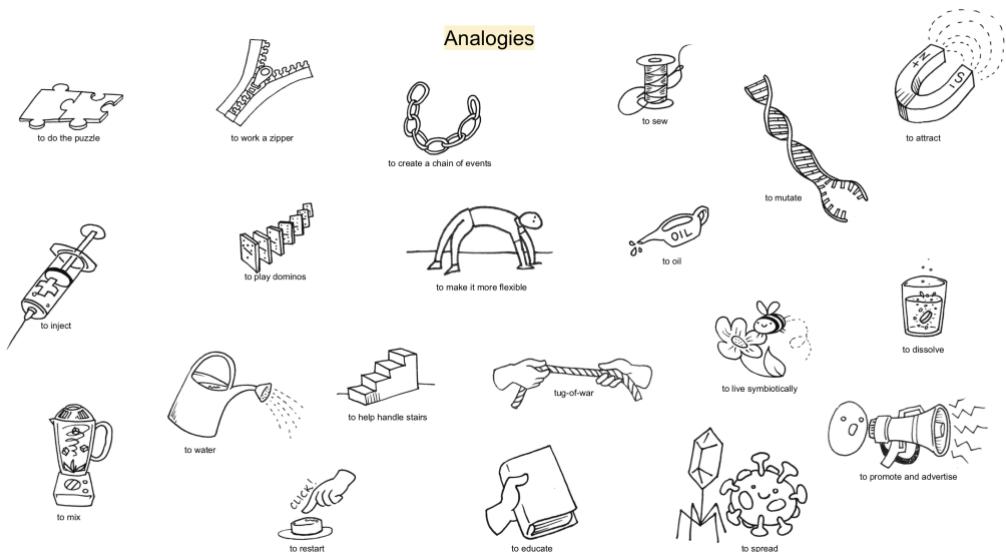
Figure 1. The exemplary visual element of the storyline toolkit. The set of analogies meant to inspire service designers when talking about their challenges in embedding service deliverables in large organizations.

We transcribed the recordings of the interviews and analyzed the material searching for the examples of actions, strategies, patterns, or behaviors within the practice of the interviewed service designers which would make service deliverables more useful and actionable for clients. We identified 176 statements. We clustered these statements using the affinity diagram technique (Beyer & Holtzblatt, 1998). By eliciting the meaning of the identified affinity groups, we identified three categories of attributes of service deliverables that empower clients to act upon the deliverables on their own.

Results

All of the interviewees recognized the need to be more engaged in the later phases of service development. Knowing that they are going to leave the project after delivering service concepts, they strive to prepare clients

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for the later phases by providing action plans. This is an example of a *bridging* approach that resonates with the need to create connectivity and integrity between the service design and service implementation phase indicated by Yu & Sangiorgi (2014).

Interestingly, the interviewees recognized the potential of the presented set of analogies (Figure 1) as a design tool supporting designers in coming up with strategies and mechanisms for embedding service deliverables in companies. For example, one designer said that service deliverables should act like a magnet that produces a powerful magnetic field. Therefore, it attracts as many people in the company as possible.

The tools that the interviewees use to communicate the outcomes of their work are similar and correspond with the classification presented in the Background section. The examples of the tools are:

- *visualizations*, e.g., personas, service blueprints, business model canvases,
- *project documentation*, e.g., reports, summaries, guidelines, list of recommendations,
- *service concepts* in the form of speculative films, scenarios, design principles, or prototypes.

Interviewees did not have any proven strategies for developing and communicating the final service deliverables. The form of final deliverables depends on the context of the project, the needs of the client, and the experience of service designers.

Furthermore, the interviewees expressed that when delivering the final deliverables, the major challenges are to:

- overcome the internal politics of the company,
- inspire, inform and motivate employees who have not been part of the service design project,
- and make sure that the client will be able to apply the results without the support of designers.

Below we introduce three categories of actionable attributes for service deliverables: communication, contextual, and transformational attributes. These categories are an introductory attempt to support service design consultants in developing final service deliverables that empower clients to act upon the deliverables after designers are gone.

1. **Communication attributes** indicate the importance of sensemaking and comprehension of final deliverables. Clients need

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to retrospect and create understanding out of different actions and deliverables of the service design projects to be able to pursue further actions. The communication attributes include:

- identifying common language

Interviewees indicated the importance of conscious use of wording and jargon to create a common language (Bailey, 2012) with clients. A common language is a mixture of clients' vocabluary with service design terms and statements that were co-created and used during a service design project. When using common language in the final deliverables, e.g., reports, clients receive material that they can recognize and therefore relate to. Furthermore, if presented statements or insights are unambiguous, and easy to remember, it encourages clients to share them within the organization, which makes the deliverables actionable. One interviewee summed it up as a need to "*create synthetic summaries that attract as many people as possible.*"

- creating multi-level presentations

This means presenting the outcomes of service design projects at various levels of abstraction, e.g., research, design, business (Stappers & Sleeswijk Visser, 2014). The multi-level presentation can have a form of textual and visual digest that compiles various types of information. Therefore, with layers of information, clients can easily build associations between multiple pieces of knowledge and outcomes. As a result, they receive an immediate understanding of the decision-making process behind the project. It brings trust and validation for delivered service concepts, and supports discussions on deliverables and planning future actions.

2. **Contextual attributes** indicate the importance of embedding service deliverables in a real-world context and encouraging clients to go beyond the service design project. As a result, clients can see the competitive potential of presented opportunities, know what to do to implement them, and be motivated to do that.

- a real-world context

This means presenting the outcomes of service design projects in correlation with various factors, e.g., technological trends, competitive solutions, relevant to the particular problem or issue that

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was the subject of the project. Embedding service deliverables in a real-world context helps clients to recognize the value of the deliverables and decide on the implementation priorities.

The interviewees indicated that as they conduct projects for various clients and operate in various organizational cultures, they are fluent in context-switching and bringing an external perspective into the business of their clients. One interviewee summed it up as follows:

We help clients to notice that their company is part of the given ecosystem. The butterfly effect that is happening in one place can trigger the change in their business. We show that their industry can be in various correlations. There are cause-and-effect relationships that we see. The change and value happen at the crossroads.

- planning beyond the service design project

The interviewees expressed the need to prepare clients for service implementation during the service design phase. Therefore, from the very beginning of the service design project they explored the context of future implementations. Exploring and then knowing the organization's capabilities, service designers developed strategies for stakeholder engagement. At the level of deliverables it meant providing action plans, so clients know exactly what to do after designers are gone. As one of the interviewees said:

If we don't say what the next steps are, nothing will happen or will happen much less. We tell what to do, and what to prepare, how to do it, and when. The project managers are getting involved in that, as we solve their work a bit. Whilst not having a spectacular effect, the result, when implemented, was small but important.

3. **Transformative attributes** indicate the importance of organizational transformation as a critical factor for service implementation. Therefore, clients need to know what to change in their organization, e.g., to gain new skills, to successfully implement the service. The transformative attributes include:

- questioning the status quo of the company

This means showing the strengths and weaknesses of the existing conditions in the company in terms of its readiness for service implementation. At the level of service deliverables, it translates into

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questioning the status quo of the company by suggesting alternatives, e.g., to current norms, behaviors, or assumptions, and providing recommendations of changes and indicating the agents of change in the company.

The interviewees claimed that as consultants, they have the privilege of acting from a position of ignorance, asking questions about fundamental aspects of the client's business that have rarely or never been asked before. It can initiate changes in the company that were difficult or impossible to start without the presence of an external facilitator.

- overcoming the inertia of the company

As one interviewee said:

Service designers can identify issues that slow down the internal processes that nobody has seen happening or the possibilities to do something easier and simpler. In large organizations, there are lots of activities around the subject: emails, meetings, etc. There are many of time-eaters.

In order to ensure the success of the later phases of service development, service deliverables could include suggestions for more iterative ways of working or indicating areas for operational improvement.

Discussion

In this section we discuss the implications of the three categories of actionable attributes of service deliverables that empower clients to act upon the deliverables after designers are gone.

1. **The form of service deliverables depends on the designer-client relationship. Therefore, the communication attributes of service deliverables need further investigation in this context.**

   There exist various designer-client relationships that determine the designers' role in the organization and influence service deliverables. Therefore, deliverables can take the form of handover documents in *delivering* relationships or tools that facilitate communication and support the implementation of sustainable

change within an organization in *partnering* and *facilitating* relationships (Yu, 2015).

The interviewees did not express what type of design-client relationship they prefer and promote, and how it relates to the development of service deliverables.

2. **Organizational transformation is critical for service implementation, which emphasizes the importance of further investigation of transformative attributes of service deliverables.** Overkamp & Ruijs (2017) proposed the use of visual language to co-create boundary objects that support the development of shared understanding regarding service implementation early in a service design project. This suggests there is space for new types of implementation-oriented service deliverables that can support *implementation during design* (Overkamp & Holmlid, 2017). The interviewees perceived the implementation of service concepts more as future actions rather than something that can take place in the early phase of the project. Furthermore, the existing studies that present service design as a transformative approach can provide substantial input for the further development of transformative attributes.

3. **Knowledge existing outside the design discipline focusing on designing change, as noted in Kotter's 8 Steps for Change** (Martins, 2016). The interviewed service designers did not draw from other disciplines to come up with deliverables that support culture or organizational change. They were trapped in the world of service design tools and methods. Therefore, there exists a potential for further development of the three categories of attributes.

Conclusions and future work

This paper contributes to the research on the later phases of service development. We concentrated on supporting service design consultants in empowering clients from large organizations to act upon service deliverables in service development after designers are gone. We propose that empowerment can be achieved by embedding the communication, contextual, and transformative attributes into final service deliverables.

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In future studies, we will explore how service design consultants can apply actionable attributes in their practice and conduct further exploration of actionable attributes drawing from disciplines outside design. Finally, further research will be conducted on the needs and challenges of business stakeholders, to provide them with service deliverables empowering them to act on their own.

References

Almqvist, F. (2018). *Service design in the later project phases: Exploring the service design handover and introducing a service design roadmap.* Proceedings of the ServDes2018 Conference. Linköping University Electronic Press. Politecnico di Milano. pp. 666-678.

Bailey, S. (2012). *Embedding service design: the long and the short of it. Developing an organisation's design capacity and capability to sustainably deliver services.* Third Nordic Conference on Service Design and Service Innovation. pp. 1-11.

Bernardes, E.S. & Hanna, M.D. (2009). A theoretical review of flexibility, agility and responsiveness in the operations management literature: Toward a conceptual definition of customer responsiveness, *International Journal of Operations & Production Management*, 29(1), 30-53. https://doi.org/10.1108/01443570910925352

Beyer, H. & Holtzblatt, K. (1998). *Contextual Design. Defining customer-centered systems.* Academic Press.

Bitner, M.J., Ostrom, A.L., & Morgan, F.N. (2008). *Service Blueprinting: A practical technique for service innovation.* California Management Review, 50(3), 66-94.

Chang, Y., Lim, Y., & Stolterman, E. (2008). *Personas: from theory to practices.* Proceedings of the 5th Nordic conference on Human-computer interaction: building bridges. NordiCHI '08. ACM, New York, NY, USA, pp. 439-442.

Cooper, A. (1999). *The inmates are running the asylum: Why high-tech products drive us crazy and how to restore the sanity.* Macmillan Computer Publishing.

D'Ippolito, B. (2014). *The importance of design for firms, competitiveness: A review of the literature.* Technovation 34(11), 716-730.

Gemser, G., & Leenders, M. (2001). How integrating industrial design in the product development process impacts on company performance. *The Journal of Product Innovation Management.* 18, 28-38.

Gericke, K., & Maier, A. (2011). *Scenarios for coupling Design Thinking with Systematic Engineering Design in NPD.* 1st Cambridge Academic Design Management Conference. Cambridge, United Kingdom.

Han, Q. (2010). *Practices and principles in Service Design. Stakeholders, knowledge and community of service.* Dundee. University of Dundee.

Johnston, R., & Kong, X. (2011). *The customer experience: A road-map for improvement. Managing Service Quality.* An International Journal, 21, 5-24.

Karpen, I.O., Gemser, G. & Calabretta, G. (2017), A multilevel consideration of service design conditions: Towards a portfolio of organisational capabilities, interactive practices and individual abilities. *Journal of Service Theory and Practice*, 27(2), 384-407. https://doi.org/10.1108/JSTP-05-2015-0121

Kindström, D., Kowalkowski, C., & Sandberg, E. (2013). Enabling service innovation: A dynamic capabilities approach. *Journal of Business Research*, 66(8), 1063–1073. https://doi.org/10.1016/j.jbusres.2012.03.003

Martins, R. (2016). Increasing the success of service design implementation: Bridging the gap between design and change management. *Touchpoint,* 8(2), 12–14.

Miaskiewicz, T., & Kozar, K. (2011). Personas and user-centered design: How can personas benefit product design processes? *Design Studies*, 32(5), 417-430, https://doi.org/10.1016/j.destud.2011.03.003

Ostrom, A. L., Parasuraman, A., Bowen, D. E., Patrício, L., & Voss, C. A. (2015). Service Research Priorities in a Rapidly Changing Context. *Journal of Service Research*, 18(2), 127–159. https://doi.org/10.1177/1094670515576315

Overkamp, T. (2019). *How Service Ideas Are Implemented: Ways of Framing and Addressing Service Transformation.* http://www.diva-portal.org/smash/record.jsf?pid=diva2%3A1346607&dswid=-6287

Overkamp, T., & Holmlid, S. (2016). *Views on implementation and how they could be used in service design. Service design geographies.*

Proceedings of the ServDes 2016 Conference. Linköping Electronic Conference Proceedings, pp. 1650-3740 (online).

Overkamp, T., & Holmlid, S. (2017). Implementation during design Developing understanding about service realisation before implementation. *The Design Journal*, 20(1

0, S4409-S4421, DOI: 10.1080/14606925.2017.1352937

Overkamp T., & Ruijs, F. (2017). Involving stakeholders towards service implementation. Co-designing change of practices using a visual language, *The Design Journal*, 20(1), S531-S549, DOI: 10.1080/14606925.2017.1353002.

Parker, S., & Heapy, J. (2006). *The journey to the interface.* London: Demos.

Patricio, L., Fisk, R.P., Falcao e Cunha, J., & Constantine, L. (2011). Multilevel Service Design: From Customer Value Constellation to Service Experience Blueprint. *Journal of Service Research,* 14(2), 180-200.

Sanders, E., & Stappers, P.J. (2012). *Convivial Toolbox. Generative research for the front end of design.* Amsterdam: BIS Publishers.

Schon, D. (1983). *The Reflective Practitioner. How Professionals Think in Action.* Basic Books.

Segelström, F. (2013). *Stakeholder Engagement for Service Design: How service designers identify and communicate insights* (PhD dissertation). Linköping University Electronic Press, Linköping. https://doi.org/10.3384/diss.diva-97320.

Sleeswijk Visser, F. (2009). *Bringing the everyday life of people into design.* (PhD dissertation). Delft: Technische Universiteit Delft.

Stappers, P.J., & Sleeswijk Visser, F. (2014). *Meta-levels in design research: Resolving some confusions.* Proceedings of DRS 2014: Design's big debates, Sweden: Umeå Institute of Design, 16-19.

The Design Council. (2015). *Design methods for developing services.* Retrieved from: https://www.designcouncil.org.uk/resources/guide/design-methods-developing-services

Weigelt, C., & Sarkar, M. (2012). Performance implications of outsourcing for technological innovations: Managing the efficiency and

adaptability trade-off. *Strategic Management Journal,* 33(2), 189-216. www.jstor.org/stable/41307424

Weisser, T., Jonas, W., & Mager, B. (2018). Successfully Implementing Service Design Projects. *Touchpoint. The Journal of Service Design,* 10(1).

Yu, E. (2015). *Exploring different relationships between designers and clients in design practices for service development.* In Proceeding of the IASDR Conference on Design Research: Interplay, pp. 2423-2436.

Yu, E., & Sangiorgi, D. (2014). *Service Design as an approach to New Service Development: reflections and future studies.* Fourth Service Design and Innovation Conference ServDes.2014, Lancaster, United Kingdom.

Designing blockchain based services

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Abstract

Distributed Ledgers or Blockchain-based systems have the potential to provide enablers for the development of future services. By combining deep encryption, tamper-proof transparency and secure personal data to a wide variety of services, there are great opportunities for the development of new services.

In developing new service experiences that capitalise on the potential benefits of Blockchain, there are a number of key challenges. These include:

- Emerging opportunities for services provided by blockchain

- Blockchain as an Identity Enabler

- Public perceptions and confusion about blockchain

- Issues of privacy, mistrust of data storage and possible leakage

- Design methodologies for services to guide users through new blockchain automated and frictionless experiences

This short practice-based paper presents a case study and reflects on the learnings and experience of designing services utilising blockchain technology for digital identity. The paper identifies issues and problems and provides a comprehensive review of the benefits to establish a

framework for designing services around distributed ledger blockchain based services.

Introduction

Blockchain, a digital technology based on a system of distributed ledgers, has become a high-profile technology that is driving the development of new platforms and services. Initially used as the basis of crypto currencies such as Bitcoin, the technology has driven the development of a number of new business models and companies developing innovative platforms that are beginning to impact traditional industries.

Blockchain builds highly secure records of transactions that cannot be altered. Blockchain services have initially focused on finance and payment systems but new services are in development especially around blockchain identity validation. These new models deliver secure, validated confirmation of people that is driving a new level of transparent and seamless customer experience. This paper describes a case study of service design practice around Blockchain-enabled identity services.

Introduction to Blockchain

Blockchain works by combining a system of timestamped records that are linked by complex encryption algorithms. Any transaction can be recorded in a "distributed ledger" and validated by a peer to peer system that effectively ensures that the record cannot be altered.

Blockchains therefore provide a highly secure basis for any type of transaction. This level of tamper-proof security has driven the development of cryptocurrencies (Nakamoto 2008), where highly complex Blockchains are used to "mine" coins that can be traded, without the requirement of a financial platform as provided historically by the banking industry.

Beyond cryptocurrencies, other applications have developed. "Smart Contracts" allow for automatic and instant distribution of funds between various parties (Bartoletti & Pompianu, 2017). This is used for financial transactions and simplifies back end systems.

Individual components can be tracked along the supply chain and the origins of produce can be validated. Aero engine parts, for example, can be logged with a blockchain that validates their source and history, ensuring that fake or substandard parts do not make their way into maintenance and repair systems. (Korpela, Hallikas & Dahlberg, 2017).

Blockchain-based companies such as Evernym (www.evernym.com) have developed potential applications across finance, healthcare, government and insurance. Blockchain enables trusted digital relationships using the concept of "self-sovereign identity" which provides secure digital identities in the domain of the user rather than having them stored by social media or in data banks. (Der, Jahnichen & Surmelli, 2017). A number of companies have developed Blockchain-validated identity systems to create digital passports for passport processing for international hub airports. (Rowan Kelleher, S. 2019). This case study focuses in detail on one example.

In recent times migration from conflict zones such as Syria has led to large numbers of unidentified refugees. A range of biometric devices from fingerprint readers to voice recordings have been piloted to establish identity. Identification enables tracking of aid and predicts where resources are required. The GSMA report "Refugees and Identity" (2017) reports how the UN has been forefront in developing biometric and blockchain-protected identities – though there are concerns with refugee identity being dependant on complex technology systems. (Latonero, 2019)

Service benefits of Blockchain

Nascent examples of blockchain innovation are opening up new possibilities for enhanced service and customer experiences. In describing the core enablers that blockchain provides and combining these with various types of data, new opportunities begin to emerge. The core enablers can be described as:

Trust - blockchain is "secure by design" – the system has been designed to be impossible to tamper with and the chain makes visible any change in the sequence. When connected to an authenticating body such as a passport office, a high level of authorisation and validation of a person's identity is enabled. Current systems of validation require face-to-face identity checks and documents that prove address and occupation. A

secure blockchain-based digital system can be applied to further private data such as financial or medical records.

Data security – The strength of validation provided by blockchain allows access to data or services with a high degree of certainty. Contracts, components and people's identities cannot be tampered with or faked. Access to an individual's data can be restricted to that person only, removing threats of data and identity theft.

Safe, immediate transactions – linking the identities of two parties in a transaction removes the possibility of failure or misdirection. Other parties cannot hack in to reroute or cream off any part of the transaction.

Frictionless service experience - Direct immediate transactions create the opportunities for seamless events and experiences to replace previously complex processes.

Compliance – rules, policies, anti-bias patterns, personal preferences and behaviour can all be built into blockchain transactions to ensure transactions are compliant, safe and accurate. Human error or bias is removed.

Service problems of Blockchain

When designing blockchain services, there are a number of elements that are problematic to the development of better service experiences.

"Blockchain" - Recently, business and industry reports are increasingly wary of the term as interest in companies has waned due to slow delivery. Gartner (CIO Survey 2018) published research claiming only 1% of companies were adopting blockchain. Blockchain companies are increasingly using the term "distributed ledger" to reduce the negative sentiment around blockchain.

Blockchain is poorly understood by consumers. Associations with criminal behaviour and risky crypto currencies has developed a critical narrative. (Marr, 2018)

Environmental impact – Cryptocurrency platforms require huge numbers of calculations for encryption. Energy is required to cool data centres and this is increasingly being noticed by an environmentally--ware society. (Potter, 2020)

Interoperability – There are different platforms being developed for both public and private access. Other platforms are being developed for cross-industry sharing. The Corda platform for financial consortium R3 (2019) is an example of a platform that will serve a large number of financial institutions. The ISO Standards system is working to create policies and agreements to enable easier multiplatform solutions.

Emerging practice in Service Design

Blockchain services provide benefits that have the potential to simplify and transform normally complex processes. The resulting customer experiences are radically different from existing services, with the potential to deliver seamless and transparent services, but at the cost of confused navigation and lack of confidence in systems that are hidden from the person using the service. As these alternative systems are developed, service design thinking is being applied to understand their impact and orchestrate the new processes and experience in order to:

- Bring a human-centred approach to the overall experience that blockchain plays a role in and ensure user satisfaction.

- Orchestrate the new processes that blockchain has removed or simplified to ensure they are easily understood

- Ensure user control and transparency of blockchain systems and the use of data

Digital passport case study

To describe how service design methodologies are being used to form new Blockchain services, this paper focuses on a case study of the development of a blockchain identity system for use by air travel passengers by the UK company ObjectTech (www.objectivetgg.com)

The company was asked to develop a blockchain system for an international hub airport that would be capable of handling large numbers of passengers arriving or in transit at a volume that current human or automated passport readers would find impossible to manage.

The current process requires each traveller's passport to be examined. The document is the internationally accepted method to enable people to cross international borders. As a physical paper document, it can be lost,

stolen or forged. For people who are marginal in society, who are homeless or refuges, identity papers or passports are missing or unattainable, thus denying access to essential life services.

The processing of large numbers of international travellers at airports has driven the development of automated passport reading machines. Using facial recognition and document readers, it is possible to reduce the numbers of staff and increase the speed of processing.

The concept for a Blockchain passport is to go further and develop a completely automated system that authenticates identity in the background during the travel process. Facial recognition is used at points of entry to airports and validated against a passport authority-issued blockchain. The passenger simply walks into the airport and off the plane at the other end without any interaction.

A number of system elements are required to create a secure identity validation system.

- Biometric validation of a person, through facial recognition from digital cameras. This is placed at departures and arrivals to authenticate the person's identity.

- Validation organisation - a body that issues national identity documents such as a passport office.

- An agreed blockchain protocol (ISO) that allows a blockchain identity to be issued by the identity validating body (passport office).

- A safe data bank and access protocol that allow service providers to access the blockchain-validated identity.

Once these elements are in place, the system of passport control becomes invisible to the passenger and international travel becomes completely seamless. A travel experience that becomes invisible raised concerns as to how people would find such an experience. The design team used service design methodology and tools to work alongside the technical team to explore these possible issues and design the experience of digital identity and overall human experience.

Service Design methodology

The project applied a design process that followed the "Double Diamond" methodology described by the UK Design Council in 2005. (Ball, 2019) This provides a useful high-level framework with which development and

design teams can align their activities. For this project key activities included:

Discover:

- Establishing who will interact with these new services and how users will interact with these new services in order to design the technology experience from a human centred perspective.

- Journey mapping – mapping current identity document and travel experiences and mapping new journeys to identify and test expectations and perceptions of the new blockchain process.

Define:

- Identifying principles for digital identity including security, data protection and relationship to commercial or government services

- Establishing the benefits that the blockchain process brings

- Identifying barriers and issues associated with Blockchain

Development:

- Envisioning the digital passport experience

- Envisioning additional service experience opportunities

- Creating design principles for Blockchain enabled services

Deliver:

- Future Scenarios – create tangible use cases and scenarios that describe connected experience and services enabled by Blockchain and other digital platforms.

Initial findings

User research was conducted across 21 individuals who represented broad categories of travellers in different continents and across all ages and were categorised into:

- Solo Business Travellers

- Couples Leisure Travellers

- Family Leisure Travellers

- Individual Young Travellers

The team compared current travel experiences with new journey concepts to gain insight into the reaction to an invisible, automated process.

The research group identified a number of issues:

- The removal of passports provides a seamless experience but passengers showed that this was initially confusing and uncomfortable. Without feed-back to acknowledge that they were passing through the system, passengers were unsure when they were free to leave at their destination.

- The absence of a physical document is unnerving and creates discomfort for people. Many of the research group were concerned about system failure. In addition, there are features of a physical passport such as visa and entry stamps that provide a record of travel which have strong emotional value.

- Facial recognition left passengers uncomfortable and raised questions about how images would be stored or would be reused.

- The research group found it difficult to understand Blockchain encryption and were worried by negative perceptions and whether it was trustworthy.

- Passengers struggled to imagine the benefits of enhanced personal services and experiences.

Designing the Blockchain journey

Refection on the research findings identified that the lack of tangibility of the process, despite the advantages of seamless experience, led to discomfort and unease, especially in first use. The results informed the designers that it was important to match people's expectations and aid understanding of where they are in the process to accelerate trust in such a radical new experience.

The service design team used an established 5 step journey framework to create new journey concepts. Taking a passenger view of each step of the journey, the "delta" or difference from the familiar historical passport process created by the blockchain system was mapped.

Journey Stage	Awareness	Engage	Use	Grow	Advocacy
Event	Advance notification of new passport process	Entering point of departure	Idenity validated passport and visa approved	Confidence in process and use of data	Extending use of blockchain services
Issue	No touchpoints or interactions with users	Facial Recognition invisible to users	Automatic validatation, process is invisible	Ensure confidence in process and use of data	Showing value in other uses: payments, health
Design Solution	Advance education and touchpoints to explain process	Provide digital process tracking to educate and set expectations for seamless experience	Notifications to communicate progress and confirm successful entry	Transparent trip records, digital passport , permission & control.	Standardisation, protocols, seamless sytem & multiplatform integration
Touchpoint	Emails, time and location notifications close to point time of travel	Applications, geo alerts to notify start of the passport process	Device notifications, alerts, haptics confirming progress	Personal data vault, secure identity app, national passport identity	Secure personal access & control via apps

Figure 1 – Journey framework used to analyse issues and identity design solutions for the new Blockchain digital passport experience.

The output of the journey mapping process led to a series of design workshops to develop new journeys which were turned into prototypes for further user testing with the research group.

Emerging Themes

When combining the overall concerns of the research group with the analysis of journey scenarios, themes began to emerge where specific design interventions could manage and support users through the experience. From these observations, the team identified several themes in designing for Blockchain.

Transparency.

Creating a narrative that explains the underlying processes and the benefits that they bring helps build confidence.

Seamless Connected Services

Blockchain removes physical steps, interaction with systems, duplication and form filling. A "once only" philosophy to data entry joins up platforms, service providers and systems to work together.

Personalisation

Blockchain creates highly personalised data that systems can use to learn about our behaviour and respond with information and services that are tailored individually. This provides an opportunity to both protect and allow for data to provide an unimagined level of automatically personalised services and customer experience.

Human Centered Collaboration

Blockchain is developed by experts in encryption, complex algorithms and quantum levels of mathematical theory. Service designers bring their techniques of human-centred design, problem reframing, creativity and prototyping to ensure that the unique qualities of blockchain are in the service of customer experience and will deliver systems that are trustworthy, safe, secure and transparent. A collaborative approach delivers a collective vision of usable and effective blockchains services

Future vision for Blockchain services

As the service experience emerged, the design team wanted to visualise the possibilities and create a vision video showing how the digital passport experience will transform travel and showcase innovative new services and experiences. The video can be viewed at
https://www.objectivetgg.com

The following images from the video capture the key elements of the experience and potential new services.
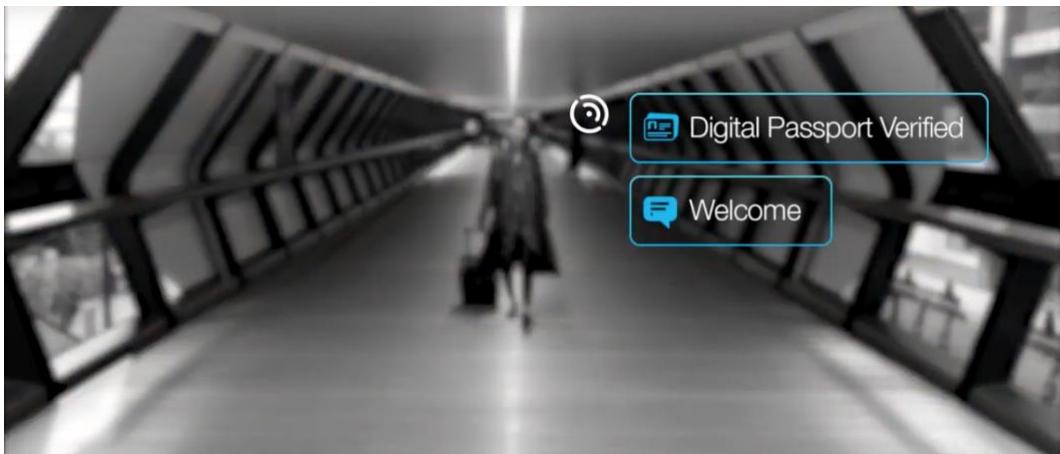
Figure 2 – Scenario 1 - Seamless entry.

Facial recognition matches blockchain data to validate individual identity, making international borders frictionless and processes invisible. Mobile phone notifications and haptics can confirm that the passenger is free to enter the country.
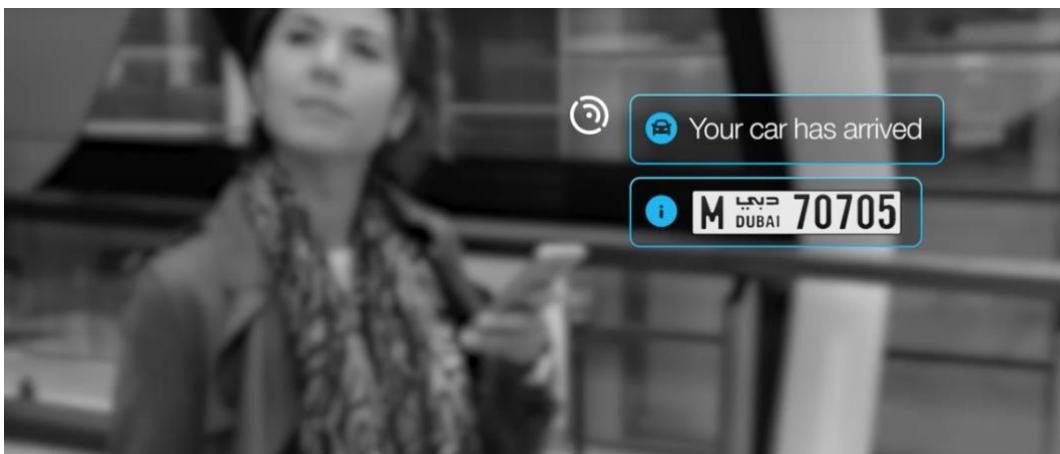

Figure 3 – Scenario 2 - Identity Transaction

Identifying and validating a driver provides safety and confidence in service providers.

Figure 4 – Scenario 3 - Payments

The ultimate driver of identity is payment transactions. Taking the 2018 Amazon Go (2017) vision to its conclusion, identity-enabled systems allow for immediate and transparent payments where you chose your item and walk out of the store. In this case the trip is paid for automatically using an identity-validated digital wallet connected to a bank account.

Figure 5 – Scenario 4 - Recognition

The Internet of Things promises a new level of personalised services using data to proactively connect you to products and services. In this case identity recognition is enabling a personalised greeting and for any personal preferences to be matched to the customer. Room entry is automatic as you approach the door.
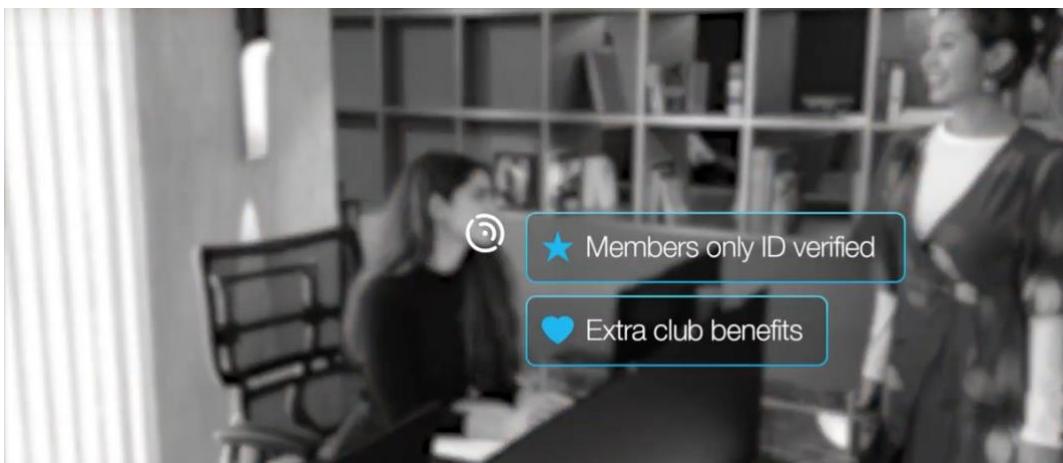
Figure 5 – Scenario 5 – Access

Identifying access to exclusive services and building loyalty reward programmes.
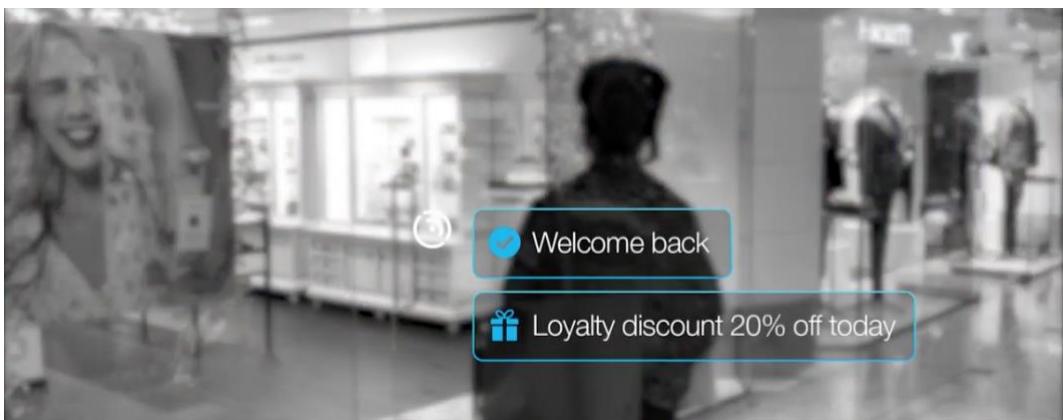

Figure 6 – Scenario 6 – Retail Experiences

Identifying at a store entrance unlocks recognition and personal incentives to shop and build loyalty - making data sharing valuable and desirable.

Figure 7 –Scenario 7 - Personal Data.

In the example of medical data, relevant information can be shared, securely and in confidence. Proactive warning of allergies, medical history and preferred methods of treatment can be shared in an instant with any medical service provider.

Emerging design principles for Blockchain services

As the final design of the Blockchain Digital Passport and other services connected to it progresses, a series of principles have emerged which can be applied to any blockchain-enabled service.

Design blockchain services as a journey, not a process

The design methodology of mapping out how people will engage and gain trust in new seamless systems requires journey signposting, confirmations and points of access. Mapping creates better user experiences that build confidence in new services amongst users.

Build in affordance

Clues and triggers enable comprehension and communicate key stages of the process. They signify what is about to happen or has happened and can be viewed or modified.

Create permission interfaces

Control of access to data by third parties requires an interface. This can be a set of variable settings from totally private, emergency-only data exchange to access-to-all, where service benefits may be desirable.

Be proactive

Advance education, explanation and event warnings in their context allow users to be chaperoned though processes and understand when automated blockchain identity processes have happened.

Memory

Blockchain provides a tamper-proof memory of every transaction. For many applications there are strong practical and emotional reasons to provide access to an accurate record of historic transactions and events.

Cross service access

Blockchain identity can be used across a wide range of services which require individual log-ons, form filling and re-use of data. Blockchain can provide trustworthy information on identity or transactions without repetitive form filling and duplication.

These principles are the basis of an evolving set of design guidelines for exploiting the benefits of Blockchain and other "covert" systems that remove familiar human processes. The intention is to validate and improve as further applications are designed.

Conclusions

As we travel into the 4th Industrial Revolution enabled by AI, Machine Learning, Big Data and Blockchain, service design practice and methodology is vital in translating and transforming technology opportunities into human benefit. Design methods shape technologies to be future-proof and human-focused and in doing so remove both economic and social risk.

Embracing the core components of blockchain as a service enabler allows us to move to new levels of experience design beyond the constraints of many systems and processes. There are new challenges created by the transparency and invisibility of blockchain-enabled services – how do we design a digital identity system we and others can trust? Do we understand and have confidence in systems we can't see? How do we stay in control of decisions that have become automatic and may have unwanted consequences?

Applying service design practice and methodology is shown in this example to assist in maintaining human comprehension and control. The tools of service design practice- to envision, speculate, critique and shape - are vital to the development of the next generation of experiences. Blockchain has the potential to free us from process, system-based restrictions, bias and prejudice and form filling. Whether we are designing

how to cross international borders, the customer experience of Prada or validating identity in the refugee camps of Turkey, service design practice and methodologies will help organisations ensure people accept and embrace the benefits of technology innovation and create transformational experiences that work for all in society from the wealthiest to the most vulnerable.

References

Amazon Go (2017)
https://www.youtube.com/watch?reload=9&v=NrmMk1Myrxc

Ball, J. (2019). *Double Diamond Universally Accepted Depiction Design Process.* Design Council, UK. https://www.designcouncil.org.uk/news-opinion/double-diamond-universally-accepted-depiction-design-process

Bartoletti, M. & Pompianu, L. (2017). *An empirical analysis of smart contracts: platforms, applications, and design patterns*. Cagliari. Springer

Der, U., Jähnichen, S., Sürmeli, J. (2017). *Self-sovereign Identity − Opportunities and Challenges for the Digital Revolution.* Cornell University. https://arxiv.org/abs/1712.01767

Furlonger, D., Kandaswarmy, R., *Blockchain Status 2018: Market Adoption Reality.* Gartner. https://www.gartner.com/en/documents/3869693/blockchain-status-2018-market-adoption-reality0

GSMA (2017). *Refugees and Identity: considerations for mobile enabled registry and aid delivery.* https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2017/06/Refugees-and-Identity.pdf

Korpela, K., Hallikas, J., Dahlberg, T. (2017) *Digital Supply Chain Transformation toward Blockchain Integration* manoa.hawaii.edu. https://scholarspace.manoa.hawaii.edu/handle/10125/41666

Latonero, M., Hiatt, K., Napolitano, A., Clericetti, G., Penagos,M. (2019). *Digital Identity in the Migration & Refugee Context: Italy Case Study.* Data&Society. https://datasociety.net/wp-content/uploads/2019/04/DataSociety_DigitalIdentity.pdf

Marr, B (2018). *The 5 Big Problems with Blockchain Everyone Should Be Aware Of.* Forbes. https://www.forbes.com/sites/bernardmarr/2018/02/19/the-5-big-problems-with-blockchain-everyone-should-be-aware-of/#1a8ca0641670

Nakamoto, S. (2008). *Bitcoin: A Peer-to-Peer Electronic Cash System*. Academia.edu

Potter, M (2020). What are the Environmental Effects of Blockchain Technology. *The Environmental Magazine.* https://emagazine.com/environmental-effects-of-blockchain/

R3 Corda Platform (2019) *Industry-wide collaboration is in our DNA.* https://www.r3.com/about/

Rowan Kelleher, S. (2019). *Paradigm Shift Biometrics and the Blockchain Will Replace Paper Passports sooner than you think.* Forbes. https://www.forbes.com/sites/suzannerowankelleher/2019/06/28/paradigm-shift-biometrics-and-the-blockchain-will-replace-paper-passports-sooner-than-you-think/#301063bb5c7f

An application framework of service design for servitization

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Abstract

Einola et al. (as cited in Kohtamäki, Rabetino, & Einola, 2018, p. 186) pointed out that "the tensions that manufacturers face when transitioning from manufacturing products toward the provision of customized integrated solutions are often paradoxical in nature," which could be taken as the cultural and corporate challenges of adopting a servitization business strategy (Baines et al., 2009; Viet et al., 2013). As an emerging design field, service design offers a holistic, human-centered, co-creative approach to developing new services (Costa et al., 2018), which has the potential to be embodied in the process of servitization. This short paper tries to build a general framework: The Application of Service Design for Servitization (ASDS) Framework, in which 3 levels of service design applications in the servitization transition for a company are proposed, and corresponding roles of service design are discussed. The goal of this framework is to guide and categorize research related to service design being utilized in the process of servitization, and transfer the Service-Dominate logic (S-D Logic) inside the organization.

Keywords: service design, servitization, service dominant logic

Introduction

The term "servitization" was coined by Vandermerwe and Rada (1988) to describe the phenomenon in which the innovations of an organization's capabilities and processes happen to better create mutual value through a shift from selling products to selling Product-Service Systems (PSS) (Baines et al., 2009). To realize that, organizational changes, which include organizational structure, process, and culture, would occur in the transition towards servitization (Dubruc, Peillon, & Farah, 2014; Jamie et al., 2016; Kreye & Jensen, 2014; Ziaee Bigdeli et al., 2017).

So, when considering adopting a servitization business strategy, the significant cultural and corporate challenges can be broadly categorized into the ***integrated product-service design***, ***organisational strategy*** and ***organisational transformation*** (Baines et al., 2009; Viet et al., 2013). Here, the ***integrated product-service design*** could be interpreted as ***PSS Development process***, which appears to be a path for manufacturing SMEs to follow in the transition from products to services (Teso & Walters, 2016), and the PSS is a marketable set of products and services capable of jointly fulfilling a user's need (Goedkoop et al., 1999). And the ***organisational strategy*** is the adaptation of necessary ***organisational structures and processes*** to support the customer allegiance required to deliver a combination of product and service (Baines et al., 2009). For ***organisational transformation***, it is a shift of corporate mindset from the traditional manufacturing culture to the service culture (Baines et al., 2009), which could be taken as adopting the Service-Dominant Logic (S-D Logic) (Vargo & Lusch, 2004). In detail, S-D Logic provided a new root to emphasize the customers' role in co-creating value-in-use and -in-context, to improve his/her systems' adaptability and survivability by integrating operand (e.g. knowledge and skills) and operant (e.g. products) resources in different ways (Costa et al., 2016).

Einola et al. (as cited in Kohtamäki, Rabetino, & Einola, 2018, p. 186) pointed out that "the tensions that manufacturers face when transitioning from manufacturing products toward the provision of customized integrated solutions are often paradoxical in nature." Early research also indicated that these tensions between product-oriented and service-oriented (or customized integrated solutions) business models stretch from financial factors to organizational structure and culture (Visnjic Kastalli, Van Looy, & Neely, as cited in Kohtamäki, Rabetino, & Einola, 2018). For example, increasing product-life spans through services may cannibalize product revenues due to the decreasing sales of products (Visnjic Kastalli, Van Looy, & Neely, 2013). Those tensions reveal the obstacles for

organizations to comprehensively adopt the S-D Logic, and finally slow the pace of servitization.

As an emerging design field, service design offers a holistic, human-centered, co-creative approach to developing new services (Costa et al., 2018), which has the potential to be embodied in the process of servitization. For instance, servitization is seen as an opportunity for Service Design to instil a User Centred Design approach within product-based businesses, and demonstrate how the user involvement brings value to the company (Teso & Walters, 2016). Besides, design literally shapes organizational reality, which is part of organizational DNA (Junginger, 2015). Designers have been increasingly approaching issues of organisational and behavioural change (Sangiorgi, 2011), and service design can even reform service systems and organizations (Yu & Sangiorgi, 2018). Based on the above empirical understanding, service design is key for the organizational changes of companies in the process of servitization. Furthermore, Junginger & Sangiorgi propose an Orienting Framework (Figure 1) including three levels of the potential impact that service design can have on the organization, respectively *Service Interaction Design*, *Service Design Interventions*, and *Organisational Transformation* (Junginger & Sangiorgi, 2011), which has the potential to guide the utilization of service design in the transition of servitization. All the above previous research builds a solid foundation for service design to be applied in the process of servitization. However, related literature is still lacking. In particular, the theoretical framework of applying service design in servitization has not been fully explored. So, based on previous research, this short paper aims to propose a framework and routine for application of service design in the process of servitization. In addition, the role of service design in different stages would also be discussed.
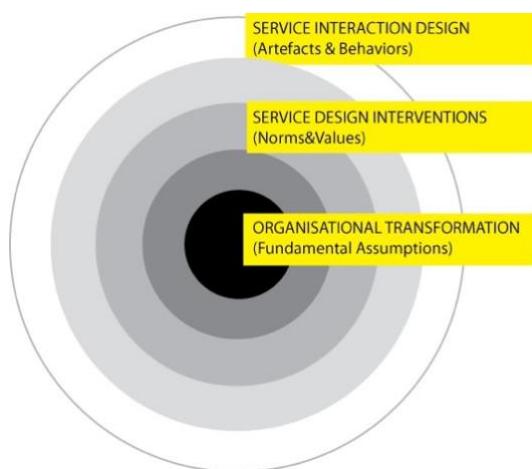
Figure 1: Levels of potential impact of Service Design projects (Junginger & Sangiorgi, 2011)

Building the Application of Service Design for Servitization (ASDS) Framework

The Preliminary Analysis and Development

Based on the understanding of servitization (Vargo & Lusch, 2004), it is noticeable the target for service design in the servitization transition is smoothing the potential tensions from the three main challenges (the ***integrated product-service design***, ***organisational strategy,*** and ***organisational transformation*** (Viet et al., 2013; Baines et al., 2009)) and aiding the process of organizational transformation of embracing the S-D Logic, i.e. transforming from product-dominant logic to service-dominant logic. Here, the above three challenges can be interpreted as 1) ***external performance***, 2) ***internal support***, and 3) ***internal driver***. And the relationship among them could be interpreted as below (Figure 2). For the ***integrated product-service design (New PSS Development)***, it could be taken as the external performance of the adoption of S-D Logic, but it is not a signal that this organization successfully adopts the S-D Logic; when it goes to ***organisational strategy (organizational structure and process)***, the organization physically changes to adopt the S-D Logic; and the end of ***organisational transformation*** could be taken as the signal that the organization has successfully adopted the S-D Logic.
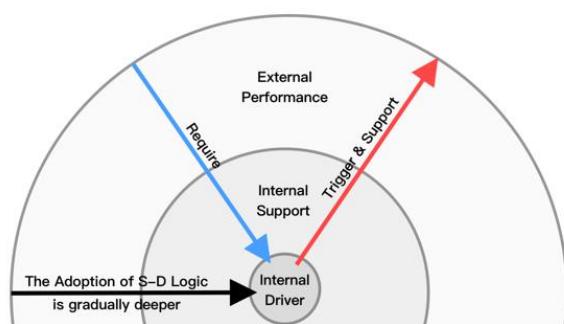

Figure 2: The levels of the 3 challenges in servitization

The Orienting Framework of Junginger & Sangiorgi (2011) introduces the levels of service design in the organizational change process and the

concepts of **artefacts and behaviors**, **norms and values**, and **fundamental assumptions,** which are highly coincident with above three levels of challenges in servitization. These could be taken as the "breakpoints" that trigger the action of service design in deeper levels. But within the context of service design in servitization, we should switch the spotlight from service design to the S-D Logic, i.e. we should define the level of service design based on the penetration of S-D Logic inside the organization. Indeed, whilst this Orienting Framework (Junginger & Sangiorgi, 2011) points out the possible levels of service design in the organizational change, we still need to add knowledge-transferring as the dimension to guide the penetrating levels of service design. The knowledge needed to be transferred in the servitization process is the adoption of S-D Logic.

In the article "*Transferring, translating, and transforming: An integrative framework for managing knowledge across boundaries*", Carlile introduced an Integrated 3-T Framework for Managing Knowledge Across Boundaries. And this 3-T Framework describes the boundaries of three capabilities (i.e. from the known to novelty: Transferring, Translating, and Transforming) that required for effective communication across domains (Figure 3) (Carlile, 2004).
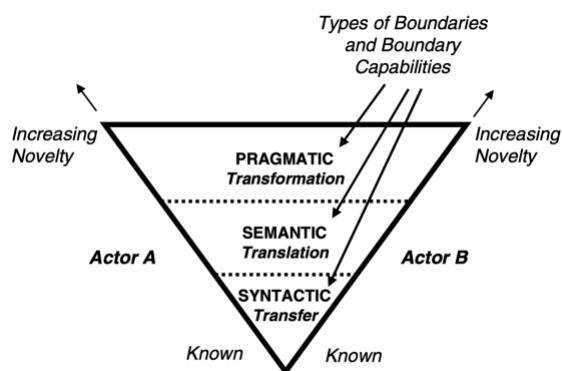
Figure 3: An Integrated/3-T Framework for Managing Knowledge Across Boundaries (Carlile, 2004)

So, based on this 3-T Framework (Carlile, 2004) and Service Design Impact Orienting Framework from Junginger & Sangiorgi (2011), the short paper proposes the Application of Service Design for Servitization (ASDS) Framework (Figure 4).
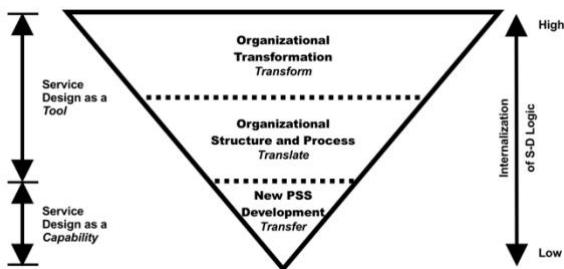
Figure 4: The Application of Service Design for Servitization (ASDS) Framework

A Synthesis Perspective

In the ASDS Framework, 1) **New PSS Development** requires transferring knowledge from external service design professionals, in which service design could be taken **as a capability** inside the New PSS Development process. Then for 2) **Organizational Structure and Process**, the New PSS Development should be translated into the new organizational structure and process of those companies. For the cultural layer of 3) **Organizational Transformation**, it means infusing the S-D Logic into the companies which creates a transformation inside the companies. For the latter two levels, service design could be considered **as a tool** to facilitate the above processes. In summary, from bottom to top, the servitization journey of company involves a process of internalizing the S-D Logic, recognized as the "knowledge" existing inside this company, and service design is utilized to smooth the tensions during this journey.

1st Level - Service Design for New PSS Development

During this stage, Service Design professionals may come mainly from outside the target company so that this process could be considered as a transferring of knowledge of service design capabilities into the new PSS development process. The process of developing new services differs from the process of developing new products, in terms of higher complexity, lack of a linear structure, and need for integrated implementation (Calabretta et al. 2016). Service design professionals may need to cooperate with traditional product developers to fix that tension and develop New PSS, which suits the objectives of the companies or even individual strategic business units and meets the targeted market needs.

At this level, service design is taken *as a capability*. What the organizations need during this stage are the service design capabilities to support the New PSS Development process. Because of this, the room for utilizing service design would be limited. The main issue for service design professionals is the effective delivery the service design capabilities to the targeted organizations.

2nd Level - Service Design for Organizational Structure and Process

Although companies could exploit external professionals to develop new PSS in order to improve operating efficiency, companies need to fix the New PSS Development capabilities and adapt the organizational structure and process to those new capabilities. In this case, the target of service design professionals is to fix the tensions emerging during the transition from the existing organizational strategy to the new organizational strategy which allows them to achieve those New PSS Development capabilities.

So, the role of service design for the companies or organizations here shifts from *as-a-capability* to *as-a-tool*. At this level, what the organizations need is more than the service design capabilities: they require service designers to engage the organisation, to visualise and demonstrate the value of change, to read and interpret the organisation itself (Junginger & Sangiorgi, 2011), i.e. service design becomes a tool to translate the S-D Logic as the form of new organizational structures and processes.

3rd Level – Service Design for Organizational Transformation

In order to keep servitization evolving, companies are required to permanently modify their way of thinking and acting (Calabretta et al., 2016), which calls for an organizational transformation which ensures the S-D Logic is deeply embedded within the company. In this process, *as a tool* for those organizations, service design could be used to communicate with managers and other employees inside companies to cultivate and transform their mindset: service designers should use the design inquiry as a conversation with the organization to unveil their deeper assumptions for potential stronger resistances (Junginger & Sangiorgi, 2011). During this stage, S-D Logic achieves the highest internalization and eventually blends into the culture of the companies.

Conclusion

Beginning with the definition of servitization, this short paper introduces the three main challenges (the ***integrated product-service design***, ***organisational strategy*** and ***organisational transformation***) to adopting the servitization in business strategy (Baines et al., 2009; Viet et al., 2013) and tensions which could be triggered when organizations face those challenges. This short paper then analyses those challenges and interprets the relationship between those challenges. Built on the Orienting Framework of Junginger & Sangiorgi (2011), this short paper suggests to add knowledge-transferring as a dimension to interpret the penetrating levels of service design in the servitization process.

Based on Carlile's Integrated 3-T Framework for Managing Knowledge Across Boundaries (Carlile, 2004) and the Orienting Framework of Junginger & Sangiorgi (2011), this short paper proposes the Application of Service Design for Servitization (ASDS) Framework. Inside the framework, the 1st level is the Service Design for New PSS Development, the 2nd level is Service Design for Organizational Structure and Process, and the 3rd level is Service Design for Organizational Transformation. Separately, those 3 levels respond to the three main challenges mentioned before. Furthermore, roles of service design inside those 3 levels shift from ***as-a-capability*** in the 1st level to ***as-a-tool*** in both the 2nd and 3rd levels. In addition, the journey from 1st level to 3rd level, i.e. the servitization transition of the companies, is also accompanied by the internalization of S-D Logic inside the companies. The aim of the ASDS Framework is to guide and categorize the research for service design applications for manufacturing companies to embrace the transition of servitization.

Unavoidably, this short paper has some drawbacks and disadvantages and requires further work. Given the author's lack of practical experience in business and service design, this short paper bases its reflections on conceptual theories and empirical common sense. Further research and practice should be made to verify those ideas. In addition, relatively weak business and management knowledge have resulted in a superficial and generally exploratory discussion on the utilizing of service design. Moreover, the lack of sufficient literature for review may lead to the content appearing relatively rough.

References

Baines, T., Lightfoot, H., Benedettini, O., & Kay, J. (2009). The servitization of manufacturing: a review of the literature and reflection on future challenges. Journal of Manufacturing Technology Management, 20(5), 547-567. https://doi.org/10.1108/17410380910960984

Bigdeli, A. Z., Baines, T., Bustinza, O. F., & Shi, V. G. (2017). Organisational change towards servitization: A theoretical framework. Competitiveness Review, 27(1), 12-39. https://doi.org/10.1108/CR-03-2015-0015

Burton, J., Story, V., Zolkiewski, J., Raddats, C., Baines, T. S., & Medway, D. (2016). Identifying Tensions in the Servitized Value Chain. Research-Technology Management, 59(5), 38-47. https://doi.org/10.1080/08956308.2016.1208042

Calabretta, G., Lille, C. D., Beck, C., & Tanghe, J. (2016). Service Design for Effective Servitization and New Service Implementation. Service Design Geographies. Proceedings of the ServDes.2016 Conference, 24-26 May, Copenhagen, Linköping University Electronic Press, Linköpings universitet, 91-104.

Carlile, P. R. (2004). Transferring, Translating, and Transforming: An Integrative Framework for Managing Knowledge Across Boundaries. Organization Science, 15(5), 555-568. https://doi.org/10.1287/orsc.1040.0094

Costa, N., Patrício, L., & Morelli, N. (2016). Revisiting PSS and Service Design in the Light of SD-Logic. Service Design Geographies. Proceedings of the ServDes.2016 Conference, 24-26 May, Copenhagen, Linköping University Electronic Press, Linköpings universitet, 119-131.

Costa, N., Patrício, L., Morelli, N., & Magee, C. L. (2018). Bringing Service Design to manufacturing companies: Integrating PSS and Service Design approaches. Design Studies, 55, 112-145. https://doi.org/10.1016/j.destud.2017.09.002

Dubruc, N., Peillon, S., & Farah, A. (2014). The Impact of Servitization on Corporate Culture. Procedia CIRP, 16, 289-294. https://doi.org/10.1016/j.procir.2014.01.028

Goedkoop, M. J., C.J.G. van Halen, H.R.M. te Riele, & P.J.M. Rommens. (1999). Product Service-Systems, ecological and economic basics, Dutch Ministries of Environment (VROM) and Economic Affairs (EZ) Report.

Jamie, J. B., Story, V., Zolkiewski, J., Raddats, C., Baines, T. S., & Medway, D. (2016). Identifying tensions in the servitized value chain. Research Technology Management, 59(5), 38–47. https://doi.org/10.1080/08956308.2016.1208042

Junginger, S. (2015). Organizational Design Legacies and Service Design. The Design Journal, 18(2), 209-226. https://doi.org/10.2752/175630615X14212498964277

Junginger, S., & Sangiorgi, D. (2011). Service Design and Organizational Change: Bridging the Gap Between Rigour and Relevance. International Journal of Design, 5(2), 4339–4348. http://hdl.handle.net/11311/968585

Kohtamäki, M., Rabetino, R., Einola, S., (2018). Paradoxes in Servitization. In Kohtamäki, M., Baines, T., Rabetino, R., & Bigdeli, A. Z. (Eds), Practices and Tools for Servitization: Managing Service Transition (pp. 185-199). Springer International Publishing.

Kreye, M. E., & Jensen, P. L. (2014). Key variables of organisation design in servitization. In Proceedings of the 21st International EurOMA Conference, European Operations Management Association.

Sangiorgi, D. (2011). Transformative Services and Transformation Design. International Journal of Design, Vol 5, No 2 (2011). http://hdl.handle.net/11311/968237

Teso, G., & Walters, A. T. (2016). Service implementation: a framework to assess readiness of manufacturing SMEs. Service Design Geographies. Proceedings of the ServDes.2016 Conference, 24-26 May, Copenhagen, Linköping University Electronic Press, Linköpings universitet, 78-90.

Tempelmayr, D., Stadlmann, C., Mang, S., Überwimmer, M., & Ehrlinger, D. A framework of capabilities and business dimensions influencing servitization based upon service dominant logic, service science and network and system theory. http://www.ise-monitor.eu/fileadmin/user_upload/Full_paper_A_framework_of_capabilities_and_business_dimensions_influencing_servitization.pdf

Vandermerwe, S., & Rada, J. (1988). Servitization of business: Adding value by adding services. European Management Journal, 6(4), 314-324. https://doi.org/10.1016/0263-2373(88)90033-3

Vargo, S. L., & Lusch, R. F. (2004). Evolving to a New Dominant Logic for Marketing. Journal of Marketing, 68(1), 1-17. https://doi.org/10.1509/jmkg.68.1.1.24036

Viet, D., Urmetzer, F., Martinez, V., Zaki, M., & Neely, A. (2013). THE FUTURE OF SERVITIZATION: Technologies that will make a difference, Cambridge Service Alliance Report. https://cambridgeservicealliance.eng.cam.ac.uk/resources/Downloads/Monthly%20Papers/150623FutureTechnologiesinServitization.pdf

Visnjic Kastalli, I., Van Looy, B., & Neely, A. (2013). Steering Manufacturing Firms towards Service Business Model Innovation. California Management Review, 56(1), 100–123. https://doi.org/10.1525/cmr.2013.56.1.100

Yu, E., & Sangiorgi, D. (2018). Exploring the transformative impacts of service design: The role of designer–client relationships in the service development process. Design Studies, 55, 79-111. https://doi.org/10.1016/j.destud.2017.09.001

Ziaee Bigdeli, A., Baines, T., Bustinza, O. F., & Guang Shi, V. (2017). Organisational change towards servitization: a theoretical framework. Competitiveness Review, 27(1), 12–39. https://doi.org/10.1108/CR-03-2015-0015

SERV2⊙
DES2⊙

Rethinking service design in addressing antimicrobial resistance in India

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Abstract

This abstract presents initial stages of a PhD project that is rethinking service design tools within the area of antimicrobial resistance (AMR) as an opportunity to critique their role in complex social challenges in the Global South, focusing on India.

AMR is when antimicrobial drugs designed to treat infections caused by micro-organisms become ineffective (O'Neill, 2016) and one key solution is to promote more effective usage of these drugs. To achieve this, any global focus in tackling AMR therefore needs to not only fit within people's everyday lives and communities (World Health Organisation, 2018) but also be sensitive to cultural practices and infrastructural healthcare issues in order to be valuable.

Service design's co-creative approach (Stickdorn, et al., 2018) enables the field to be well-placed in addressing unmet needs of individuals and communities, yet methods used in this bottom-up approach are still more commonly applied in Western systems. The applicability of service design to research projects based in India offers opportunities to rethink and

adapt service design practices to better suit the diversity of local customs and priorities within India, contributing to decolonising design around AMR and antibiotic stewardship.

Research methods include an initial review of literature and initiatives (of both academic and industrial natures) that discuss or provide examples where service and social design have been reframed, so to become more applicable to the environments within the Global South (Escobar, 2018, p. 6). Intermediary findings will engage discussion in the plurality of service design research projects addressing AMR in India.

Keywords: antimicrobial resistance, India, service design, decolonising design

References

Escobar, A. (2018). *Designs For The Pluriverse.* Durham, N.C: Duke

O'Neill, J. (2016). *Tackling Drug-Resistant Infections Globally: Final Report And Recommendations.* (https://amr-review.org/sites/default/files/160518_Final%20paper_with%20cover.pdf)

Stickdorn, M., Hormess, M., Lawrence, A., & Schneider, J. (2018). *This Is Service Design Doing Applying Service Design Thinking in the Real World.* O'Reilly Media.

World Health Organisation. (2018). *Tackling antimicrobial resistance (AMR) together. Working paper 5.0: Enhancing the focus on gender and equity.* (https://www.who.int/antimicrobial-resistance/national-action-plans/AMRGenderEquityGuidance-Sept2018.pdf?ua=1)

Operating under pressure: Alleviating hospital tensions through Service Design

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Abstract

With surgical drapes being purchased and sold as a commodity, our client knew they had to innovate to create market value. Cardinal Health, a Fortune 50 healthcare services and products company, challenged our team to understand how users are interacting with surgical drapes and propose design solutions that mitigate pain points in the operating room. Using customer research and service design methodologies, we saw that surgical drape failures often lead to breakdowns in team performance, ultimately creating tension during procedures. These tensions eroded the relationships between surgeons, nurses, and surgical scrub technologists (scrub techs), ultimately affecting patient outcomes.

Scrub techs' primary responsibility is to maintain sterility during a surgical procedure. The surgical drape, scrub techs' primary tool, is a simple piece of paper-like fabric. It also has the power to destroy relationships in the operating room. Despite being the primary user of drapes, the current operating model for hospitals does not consider scrub techs' preferences or capitalize on their knowledge because they are not involved in purchasing decisions. We advocated for the inclusion of scrub techs while proving they were an invaluable stakeholder.

Our project resulted in a service offering that would provide certification in drape modification and add a new role in the operating room to monitor and prevent drape issues on the fly. It would also create a feedback loop— collecting and documenting problems or new equipment interactions, allowing our client to stay at the forefront of innovation while capitalizing on scrub techs' expertise.

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Operating Under Pressure: Alleviating Hospital Tensions Through Service Design
Linköping University Electronic Press

Emergency Department futures: a design investigation into ED waiting rooms

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Abstract

What will the Emergency Department (ED) of the future look like in 2030? 2050? 2100?

How will we experience 'urgent healthcare'? How will it be delivered, and how might we access it? What are the dilemmas, challenges and opportunities that are afforded by the future? This poster presents a practice-led PhD which aims to explore the ED of the future and focuses on the ED waiting room (EDWR). This project interrogates how technology might impact the experience of care in the EDWR, and how design practice might be applied in order to explore the scale of this impact.

This paper presents a comic-strip style design fiction of an alternative future for the EDWR, typified by automation, a digitally connected world and artificial intelligence. While this narrative is fictional, the injury and background of the characters is based on real, contemporary ED experiences observed within the PhD project. This story asks us to probe the possibilities, uncertainties and challenges of the future in the context of the ED, and the possible resultant care experience.

This paper then concludes by analysing this future narrative through a series of 'lenses', focal points where we might explore the pertinent issues and scale of the impact from political, economic, social and technological

forces. In doing so, this paper aims to encourage meaningful discussion about the most desirable experience in the EDWR.

Keywords: emergency department waiting room, speculative service design, speculative design, service design

References

Hayward, P., & Candy, S. (2017). The Polak Game, Or: Where Do You Stand?, *Journal of Futures Studies*, 22(2), 5-14.

Montgomery, E. P., & Woebken, C. (2016). *Extrapolation Factory Operator's Manual*. Extrapolationfactory. com.

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Emergency Department futures: a design investigation into ED waiting rooms
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SERV20
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Psychological safety in design:
The role of leadership in creating
optimal climates for innovation

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Abstract

It is widely accepted that design and innovation require 'outside-the-box' thinking, risk-taking, radical collaboration, the questioning of assumptions and a 'fail-fast-learn-fast' mentality (Brown, 2009; Cross, 2011; Dyer et al, 2011). However, while considerable literature currently investigates the elements of an innovation culture, relatively few studies explore the critical role that leaders of design teams play in creating a culture that empowers designers to best exhibit design skills. In particular, there is a gap in research that explores how leaders' development of psychological safety within design contexts has a crucial impact on the outputs and outcomes of that team.

Our research argues that (a) psychological safety is vital to developing a thriving design team and (b) leaders of design teams play a pivotal role in developing this safety within their teams. We define psychological safety as when individuals feel secure to take interpersonal risks without fear of negative consequence (Edmondson, 1999) and argue that, for designers, it enables them to pose questions, challenge assumptions and provide feedback without fear of blame, judgement or risk to personal reputation. It also promotes vulnerability and creates a learning culture that views 'failure' as a necessary ingredient (Carmeli et al, 2009).

The authors will leverage the strengths of a multidisciplinary approach to bring a diversity of perspectives and understanding to the complexities of leadership in service design. This presentation draws upon design and

positive psychology disciplines to redefine the role of service design leaders to show:

- how leaders can reinforce (or undermine) team psychological safety

- how psychological safety can impact designers to authentically engage with teammates within the innovation process

- how the freedom to be one's 'authentic self' within a design context can ultimately lead to better design outcomes.

Keywords: design leadership, psychological safety, team culture, positive psychology

References

Brown, T (2009). Change by Design: How design thinking transforms organizations and inspires innovation. New York: Harper Collins.

Carmeli, A., Brueller, D., Dutton, J. (2009). Learning Behaviours in the Workplace: The Role of High-quality Interpersonal Relationships and Psychological Safety. Systems Research and Behavioral Sciences, 26(1), 81-98.

Cross, N (2011). Design Thinking. New York: Bloomsbury Academic.

Dyer, J, Gregersen, H, Christensen, C (2011). The Innovator's DNA: Mastering the five skills of disruptive innovators. Boston: Harvard Business School Publishing.

Edmondson, A (1999). Psychological Safety and Learning Behavior in Work Teams, Administrative Science Quarterly, 44 (2), 350-383.

Uncomfortable immersion

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Abstract

The uniqueness of grief makes it troublesome for design to facilitate meaningful impacts in the processes of grieving. It's a complicated emotion to consolidate, differing between every person. Western society is not well equipped with the necessary knowledge needed to begin understanding and supporting others in grief (Devine, 2017).

Using service design as a framework for crafting an optimal solution for grief-care, Uncomfortable Immersion has explored some of the design opportunities surrounding grief in the context of adolescents. Clinically complex grief, which requires intervention, is more prevalent in adolescents (Shear, 2012). This is due to adolescents constantly redefining their identities and relationships, making it harder for them and others to determine when they are struggling (Hewlett, 2012).

Service design tools such as perceptual and journey mapping, combined with the philosophies behind Human-Centred Design, yielded insightful research from the interviews conducted. Most people whom had experienced the death of someone close to them during their adolescence, noted that it was their first opportunity to talk about their grief openly.

The book, 'Without Expectations', that I designed is a culmination of both personal and shared narratives. Its themes encourage empathic connections between the griever and their relationships. It discusses the creation of ritual objects as an important tool (Sas, 2016) in introducing purposeful integration of the physical and metaphysical reminders of the

deceased (Green, 2002). One example outlined in the book is a handwritten letter from the deceased, printed onto a scarf that conceals the message until touched for a private ritual of remembrance.

Readers of the book claimed it inspired deeper discussions with their personal network as well as understanding their grief from a different perspective.

Keywords: grief, empathy, connection, tension

References

Devine, M. (2017). It's Okay That You're Not Okay: Meeting grief and loss in a culture that doesn't understand. *Sounds True,* 23-26, 32-37.

Green, J. W. (2002). Death, Memory and Material Culture. [Death, Memory and Material Culture, Elizabeth Hallam, Jenny Hockey]. *American Ethnologist, 29*(4), 1012-1013.

Hewlett, B. L. (2012). Adolescent identity evolutionary, cultural and developmental perspectives. *New York: Routledge.*

Sas, C., & Coman, A. (2016). Designing personal grief rituals: An analysis of symbolic objects and actions. *Death studies, 40*(9), 558-569.

Shear, M. K. (2012). Grief and mourning gone awry: pathway and course of complicated grief. *Dialogues in clinical neuroscience, 14*(2), 119-128.

'Discovering the reason that underlies unreason': Developing designers' intuition to guide decision-making in the design process

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Abstract

Intuitive decision-making is often referred to as a key characteristic of human-centred design (HCD): Brown (2009) advises designers to 'sometimes just choose the right partner, clear the dance floor, and trust our intuition'; IDEO (2009) similarly describes HCD as an 'inherently intuitive process' and encourages designers to 'always feel like you have the space to explore a hunch'. However, while designers often reference 'gut feelings' and 'a-ha moments' in their practice, few are able to confidently identify when intuitive decision-making has taken place, or effectively navigate the seemingly paradoxical interplay between their conscious, 'rational' reasoning and more intuitive decision-making processes.

Recent research from cognitive psychology affirms that intuition can play a crucial role in helping individuals to make effective decisions – under certain conditions. Through a postgraduate, practice-based research project, I explore how designers might access, identify and describe intuition as part of their design practice, using reflective practice and creative research tools. In addition to this, and faced with realities of researching in the midst of the COVID-19 pandemic, my work also ended up being an exploration of how *humans*, not just designers, navigate

intuitive decision-making in a period of uncertainty and crisis. My own reflections on how I used intuition to guide decision-making across the project also forms a central part of this work.

There is often a perceived tension between analytical and intuitive approaches to decision-making. This study is a first step towards providing human-centred designers with the confidence to embrace both rational thinking and intuition as valid and vital 'tools' for decision-making. Through exploring emerging research in other disciplines (such as nursing and business leadership), this study has the potential to have a significant impact on the outcomes of design in the future.

Keywords: intuition, designer education, decision-making, reflective practice

Note

The phrase 'Discovering the reason that underlies unreason' was originally used by Nobel Laureate Herbert Simon (1987) in an early paper on the important interplay between rational and intuitive responses to decision-making within a management context.

References

Brown, T. (2005). Change by Design: How design thinking transforms organizations and inspires innovation. New York.

IDEO. (2009). DesignKit – Methods, http://www.designkit.org/methods

Simon, H. (1987). Making Management Decisions: The role of intuition and emotion. The Academy of Management Executive, 1(1), 57-64.

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Artificial intelligence in sustainable food systems design

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Abstract

By 2050, the current challenges faced by our food systems will be further amplified by the need to feed 9 billion people. Water scarcity, pollution, soil degradation and the impacts of climate change on agricultural production are only a few of the environmental constraints we face. Designing services in any area of the food chain can no longer be done using a business as usual approach. Technologies such as artificial intelligence are disrupting agriculture, food processing and health outcomes in ways which could revolutionise how we relate to food and provide an opportunity to think differently about our food systems.

The research investigates artificial intelligence (AI) as a possible enabler of sustainability in food systems, with caveats. The technology could support transformational changes towards sustainable food systems but also creates issues of a new kind that designers can and should consider as part of their design brief.

Case studies on nutrition in schools and on food waste investigated the use of AI in the process redesign. The author will present some of the challenges, impacts, results and ethical considerations encountered. The focus on the methods of engagement include the use of traditional design thinking approaches, lean start-up and rapid prototyping where failing early is proving to be a critical component.

The use of AI ethics guidelines and sustainable development goals (SDGs) are used retroactively in the evaluation of the designed solution to provide some insights for future proactive design solutions.

Keywords: food systems, artificial intelligence, systems thinking, design innovation

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Sensory Design: Making sense of tensions, plurality and paradox in a culturally contested heritage site

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Abstract

My PhD focuses on the redesign of Montsalvat's visitor and service experience. Montsalvat is, "*historically, technically, architecturally, aesthetically, socially and spiritually significant*", (Willingham, 2010); however, visitors are unable to access its rich histories. The site is transitioning from an Artists Colony to an Arts Centre, it is a 'culturally contested heritage site' (Silverman, 2011).

In 2019, I began research with the community and '*walked backwards into the future*' (Rameka, 2016). I dug up histories (Lindqvist, 1979) and translated them to sensory probes to 'come to terms' with the site, then used them in interviews and sensory walking research (Pink, 2007; O'Neil & Roberts 2020). I conducted authentic, '*bottom-up*' participatory research (UN-Habitat, 2016) that was inclusive of all voices, to validated stories with the community. Together we transformed a messy, fractured-oral history into legible formats (Sandino, 2006). Artists profile posters created strong engagement across the community and became visible bridges into commonly understood pasts.

Archives are split, relationships are frayed and knowledge is lost. Analysing the community via Nardi & O'Day's '*Information Ecologies*' framework, helped me understand that establishing Montsalvat as a limited public company in 2007, was pivotal to today's **tension**. This

structure introduced a **plurality** of lens that have resulted in clashes over cultural practice, shared values and social meaning. The dissonance dislocates the '*ecology*' (Nardi & O'Day, 1999) from Montsalvat's cultural heritage, and **paradoxically** renders it unsustainable. Sensory design has supported a sensitive inquiry into a contested service landscape. It has encouraged empathy, openness, safety and trust at a time when **tension**, **plurality** and **paradox** were rife.

Keywords: sensory design research, contested cultural heritage site, embedded design research, information ecologies

References

Lindqvist, S. (1979). Dig Where You Stand. *Oral History*, 7(2), 24-30. Retrieved April 20, 2020.

Nardi, B., & O' Day, V. (1999). *Information Ecologies: using technology with heart.* MIT Press, Cambridge, Massachusetts, US.

O'Neill, M., & Roberts, B. (2020). *Walking Methods – Research on the Move.* Routledge, 2020, New York, NY, 10017.

Pink, S. (2007). Walking with video. *Visual studies*, *22*(3), 240-252.

Rameka, L. (2016). Kia whakatōmuri te haere whakamua: 'I walk backwards into the future with my eyes fixed on my past.' *Contemporary Issues in Early Childhood*, *17*(4), 387–398. https://doi.org/10.1177/1463949116677923

Reddrop, S. (2019). Research interview with Kate Storey and Hamish Knox. Copyright 2019 Susan Reddrop. Reprinted with permission. CHEAN A 22210-05/19

Sandino, L. (2006). Oral histories and design: Objects and subjects. *Journal of Design History*, 19 (4), 275-282. https://doi.org/10.1093/jdh/epl022

Silverman, H. (2011). Contested Cultural Heritage: A Selective Historiography, *Contested Cultural Heritage* (pp. 1-49). Springer, New York, NY.

Storey, K. (2019). Sonia Skipper Artists Profile Poster. Copyright 2020 by Kate Storey. Reprinted with permission.

UN-Habitat, 2016. The New Urban Agenda Explainer. http://habitat3.org/wp-content/uploads/New-Urban-Agenda-Explainer_FInal.pdf

Unknown. (1937). Sonia Skipper Making Mudbricks. *Table Talk*, 5 Aug 1937. In Skipper, S. (2005). My Story: Tales from a Pioneer of Montsalvat. Black Jack Press, Carlton North, Victoria, Australia. Copyright 2020 by Adam & Ruth Callender. Reprinted with permission.

Willingham, A. (2010), in Hauser, R. (2017). *Montsalvat Strategic Plan 2017-2022*. Draft 5 May 2017

Flip, split or extend – helping 'mum and dad developers' navigate housing design processes

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Abstract

How do we apply service design theories to improve the way 'mum and dad developers' navigate housing design processes to achieve more liveable house designs in Australia's middle-ring suburbs?

With over 300,000 people migrating to Australia's capital cities in 2018/19 alone (Australian Bureau of Statistics, 2020), there is pressure on our middle ring suburbs to house many of these people. Joining established architects and building designers are 'mum and dad developers' who are inspired by their family, friends and reality TV to 'have a go' at developing their own land – either by building in their backyard or replacing a family home with smaller villas.

While this can bring benefits, there are a many poor outcomes brought about by a lack of knowledge of how good house design can impact our quality of life – houses designed with no eaves to protect from the sun, poor ventilation, dark rooms, and small unusable gardens with no trees.

House design is influenced by many factors, including the people who design them and the policies which guide them. Government planning departments typically write residential design policies for a narrow audience of building designers and architects, but there is a changing dimension to this. With more 'mum and dad developers' getting involved,

they often experience difficulty navigating these policies and processes, and understanding implications of the design decisions they make.

This research looks at ways to address their knowledge gap so they are empowered to make better choices when they work with their building designer or architect. The method for this research uses service design tools to interview users and map journeys through the redevelopment process, identifying pain points and opportunities to improve processes. Emerging findings may involve the production of supporting visual communication materials, the development of virtual assistants or education programs. These ideas propose a collaborative 'housing design service,' which provides communities with accessible services to promote engagement with good design.

Mum-and-dad developer 'personas'

The flippers – Buy an old place, refurbish and sell frequently

The extenders – Extend their existing house as the family grows

The splitters – Buy an old place, split the block, build three new houses

References

Australian Bureau of Statistics. (2020). *Regional* Population *Growth, Australia (2018-19)*.
https://www.abs.gov.au/ausstats/abs@.nsf/mf/3218.0

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Flip, split or extend – helping 'mum and dad developers' navigate housing design processes

Chief Design Officers in public organisations: What design leadership do we need in Singapore's public organisations?

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Abstract

Governments around the world are making tremendous efforts to innovate as they face the pressure of the VUCA - Volatile, Uncertain, Complex, and Ambiguous - world (Pollitt & Bouckaert, 2004; Kingsinger & Walch, 2012). Design thinking (Brown, 2008; Martin, 2009) as a human-centred approach provides clues to reform the public organisations by "designing for citizens" and "designing with citizens" with the hope that they can collectively overcome large-scale problems and create new value for public policies and services (Bason, 2017).

If design is situated to transform public organisations, including the creation of policy, citizen-centric service initiatives and enabling collaboration with citizens and stakeholders, how are top leaders within the government prepared to transit towards a "design-inspired" leadership? This paper proposes the idea that the impact and sustainability of design is largely influenced by the leadership at multiple levels of the organisation, especially when there are organisational barriers in integrating design within public organisations.

The approach to this research included a systematic literature review on three aspects i.e. design applications and barriers, public sector management and design leadership followed by an empirical study using

selected cases of Singapore public organisations as case studies (Wong, 2018; "Transforming the Public Service Challenge," n.d.; "Rethinking Public Services," 2019; Voon, 2019). The qualitative research aims to gather empirical evidence on the kind of design leadership required to embed design and maximise its impact to support the public sector in its transformation goals. Findings from this research can contribute to public organisations seeking to drive change on how they can maximise the impact of design through the kind of design leadership required. While early findings have been made from the literature review, this research is still ongoing.

Keywords: design leadership, public organisations, human-centred design

References

Bason, C. (2017). *Leading Public Design: How Managers Engage with Design to Transform Public Governance*

Brown, T. (2009). *Change by design: How design thinking transforms organizations and inspires innovation.* New York: HarperCollins.

Kingsinger, P., & Walch, K. (2012). *Living and leading in a VUCA world.* Thunderbird University. Retrieved from http://knowledgenetwork.thunderbird.edu/research/2012/07/09/kinsinger-walch-vuca/.

Martin, R. (2009). *The design of business: Why design thinking is the next competitive advantage.* Harvard Business School Publishing. Rotman Designworks.

Pollitt, C., & G. Bouckaert. (2004). *Public Management Reform: A Comparative Analysis.* Oxford: Oxford University Press.

Transforming the Public Service to Build Our Future Singapore. (n.d.). Retrieved from https://www.psd.gov.sg/what-we-do/transforming-the-public-service-to-build-our-future-singapore

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Chief Design Officers in public organisations: What design leadership do we need in Singapore's public organisations?
Linköping University Electronic Press

Rethinking Public Services With Innovation Labs. (2019). Retrieved from https://www.psd.gov.sg/challenge/ideas/deep-dive/rethinking-public-services-with-innovation-labs

Voon, L., (2019). *Design thinking in Singapore's public agencies: From agency efficiency to citizen experiences.* Retrieved from https://medium.com/the-service-gazette/design-thinking-in-singapores-public-agencies-c2f2bd6f3bda

Wong, H., (2019). *Singapore's Journey in Designing User-Centred Public Services.* Retrieved from https://medium.com/the-service-gazette/singapores-journey-in-designing-user-centred-public-services-3a7c63bd8ca

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Service Design meets Chinese Culture

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Abstract

Service Design (SD) and Design Thinking (DT) share many pillars - both are human-centred, holistic, iterative, real, collaborative - and DT cognitive processes are widely used to design services. Both have Western roots and both are informed by culture (Thoring et al., 2014), therefore, Western culture is mirrored in how these processes are structured, comprehended and applied. With her research, the author aimed at gaining new understandings on the practice of SD outside Western culture. What happens when a Western thinking model and its application into the services sector are "moved" into a different culture? In order to create value, a process should be crafted for its users and their culture (Stickdorn et al., 2017); hence the hypothesis that China needs a Service Design process tailored to its unique way of thinking and context. The outcome is a process that considers the Chinese cultural and contextual characteristics and aims at guiding designers to create valuable services for that context. The key Chinese characteristics: the concepts of "connections" and "human value", a fluid and flexible structure that reflects the Chinese synchronic perception of time, the pragmatic approach, team alignment moments to enhance teamwork. This aims at being a trigger project; many "Chinese barriers" relate to SD methods and methodologies such as brainstorming and ethnographic research (Ann, 2017). Further explorations could address these topics to widen the just started research.

Interestingly, although the research focused on the Chinese context, this process can adapt to other cultural realities.

Keywords: service design, cultural influence, china, design process

References

Ann, E. (Host). (2017, March 23). What you need to know about service design in greater China. *Service Design Show* [Video podcast]. https://www.youtube.com/watch?v=qAkg299V3Us

Collias, K. (2019, February 20). Design thinking and culture, Part II, China. *Knowledge Without Borders.* https://knowwithoutborders.org/design-thinking-and-culture-part-ii-china

de Bont, C., & Xihui Liu, S. (2017). Barriers to Strategic Design: A Perspective from China. *She Ji,* 3(2), 133-145. https://doi.org/10.1016/j.sheji.2017.09.003

Hofstede, G. (2007). A European in Asia. *Asian Journal of Social Psychology*, 10, 16–21. DOI: 10.1111/j.1467-839X.2006.00206.x

Huang, C. (2017). Driven by Wu Xing, Service Design transforms a Chinese firm. *Touchpoint, 8*(3), 56-61.

Ip, A. (Host). (2016, November 17). Merging Chinese culture with western philosophy through service design. *Service Design Show* [Video podcast]. https://www.youtube.com/watch?v=Rjlwr6yZkbM

Nisbett, R. E. (2003). *The Geography of Thought: How Asians and Westerners Think Differently... and Why*. The Free Press.

Niu, W., & Kaufman, J. (2013). Creativity of Chinese and American Cultures: A Synthetic Analysis. *The Journal of creative behavior,* 47(1), 77-87. https://doi.org/10.1002/jocb.25

Stickdorn, M., Lawrence, A., Hormess, M., & Schneider, J. (2017). *This Is Service Design Doing.* Canada: O'Reilly Media.

Thoring, K., Luippold, C., & Mueller, R. (2014). The Impact of Cultural Differences in Design Thinking Education. In: Lim, Y ., Niedderer, K ., Redström, J ., et al., X. (Eds.). *Proceedings of DRS 2014: Design's Big Debates. Design Research Society Biennial International Conference 16-19 June 2014, Umeå, Sweden* (pp. 744-756). SE-Umeå: Design Research Society, Umeå Institute of Design.

Wu, Y. (2016). China's services sector: the new engine of economic growth. *Eurasian Geography and Economics* 56(6), 618-634. https://doi.org/10.1080/15387216.2016.1153429

Service delivery of architectural design services: An experience-centric analysis

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Abstract

How architects provide their design service to clients have predominantly remained unchanged since the professionalisation of the architecture practice. Paradoxically, what the architects provide in each of these services are customised to each client. Since the architect's unique designs are concealed by standardised service delivery, how will clients know which firm to engage? This begs the question; how can architects set their services apart from their competitors?

This study uses an experience-centric service framework to investigate how residential architecture design service in Australia is delivered to clients. It uses the Experience Design Board (Lim & Kim, 2018) as a tool to visualise the service delivery process. By examining the service delivery touchpoints and its effects on clients, the study shows the plurality of areas where architects can differentiate their service delivery from other architecture firms.

Keywords: experience-centric design, architectural design service, experience design board

References

Lim, C. and Kim, K (2018) Experience Design Board: A tool for visualizing and designing experience-centric service delivery processes, *Journal of Retailing and Consumer Services, 45*, 142-151. https://doi.org/10.1016/j.jretconser.2018.07.021

Adopting a service design approach in financial organisations

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Abstract

The purpose of the study is to increase knowledge of adopting a service design (SD) approach in financial organisations in Northern Europe. The study focuses on the strategic and corporate levels. The main purpose is specified by the following objectives:

To explore

- the motives, challenges and opportunities of adopting the SD approach
- the managerial approaches used in implementing change in an organisation, and their perceived success in adopting the SD approach
- the factors supporting/resisting the change in an organisation
- the role of organisational learning in the process of adopting the SD approach
- the manifestation of the adopted SD approach at the strategic and operational levels

The research methodology is based on a hermeneutic abductive approach and qualitative methods. The focus is on companies that have adopted, or are in the process of adopting a SD approach. The informants will be those who have experienced and seen the effects of this.

The study results in both scientific and practical contribution. The study extends the theoretical foundation of service design and develops theories from the management and business perspectives. This study increases the knowledge of change management as well as the factors supporting and resisting the implementation of the SD approach. Moreover, it extends the understanding of organisational learning in the process, contributing to the literature of service design, service-dominant logic and organisational change management. This study provides a practical contribution by offering novel managerial approaches for senior managers to implement a change for adopting a SD approach for business renewal.

Work Right: Building a way to work together through Service Design

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Abstract

Formalising the creative process is often wrought with good intentions and the necessity to quantify, package and sell time. When working in strategic and creative design fields, decisions are regularly made about the path to best deliver work that balances both quality and profitability. Is it fundamentally a question of standardisation? Do models that work for the production of more tangible goods work when approaching creative services? How can we develop a way to work that's systematic and messy? To bring elements of standardisation in line with what's best described as the messy parts of the creative process, we set off on an investigation into how we work. Starting with well-travelled roads in Agile and other project management methodologies, we began to incorporate broader ways of approaching work, leaning on more ethnographic and poetic approaches to gather insights into how our small studio might best deliver our services. Through interviews, mapping and group tool creation, we turned customer-centric service design methods on ourselves to create a framework of our process. Fundamentally, we used service design methods to begin answering who we are, what we're doing, how we're getting where we want to go and why any of us should care. Not all of the methods worked. Surprisingly, methods that failed provided greater insight

than the methods that worked. However, we ended up with a personalised service framework, more robust vocabulary to describe our working methods and a set of tools that resonated with us because we made them – they are still helping us redefine how we work.

Categorising people: tensions in critical approaches to design

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Abstract

Categorising people: tensions in critical approaches to design is a workshop designed to examine the tensions present in categorisation and proxy, through personas. In design research we uncover the needs, beliefs and behaviours of people to create products, services and systems. We synthesize, draw conclusions and create representations from people's personal information. This representation wields power by allowing the design research and outcomes to become proxies about who and how another person is. A commonly used method, personas, is an example of categorisation and proxy.

This workshop will use this common design research tool to question how we understand *who people are* and explore non-dominant ideas of identity. Translating approaches from queer activism in the field of Library and Information Sciences, we will explore activist and queer theories to categorizing and critically consider underlying assumptions and biases in human-centred tools. The key tension we are exploring is how we attempt to get it 'right' when representing complexities such as people, relationships and identity.

The goal of this workshop is to spark critical reflection around identity, groupings and worldviews, and collectively examine how these show up in design work.

Participants should arrive open and willing to recognise personal biases, as well as be aware that sensitive issues around identity and bias may arise.

Keywords: identity, personas, design research, decolonizing, queer theory

Telling stories: Moving beyond empathy tools to reciprocity

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Workshop outline

Design is neither agnostic nor neutral – it reflects a particular worldview. Our often unchallenged cultural standpoint and unquestioned subjectivities create a dominant set of assumptions. As designers we must increasingly reflect upon and recognise the cultural specificity of our disciplines (and by extension the tools and methods recommended as law). As we do so, another question arises: how do we shift our gaze and processes while utilising relational praxis that respects the importance of co-designing the design tools with our clients? That is, how do we ensure that the tools we are using are suited to the users, particularly when their cultural reference points are different to our own? This session is presented as a partnership between Nelly's Healing Centre and the UTS Design Innovation Research Centre and will draw from Indigenous ways of knowing, being and doing and decolonised methodologies and worldviews. It will demonstrate a culturally safe way to value the importance of co-design and development that is required when relating to and working with others. We aim to validate the power of narratives and telling stories, based on an Indigenous framework of tools. As design moves into complex social spaces, we propose that specific tools may become less transferable, while principles of reciprocity and reflexivity become more important.

This session will use a combination of methods – possibly pre-recorded materials, video discussion, live visual recording – in which the hosts will share and reflect on their experiences and involve participants in an interactive exploration of the subject matter. We will ask participants to consider what we ask of users, and to consider what we need to be asking of ourselves.

Keywords: decolonised research methods, empathy, tools, service design, reciprocity, reflexivity, stories, narrative

Sounds good! Auditory representations in service design

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Abstract

Sound is one of the major elements in any servicescape. Be it the instant hiss of a coffee machine and light jazzy music in a coffee shop or the constant beep of medical equipment and sporadic human voices in a solitary hospital room, sounds profoundly influence human experience and drive our interactions with the world. Although sound plays an important role in design disciplines such as product and interaction design, its role in service design has surprisingly been quite muted. In contributing to the *plurality* theme, this workshop explores the role of sound in service design, especially its potential in informing and augmenting visual representations used to materialize different elements of service systems. For example, what information could a sounding stakeholder map reveal that could not be transferred though the visual means? Or how can we make visual representations more inclusive through sound?

Working with performative sonic exercises, such as scenario-based sonic blueprint, we aim to explore the interdependencies of visual and auditory representations. Together with the participants, we aim to explore and discover possibilities for novel methodological and practical insights that this integration of auditory and visual can bring. Participants are not required to have any musical training or specific knowledge to participate in this workshop. Therefore, we invite the ServDes community of various backgrounds to join us in experiencing and cocreating the sounding representations and help us to jointly reflect on the possibilities this can have for service design research and practice.

Addressing echo chambers in Service Design with embodied methods

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Abstract

Are you unknowingly trapped inside an 'echo chamber' that reinforces your own assumptions about service design? What are the dangers of failing to meaningfully consider alternative assumptions about service design? How can we sensitize ourselves to diverse perspectives on service design research and practice? It is becoming increasingly apparent that service design encompasses multiple perspectives and approaches that are grounded in different foundational assumptions about the goals of service design, its processes, as well as the role of designers and other actors.

The purpose of this interactive and reflective workshop is to surface pluralities and tensions within participants' underlying assumptions about service design and help to move the field forward by initiating dialogue and reconciliation. In the workshop, participants will use their bodies and online representations to represent and illuminate their various perspectives on service design. We will work through frameworks that will help make the

invisible assumptions that guide our diverse work on service design more visible.

Together the group will address tensions within the underlying assumptions that guide our different perspectives and critically evaluate the assumed common ground that we stand on as a discipline. Participants will leave with a better understanding of their own blindspots in how they think about service design and gain an appreciation of some of the diverse perspectives that contribute to a vibrant and evolving service design discipline. In addition, participants will walk away with inspiration on creative approaches for embodying and materializing assumptions and working with tensions that often go unspoken within diverse groups.

Keywords: service design, plurality, tensions, perspectives, assumptions, embodiment, blindspots

A new social design framework to challenge assumptions in research projects in LMICs

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Abstract

Conducting research in low-to-middle income countries (LMICs) has become a top priority for funding organisations based in the Global North through which they deploy 'development' and 'aid' projects targeting fragile systems. However, such projects tend to further exacerbate the inequalities they bring about with tainting transfer of aid, technical and design assistance from Global North to Global South. This workshop aims to produce a set of guidelines and a new social design framework based on design ethics to encounter implications of these asymmetries. Drawing from two projects that run between the UK and India, participants will be asked to critically evaluate how we might engage with 'pluriversality' in complex design projects by speculating through real world ethics scenarios. It will encourage us to think beyond typical human dimension in social design to consider an intra-act among human, non-human, visible and invisible relationships that humans make with animals, microbes and the environment.

Keywords: social design, design framework, pluriversality, ethics, LMICS

Acknowledgment

Chamithri Greru, Alison Prendiville

A new social design framework to challenge assumptions in research projects in LMICs

Linköping University Electronic Press

Service transparency for sustainability in the food sector

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Abstract

The transition towards more sustainable lifestyles and business practices demands a higher level of service transparency. Transparency can be defined as the ability of a service to communicate relevant and accurate information about safety, quality and integrity, as well as information on the social, environmental and economic dimensions of consumption and production. In this thematic workshop the attendees will be presented with the main concepts and heuristics to perform a diagnosis and create solutions to enhance service transparency, with a focus on the food sector. The theory will be illustrated with worldwide case studies gathered from digital services provided within the food sector. In order to support the competence on the theme, a practical exercise will be carried out using a novel model developed specifically for the workshop.

Keywords: sustainability, transparency, food sector, service design

The workers tarot. A tool for designer-worker solidarity

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Abstract

The COVID-19 pandemic has forced a shift in the public's perception of workers. Essential service workers in particular, have been subject of constant public displays of appreciation, while being paradoxically confined to low wages, precarious conditions or imminent unemployment. Hospital janitors, cleaning personnel, meat pack workers, grocery cashiers, public transit workers, warehouse workers—a largely immigrant, Black, and Latino "essential" work force that does not have the choice of working from home. Meanwhile, user-centric service designers remain dangerously close to been complicit in perpetuating economic systems which are at the root of social inequality and racism.

We invite participants to reckon with the politics of their practices by playing with the *Workers Tarot*, to share stories of recent projects they have worked on. And from there, consider how designing (for) services is in great part designing service work. We will use the deck to discuss ethical dilemmas for service designers and envision practices based on solidarity with service workers.

The *Workers Tarot* builds upon the visual/semiotic system of Jodorowsky's "Tarot de Marseille" and is structured in five card categories: Worker Archetypes (Major Arcana) and the four suits (Minor Arcana): Things (diamonds), Theories (spades), History (hearts), and Trends (cubs). Rather than fictitious personas, the cards portray real workers' stories

collected from different media picturing them with candor, affection and respect. The *Workers Tarot* wants to trigger intuitive/sensitive/emotional thinking elicited by the Tarot's mystique of divination and future projections of the self, pushing practitioners to prefigure future practices based on solidarity principles.

Power in coffee: Disrupting practice for community-led change

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Abstract

Join us for a traditional Eritrean Boon coffee ceremony during which we will explore the application of genuine power-sharing when designing with traditionally marginalised communities. Hosted by women from the Flemington Housing Estate, our ceremony is intended to welcome you into a cultural ritual that will disrupt both the spaces and ways in which you consider power.

Through our ceremony, we will explore the tensions that underly designing with culturally and linguistically diverse communities, especially the negotiation of rich cultural complexity in design practice.

Over sips of Eritrean ginger coffee, we will dive into open dialogue about the enablers and barriers to power-sharing in the design process. This reflection draws on our lived experience as well as our work co-designing with and for our community. As women from Muslim-African backgrounds, we experience the ramifications of others designing solutions for our community that do not address our needs. Therefore, we prioritised genuine powersharing in our co-design project addressing unemployment for women in our community, developing tools and processes that we will share with you. These tools include a powersharing tool developed

through our learnings, which can be used to define and monitor the transfer of power between a professional designer and community members.

By participating in our Eritrean Boon coffee ceremony, you will have the opportunity to explore a different cultural tradition, share learnings about power-sharing in design, and interact with our tools and processes for ensuring genuine community ownership of the design process.

Aiya Idris, Hania Yassin
Power in coffee: Disrupting practice for community-led change

Identifying best practice in remote co-design

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Abstract

In the last few months, design practitioners around the globe have hit the ground running and offered online alternatives to face-to-face co-design workshops. At ServDes2020, we build on this shared experience to ask, what does good look like in remote co-design?

Whether using WhatsApp, phone calls, online whiteboards or tightly orchestrated Zoom breakout rooms, we have been defining new roles (facilitator/moderator, scribe and tech support/navigator) and navigating new challenges and opportunities for creativity and collaboration. Webinars, training, templates, toolkits and other resources have been developed for design practitioners and facilitators to share and adapt.

Rigorous assessment of what good co-design looks like is an ongoing area of discussion and research. In an online workshop for ServDes2020, we are creating a space for experienced practitioners who have delivered remote co-design to share what they have learnt and put forward a vision for best practice in remote co-design. We seek to create criteria to evaluate the quality of experiences and participation, as well as the outputs and outcomes of remote workshops. We hope to highlight where remote online workshops have enabled not only simulation and augmentation of face-to-face activities, but significantly modified them or allowed a chance to redefine the practice.

Keywords: co-design, remote co-design, practice

Real-Time Co-Analysis: Probing Lived Experiences and Analysing Material Data

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Abstract

How might real-time co-analysis be utilised to produce new knowledge for both designer and participant?

Often in workshops that surface participant insights, the analysis of the artefacts and remnants are left for the workshop facilitators, usually back at a desk and with little time. Even with written reports, it is often a long time before the results, trends and insights are shared with participants and others. This workshop starts with generating data through reflecting on an aspect of your creative practice using materials, followed by experiments in co-analysis of the data we generate.

This *Workshopping Workshops* session offers an opportunity to explore real-time co-analysis of data in material and visual forms.

We invite creative practitioners who work with non-numerical data (visual/material/embodied/intuitive, etc.) as well as those who are interested in new ways to integrate co-analysis activities into their practice.

Quo vadis? Exploring the future of service design

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Abstract

Is service design dying or morphing? What will the future role of service designers be - data scientists, business optimizers, public servants, sustainability advocates, ethicists, politicians? What changes need to be made in educating future service designers to take on such roles? Which trends (e.g., digitalization, viral epidemic outbreaks, climate change, aging populations, refugee crisis) deserve particular attention in the service design community? Where and how can the service design mindset, process, methods and tools contribute the most in leading us towards preferred futures? Addressing the *tensions* topic of this conference, this workshop tackles existential questions about service design and aims to collaboratively explore the potentially conflicting ways in which service design researchers, practitioners, and educators foresee the future landscapes of service design.

In this hands-on workshop, participants will be guided through four group activities. First, *mapping the status quo of service design*, where different teams will share their perspectives on the current state of the field. Second, *assessing the status quo*, where different teams will be evaluating the field's pains and gains to identify opportunities and threats. Third, *anticipating relevant trends*, where participants will be sensitized to the

burning challenges from the external environment. Fourth, *envisioning and discussing potential futures of service design*, where participants will identify priorities for service design research, practice, and education. We invite

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Keywords: service design, research priororties, tensions, *status quo*, envisioning

Addressing tensions and paradoxes of my data. A Service Design perspective

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Tangity — part of NTT DATA Design Network

Abstract

With personal data being recognised as the engine of digital economy and digital contact tracing systems being placed at the core of the national strategies for containing the spread of the Covid-19 pandemic, addressing tensions and paradoxes affecting the personal data management landscape has never been so urgent.

Contributions from a number of research fields including Human-computer interaction, Behavioral economics and Social psychology have highlighted and offered interpretations to many of these underlying tensions and paradoxes. Furthermore MyData, a global non-profit organisation underpinned by a global self-organised community, sets out six overarching principles grounded on the idea that the ethical use of data is always the most attractive option for both businesses and society.

By drawing upon this knowledge, the present workshop seeks to engage the Service Design community to join the global effort for the empowerment of individuals and society through their personal data.

The workshop will propose a specific context of investigation based on a real industry case study concerning the design of a Personal Data Store to engage attendees in mapping out issues, opportunities and future directions for the involvement of the Service Design community in this field.

Workshop attendees will benefit from taking part in this workshop by becoming more aware of the underlying tensions and paradoxes of the personal data management landscape and contributing to identify future directions for addressing them.

Alessandro Carelli
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Teu le Va (nurture the space) in-between intersectionality

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Abstract

A workshop focused on the ServDes. 2020 theme of 'Plurality' with the intention to provide innovative tools that generate experiences validating participants from diverse backgrounds through the lens of Intersectionality and the Samoan concept of space; called *'Va'* or the space in-between.

Pacific author and academic Albert Wendt states that:

> Va is the space between the between-ness, not empty space, not space that separates, but space that relates, that holds separate entities and things together in the Unity-that-is-All, the space that is context, giving meaning to things (Wendt,1996).

Teu le Va is a call to nurture the space in-between, premised on forgiveness and reconciliation (Muliaumaseali'i, 2017). Here we use its literal translation to tidy, beautify the space in-between (Muliaumaseali'i, 2017).

For the purposes of this workshop, Intersectionality is defined as a concept seeking to dismantle the power dynamics and cultural structures that discriminate against race, class and gender to create advocacy and remedial practices towards an egalitarian society (Crenshaw, 1989).

We explore Crenshaw's (1989) notions by identifying where individual identities intersect (Coatson,2019) and how Va might bridge these intersections towards an even playing field. These themes influence a tactile, audio and visual experience aimed to present interventions that might Teu Ie Va (nurture the space) in-between Intersectionality.

Acknowledgement

References

Coaston, J. 2019. The Intersectionality Wars. Viewed April 2020 https://www.vox.com/the-highlight/2019/5/20/18542843/intersectionality-conservatism- law-race-gender-discrimination

Crenshaw, K. 1989 "Demarginalizing the Intersection of Race and Sex: A Black Feminist Critique of Antidiscrimination Doctrine, Feminist Theory and Antiracist Politics," University of Chicago Legal Forum: Vol. 1989 , Article 8. Available at: https://chicagounbound.uchicago.edu/uclf/vol1989/iss1/8

Kaili, T. O. 2005. Tauhi Va. Nurturing Tongan Sociospatial Ties in Maui and Beyond.pdf. The Contemporary Pacific, 17, 83-114.

Lilomaiava-Doktor, S. I. 2008. Beyond "Migration": Samoan Population Movement (Malaga) and the Geography of Social Space (V?). The Contemporary Pacific, 21, 1-32.

Mahina.O 2010. Ta, va, and moana: temporality, spatiality, and indigeneity. Pacific Studies, 33.2/3 pp 168-202

Dr Marion Muliaumaseali'i
Teu Ie Va (nurture the space) in-between intersectionality
Linköping University Electronic Press

Muliaumaseali'i M.V (2017) The Space in-between: An Ethnographic Study of Mobile Technology and Social Change in Rural Samoa (unpublished doctoral dissertation). Royal Melbourne Institute of Technology, Australia

Stewart-withers, R. (2011). Contesting a Third World development category: Female-headed households in Samoa. Women's Studies International Forum, 34(3), 171-184.

Wendt, A.1996, Tatauing the Post-Colonial Body. Viewed on 10 January 2015. http://www.nzepc.auckland.ac.nz/authors/wendt/tatauing.asp

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Unblock the tension while implementing Service Design

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Workshop outline

The value of excellent service design can only be realized when it has an organization's buy-in and is being implemented. Service Designers not only need to focus on designing excellent service but also need to be concerned with the implementation of design, in a smooth and sustainable manner.

In this highly practical and interactive workshop, we will introduce Ken Wilber's Integral Framework and AQAL map for a smoother implementation of the service design practice.

We encourage all participants to bring their real-life client/own scenario(s). We will uncover blind spots and explore new possibilities for creating project buy-in. At the end of the workshop, we will co-create a working template/checklist as a reference that helps us proactively address the potential and actual issues we will face during implementation.

Keywords: integral operating system, aqal map, co-sensing, co-design

References

Nancy E. Landrum, & Carolyn L. Gardner (2005). Using integral theory to effect strategic change. Journal of Organizational Change Management, 18(3), 247-258.

Wilber, K. (2005). Introduction to Integral Theory and Practice. Journal of Integral Theory and Practice, 1(1).

Designing by ear

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Abstract

What if your customers' experience of your service was non-visual? What if you couldn't rely on sight to design your concepts? What would you let these constraints teach you? How would they change the way you designed for all?

People with disabilities live on the frontier of human experience by necessity. They represent the full spectrum of our shared humanity, with a twist. And harnessing that twist has been the secret sauce of many improvements and innovations.

Join the Vision Australia team in this workshop, which draws upon models and research from the field of service design, psychology and neuroscience, disability studies, and diversity and inclusion practice, backed by the expertise of designers with lived experience.

You'll get a library of resources and participate in inclusive activities. You'll experience simulated vision impairment, providing you with a different intellectual, practical and affective viewpoint. Debriefing will enable you to generate and integrate insights.

You'll walk away with the following:

1. Greater understanding of blindness and low vision.
2. Practical strategies for working with consultants and end users who are blind or have low vision.

3.   Evidence for the value of engaging this customer group in the co-design of universally delightful services.

Keywords: human centred design, inclusive design, universal design, diversity, disability, blindness, low vision, vision impairment, extremes, workshop, empathy, insight.

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Designing by ear
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Strengthen emotional skills for service designers as facilitators

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Abstract

We will be presenting a workshop for service designers aimed at developing and strengthening emotional skills, especially with regards to facilitating co-creation processes. Through the exploration of methods, we seek to broaden or induce the awakening of the sensibilities of service designers in their role as workshop facilitators. Emotional skills could help facilitators to recognize their own emotional process and to develop the ability to distinguish between their thoughts and their interaction with other people. A focus on emotional skills helps identify the most subtle and the most visible factors which influence collective creation in a service context. This process provides facilitators with more support to decide upon the best strategy according to their knowledge, thus improving the experience and the outcomes of the co-creation exercise.

Keywords: emotions, service designers skills, co-creation, exploration

Process design: Designing impactful workshop experiences that engage and inspire

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Abstract

Designing workshop processes that engage with emotion and purpose can offer an invitation for deeper learning, meaning and change, which is crucial when helping organisations understand their current reality vs a desired future state. However, the way in which we enter an organisation (a system) as facilitators and how we design and lead these processes, can almost be more important than the content itself.

Join us in this fast-paced workshop where we will introduce process design principles for designing and delivering impactful workshops. Through workshop activities we will engage core disciplines like Neutrality, Appreciative Inquiry and Improvisation used to navigate between process facilitation (moving along a plan) and process leadership (moving toward intention). This is a hands-on and playful workshop where you will participate in systems thinking activities to understand Experiential Learning Cycles and how to design for these.

Keywords: Emotion, learning, impact, improvisation, playful

Bespoke tools for co-designing diverse & inclusive feminist futures

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Abstract

This workshop invites you to an in-depth discussion about the complexity of working with bespoke co-design materials. Together, we will examine different iterations of a set of tools that were developed for co-design workshops to interrogate (and envision anew) the relationship between gender and cities. Through examining these specific tools, we will discuss the wider complexity and opportunities within this work.

This workshop builds on the conference theme of "plurality" through close examination of bespoke tools that challenge participants to enact 'feminist' forms of problem-solving. The aim of these tools is to validate diverse experiences and amplify voices that often go under-represented in city planning processes. However, this workshop also engages with the

"paradox" theme, with an awareness that using bespoke materials is not a simple solution for truly inclusive co-design practices.

Together, we'll consider the implications of using these materials when exploring social issues like identity, diversity and co-imagining inclusive urban futures. At the end, you'll leave with a more nuanced understanding of the tools you use in your own practice.

Keywords: material agency, play, bespoke materials, representation, feminisms, futures

Service Design meets strategic action: exploring new tools for activating change

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Abstract

Design can positively contribute towards the highly complex social, economic and environmental problems we face today. One key area in design for social change is to empower citizens to activate change that disrupts built-in systemic inequalities and exploitative practices. This workshop presents the 'Action Heroes Journey', a resource kit co-developed by designers and CitizensUK community organisers to enable active citizen participation in public life. Based on Joseph Campbell's (2008) Hero's Journey storytelling framework, the toolkit integrates methods from service design and community organising and is aimed to help users to discover and align their personal values with the future development of their community. Although the resource was co-designed with and for young people initially, the archetypal structure allows the embedding of vernacular goals and meanings – i.e. increasing leadership, participation and co-creation that is meaningful at a personal level. It also connects with other stakeholder's priorities, for example, NGOs and local government citizen and sustainability strategies. Participants will learn how service design can be used to develop creative leadership capacity and enhancing wider and more diverse engagement in the socio-political sphere.

Theme to be addressed

In this workshop we will address the theme of *Pluralities.* With design taking responsibilities and standing up for environmental and social responsibility, we stress the importance of engaging at all levels – i.e. not only via sociotechnical innovation and policy groups, but more importantly with civil society organisations, activist networks and citizen-advocacy groups who work tirelessly towards addressing injustices and empower the most vulnerable and underrepresented peoples and issues.

Workshop context

The key context of this workshop is social change. In order to obtain the change they seek, citizen movements and organisations are often be driven by strategic action agendas – i.e. action oriented toward success of causes they champion (Jacobson, 2003). For example, the work done by Citizens UK (a UK citizen mobilization organisation) is conceptualised as a 'broad-based community organising', a political methodology ontologically rooted in civil society and epistemologically based on the concept of power (Bunyan, 2018).

On the other hand, strategic design seeks to use 'design principles and practices to guide strategy development and implementation toward innovative outcomes that benefit people and organisations alike' (Calabretta, Gemser, & Karpen, 2016). Common across strategic design practice for social change are co-production, collaborative and participatory principles, where a wide network of stakeholders are considered in the co-creation of public value. Conceptualising these approaches as *empowerment* (Ehn, 2008) has located strategic design within the wider community as it approached societal issues as ongoing *infrastructuring* (Hillgren, Seravalli, & Emilson, 2011; Le Dantec & DiSalvo, 2013).

These synergies presented a resourceful and genuine territory for developing joint methodologies that can potentiate empowerment in citizen-driven societal change.

Impact on Service Design Practice

Beyond delivering specific project outcomes, service designers engaged in social change interventions aim to grow the *design* and *change* capabilities within individuals, organisations, communities or multiple stakeholders. This is translated in forms of training initiatives such as participatory and co-creation workshops, and/or collaborative pilot projects. Formalising learning of these processes into transferrable resources and methodologies is part of this strategy (Sangiorgi, 2015). Though this workshop, we intend to gain a wider understanding of how to improve this methodology, as well as sharing it with a wider community of professionals.

Objectives

The objective of the workshop is to present participants with a design toolkit, the Community Action Heroes, developed in partnership with Citizens UK. The toolkit is a set of visual and digital resources, that brings service design and storytelling methods to empower individuals to take active leadership roles in public life, and shape meaningful, actionable pathways that align their personal values with the future development of their community. The toolkit was created in response to the lack of resources that enable young people in one of the most deprived areas in London to participate in community decision-making, severely limiting their representation in the policies developed at local level. Although CUK has established leadership training approaches for participation in public life, they faced limitations in developing the ability in young people to imagine and create desirable futures for themselves in connection to their community as they progress into adulthood.

Workshop Experience

In this workshop we will introduce participants to a new toolkit 'Community Action Hero Journey toolkit' which brings together service design, storytelling and community organising bridging individual vision to community strategy through an actionable pathway.

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1. Introduction

- First, we will present background to the toolkit and the workshop goals – 15 mins

2. Using the toolkit – 55 min*.*

- Select the issue/context – these are pre-defined using several cards on the table with an issue in a context.

- Map the system and envision a user journey – use stakeholder mapping and customer journey tools.

- Translate into a hero's story, using hero's archetypes.

3. Reflection with participants – 20 mins

- Using Kolb's reflective cycle, participants will explore the question of how 'Action Hero Tool' supports them in developing leadership capacity, aligning their individual values and design capability with the strategic needs of the identified community.

Joint strategic action: service design and community organising

The strategic vision for change employed by Citizens UK is based on a view of society that is "comprised of three distinct sectors: 1) the state, the governments and the regulatory boards, 2) the market, companies, corporations, and 3) civil society" (Citizens UK). From a community organising perspective, this means that civil society holds the state and the market accountable of the practices and values they represent. At the core of their methodology lies creating permanent alliances between different civil society group to address *worthwhile and winnable issues*. While such issues might not achieve radical change in the community, the ultimate goal for Citizens UK is capacity building for participation in public life. This is done through relational approaches that seek to identify and train citizens to be leaders who mobilise their communities to take action on issues they care about.

Citizens UK logic of *non-partisan organising strategy* with *capacity building for leadership* as an objective sets Citizens UK apart from the sporadic nature of social movements, and is parallel to strategic design principles of

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empowerment through *infrastructuring* and building powerful alliances that create value for all (Hillgren, Seravalli, & Eriksen, 2016).

Participatory activities as platforms for learning

Beyond the importance of co-creating framing and strategy with the people and businesses the project will impact (stakeholders and project outcomes), bringing participatory design and the community organising logic of Citizens UK together in the workshop provided mutually beneficial means for knowledge exchange that extends capacity building – or empowerment – for change in many ways. In Table 1, we illustrate how the project enlarged and enriched areas of practice and understanding through this collaborative partnership, with new learnings highlighted in bold.

Table 1 – Transformative change through project-based learning

	Community Organising	**Strategic Social Design**
Empowerment through knowledge	*Capacity building* through relational sessions, listening Training for leadership **Moving from the debate to materialisation** **New methods for creating stakeholder ownership** **Identifying areas of opportunity for innovation**	*Infrastructuring* through participatory projects Formalising methodologies **Good practice in inclusive, relational strategic leadership for social change**
Organising strategy	Non-partisan civil society alliances	Stakeholder partnerships
Agenda/goal	Explicit. Motivated by citizen participation **Understanding that creating value for all stakeholders advances the cause via higher buy-in instead of pressuring.**	Implicit. Motivated by co-production of 'expert-diffuse' outcomes **Setting up mechanisms for motivation disclosure, accountability and transparency in decision making that affects representation of all** **Reflect on tacit contractual terms of engagement.**
Vision of change	Rebalancing power (pressure)	Innovation (value creation) **Participation and co-creation mechanism as enablers for capacity building and mutual empowerment.** **A learning vs facilitation mindset** **Detachment of subjectivity and choosing most effective strategy for achieving legitimacy and impact.**

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Framing
Cognitive biases
(Kahneman & Tversky, 1984)
Agenda setting
(Scheufele, 2000)

strategic design

strategic action

Campaigns
Communicative Action
(Habermas, 1984)

[em]power
(Foucault, 1980)

Sense- and meaning-making
Expert–Diffuse Co-design
(Manzini, 2015)

'expert'

community

Infrastructuring
Participatory Design
(Le Dantec & DiSalvo, 2013)

Initial constructs to discuss power in expert-diffuse designing

accountability

expectations

agendas

disclose
discuss
evaluate

Hero's Journey

Ordinary World
Call to Adventure
Refusal
Meeting with the Mentor
Crossing the Threshold
Tests, Allies, Enemies
Approach to Inmost cave
Ordeal
Reward (Seizing the Sword)
The Road Back
Resurrection
Return with Elixir

ORDINARY WORLD	SPECIAL WORLD	ORDINARY WORLD
ACT I	ACT II	ACT III

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Example of Hero's Journey metaphor construct

Capacity and Facilities

The capacity for the workshop is 20 people. Individuals will be asked to form groups of 3-4 people. To run the workshop we will require a flat room with tables and movable chairs as well as wall space to display work. We will also require the projector for the initial presentation.

References

Bunyan, P. (2018). Broad-based community organising in the UK: Re-imagining politics through the prism of civil society.

Calabretta, G., Gemser, G., & Karpen, I. (2016). Strategic design : eight essential practices every strategic designer must master. BIS Publishers.

Campbell, J. (2008). The hero with a thousand faces (Vol. 17). New World Library.

Ehn, P. (2008). Participation in Design Things. In Proceedings of the tenth anniversary conference on participatory design (pp. 92–101). Indiana University. https://doi.org/10.7551/mitpress/8262.003.0011

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Hillgren, P.-A., Seravalli, A., & Eriksen, M. A. (2016). Counter-hegemonic practices; dynamic interplay between agonism, commoning and strategic design. Strategic Design Research Journal, 9(2), 89–99. https://doi.org/10.4013/sdrj.2016.92.04

Hillgren, P. A., Seravalli, A., & Emilson, A. (2011). Prototyping and infrastructuring in design for social innovation. CoDesign, 7(3–4), 169–183. https://doi.org/10.1080/15710882.2011.630474

Jacobson, T. L. (2003). Participatory Communication for Social Change: The Relevance of the Theory of Communicative Action. Annals of the International Communication Association, 27(1), 87–123. https://doi.org/10.1080/23808985.2003.11679023

Le Dantec, C. A., & DiSalvo, C. (2013). Infrastructuring and the formation of publics in participatory design. Social Studies of Science, 43(2), 241–264. https://doi.org/10.1177/0306312712471581

Sangiorgi, D. (2015). Designing for public sector innovation in the UK: Design strategies for paradigm shifts. Foresight, 17(4), 332–348. https://doi.org/10.1108/FS-08-2013-0041

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The Playdate: Exploring how to host a learning exchange

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Workshop outline

If we want service design to evolve in conversation with the socio-cultural messiness inherent to the field, we should carve out spaces where we regularly question and explore our practices. This session plays with how we might translate the experiential conference workshop to the workplace. The kids playdate is introduced as an analogous situation for exploring how designers might learn from other designers, intentionally emphasizing how the learning exchange would embody the value of reciprocity and the principles of participatory prototyping. What a parent might call sharing and playing nicely with friends.

Playdate principles create a space for collective experiencing and proposing of how the learning encounter serves us as life-long learners. Distinct from the one-sided dry run of a workshop or the passive case study presentation, the playdate invites guests to show up with their expertise, hard won wisdom, and independent curiousity so we might learn together.

Keywords: participatory design, workshop design, learning, design-based research, play

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Uncomfortable immersion

The uniqueness of grief makes it troublesome for design to facilitate meaningful impacts in the processes of grieving. It's a complicated emotion to consolidate, differing between every person. Western society is not well equipped with the necessary knowledge needed to begin understanding and supporting others in grief (Devine, 2017).

Using service design as a framework for crafting an optimal solution for grief-care, Uncomfortable Immersion has explored some of the design opportunities surrounding grief in the context of adolescents. Clinically complex grief, which requires intervention, is more prevalent in adolescents (Shear, 2012). This is due to adolescents constantly redefining their identities and relationships, making it harder for them and others to determine when they are struggling (Hewlett, 2012).

Service design tools such as perceptual and journey mapping, combined with the philosophies behind Human-Centred Design, yielded insightful research from the interviews conducted. Most people whom had experienced the death of someone close to them during their adolescence, noted that it was their first opportunity to talk about their grief openly.

The book, 'Without Expectations', that I designed is a culmination of both personal and shared narratives. Its themes encourage empathic connections between the griever and their relationships. It discusses the creation of ritual objects as an important tool (Sas, 2016) in introducing purposeful integration of the physical and metaphysical reminders of the deceased (Green, 2002). One example outlined in the book is a handwritten letter from the deceased, printed onto a scarf that conceals the message until touched for a private ritual of remembrance.

Readers of the book claimed it inspired deeper discussions with their personal network as well as understanding their grief from a different perspective.

Chloe Coelho

References:
Devine, M. (2017). It's Okay That You're Not Okay: Meeting grief and loss in a culture that doesn't understand. Sounds True, 23-26, 32-37.

Green, J. W. (2002). Death, Memory and Material Culture. [Death, Memory and Material Culture, Elizabeth Hallam, Jenny Hockey]. American Ethnologist, 29(4), 1012-1013.

Hewlett, B. L., & Hewlett, B. L. (2012). Adolescent identity evolutionary, cultural and developmental perspectives. New York: Routledge.

Sas, C., & Coman, A. (2016). Designing personal grief rituals: An analysis of symbolic objects and actions. Death studies, 40(9), 558-569.

Shear, M. K. (2012). Grief and mourning gone awry: pathway and course of complicated grief. Dialogues in clinical neuroscience, 14(2), 119-128.

Ideation Mapping

Ideation on sticky-notes was crucial throughout almost all stages of the design process, particularly in connecting different themes and stakeholders together.

Perceptual Mapping

Each dot represents a theme where the qualitative data correlates with personal issues and problem-solving to identify important pain points within this matrix.

Denial

Cultural — Personal

Problem-solving

● Literature insights
● Interview insights

The intimate details of people's stories of loss suggest a complex process of adaptation to a changed reality, a process that is at the same time immensely personal, intricately relational, and inevitably cultural.

— Robert Neimeyer
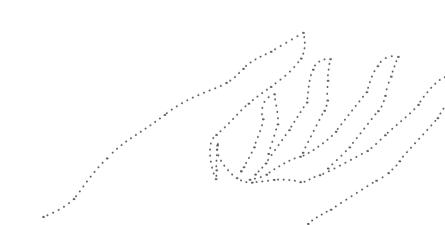
Sensory Design:

Making sense of tensions, plurality and paradox in a culturally contested heritage site

My PhD focuses on the redesign of Montsalvat's visitor and service experience. Montsalvat is, "historically, technically, architecturally, aesthetically, socially and spiritually significant", (Willingham, 2010); however, visitors are unable to access its rich histories. The site is transitioning from an Artists Colony to an Arts Centre, it is a 'culturally contested heritage site' (Silverman, 2011).

In 2019, I began research with the community and 'walked backwards into the future' (Rameka, 2016). I dug up histories (Lindqvist, 1979) and translated them to sensory probes to 'come to terms' with the site, then used them in interviews and sensory walking research (Pink, 2007; O'Neil & Roberts 2020). I conducted authentic, 'bottom-up' participatory research (UN-Habitat, 2016) that was inclusive of all voices, to validated stories with the community. Together we transformed a messy, fractured-oral history into legible formats (Sandino, 2006). Artists profile posters created strong engagement across the community and became visible bridges into commonly understood pasts.

Archives are split, relationships are frayed and knowledge is lost. Analysing the community via Nardi & O'Day's 'Information Ecologies' framework, helped me understand that establishing Montsalvat as a limited public company in 2007, was pivotal to today's tension. This structure introduced a plurality of lens that have resulted in clashes over cultural practice, shared values and social meaning. The dissonance dislocates the 'ecology' (Nardi & O'Day, 1999) from Montsalvat's cultural heritage, and paradoxically renders it unsustainable. Sensory design has supported a sensitive inquiry into a contested service landscape. It has encouraged empathy, openness, safety and trust at a time when tension, plurality and paradox were rife.

Kate Storey, RMIT School of Design

Lindqvist, S. (1979). Dig Where You Stand. Oral History, 7(2), 24-30. Retrieved April 20, 2020.
Nardi, B., & O' Day, V. (1999). Information Ecologies: using technology with heart. MIT Press, Cambridge, Massachusetts, US.
O'Neill, M., & Roberts, B. (2020). Walking Methods – Research on the Move. Routledge, 2020, New York, NY, 10017.
Pink, S. (2007). Walking with video. Visual studies, 22(3), 240-252.
Rameka, L. (2016). Kia whakatōmuri te haere whakamua: 'I walk backwards into the future with my eyes fixed on my past.' Contemporary Issues in Early Childhood, 17(4), 387–398. https://doi.org/10.1177/1463949116677923
Sandino, L. (2006). Oral histories and design: Objects and subjects. Journal of Design History, 19 (4), 275-282. https://doi.org/10.1093/jdh/epl022
Silverman, H. (2011). Contested Cultural Heritage: A Selective Historiography, Contested Cultural Heritage (pp. 1-49). Springer, New York, NY.
UN-Habitat, 2016. The New Urban Agenda Explainer. http://habitat3.org/wp-content/uploads/New-Urban-Agenda-Explainer_FInal.pdf
Willingham, A. (2010), in Hauser, R. (2017). Montsalvat Strategic Plan 2017-2022. Draft 5 May 2017.

Unknown. (1937). Sonia Skipper Making Mudbricks. Table Talk, 5 Aug 1937. In Skipper, S. (2005). My Story: Tales from a Pioneer of Montsalvat. Black Jack Press, Carlton North, Victoria, Australia. Copyright 2020 by Adam & Ruth Callender. Reprinted with permission.

Flip, split or extend – helping 'mum and dad developers' navigate housing design processes.

With over 300,000 people[1] migrating to Australia's capital cities in 2018/19 alone, there is pressure on our middle ring suburbs to house many of these people. Joining established architects and building designers are 'mum and dad developers' who are inspired by their family, friends and reality TV to 'have a go' at developing their own land – either by building in their backyard or replacing a family home with smaller villas.

While this can bring benefits, there are a many poor outcomes brought about by a lack of knowledge of how good house design can impact our quality of life – houses designed with no eaves to protect from the sun, poor ventilation, dark rooms, and small unusable gardens with no trees.

House design is influenced by many factors, including the people who design them and the policies which guide them. Government planning departments typically write residential design policies for a narrow audience of building designers and architects, but there is a changing dimension to this. With more 'mum and dad developers' getting involved, they often experience difficulty navigating these policies and processes, and understanding implications of the design decisions they make.

This research looks at ways to address their knowledge gap so they are empowered to make better choices when they work with their building designer or architect. The method for this research uses service design tools to interview users and map journeys through the redevelopment process, identifying pain points and opportunities to improve processes. Emerging findings may involve the production of supporting visual communication materials, the development of virtual assistants or education programs. These ideas propose a collaborative 'housing design service,' which provides communities with accessible services to promote engagement with good design.

Nicholas Temov, University of Western Australia.
1. Australian Bureau of Statistics 2020, Regional Population Growth, Australia (2018-19). Viewed 21 April 2020, https://www.abs.gov.au/ausstats/abs@.nsf/mf/3218.0

Image credit: ShutterStock 2020

Research questions

01 Public sector management

- What are the emerging themes around public sector innovation?
- What are the literature around public sector
- What kind of leadership is needed within the public sector?

02 Design applications

- What are the current applications of design in the public sector?
- What is the impact of the design practices in creating human-centric public policies and services?
- What are the barriers in embedding design practice within public organisations?

03 Design leadership

- What are the emerging literature around design leadership?
- What kind of design leadership can be adapted to the public sector?

DESIGN LEADERSHIP IN THE PUBLIC SECTOR

FINDING 1: EVOLUTION OF PUBLIC SECTOR MANAGEMENT

1980s	1990s	2000s
Traditional Public Administration Rules-based and bureacratic	**New Public Management** Efficient, effective, competitive	**Networked Public Governance** Networks, citizens-centred, joint-up collaboration

Adapted from Benington and Hartley (2001), Innovation in Governance and Public Services: Past and Present

Author's Name: Debbie Ng Li Teng

SERV20 DES20 | Student Forum

Chief Design Officers in public organisations:

What design leadership do we need in Singapore's public organisations?[1]

Governments around the world are making tremendous efforts to innovate as they face the pressure of the VUCA - Volatile, Uncertain, Complex, and Ambiguous - world (Pollitt & Bouckaert, 2004; Kingsinger & Walch, 2012). Design thinking (Brown, 2008; Martin, 2009) as a human-centred approach provides clues to reform the public organisations by "designing for citizens" and "designing with citizens" with the hope that they can collectively overcome large-scale problems and create new value for public policies and services (Bason, 2017).

If design is situated to transform public organisations, including the creation of policy, citizen-centric service initiatives and enabling collaboration with citizens and stakeholders, how are top leaders within the government prepared to transit towards a "design-inspired" leadership? This paper proposes the idea that the impact and sustainability of design is largely influenced by the leadership at multiple levels of the organisation, especially when there are organisational barriers in integrating design within public organisations.

Ng Li Teng Debbie, National University of Singapore Department of Industrial Design

References:
Bason, C. (2017). Leading Public Design: How Managers Engage with Design to Transform Public Governance. Frederiksberg: Copenhagen Business School [Phd]. PhD series, No. 21.2017

Brown, T. (2009). Change by design: How design thinking transforms organizations and inspires innovation. New York: HarperCollins.

Kingsinger, P., & Walch, K. (2012). Living and leading in a VUCA world. Thunderbird University. Retrieved from http://knowledgenetwork.thunderbird.edu/research/2012/07/09/kinsinger-walch-vuca/.

Martin, R. (2009). The design of business: Why design thinking is the next competitive advantage. Harvard Business School Publishing. Rotman Designworks.

Pollitt, C., & G. Bouckaert. (2004). Public Management Reform: A Comparative Analysis. Oxford: Oxford University Press.

China has the need to design new services...

from manufacturing to services oriented economy

2015: service sector more than 50% of national GDP

"Made in China 2025" plan

interest is growing and the number of events about SD too

... but still faces difficulties

"[...]we tried to apply the approach of Service Design created in the West, but it did not go so well."
(Cathy Huang & Xue Yin, SDN Conference, 2016)
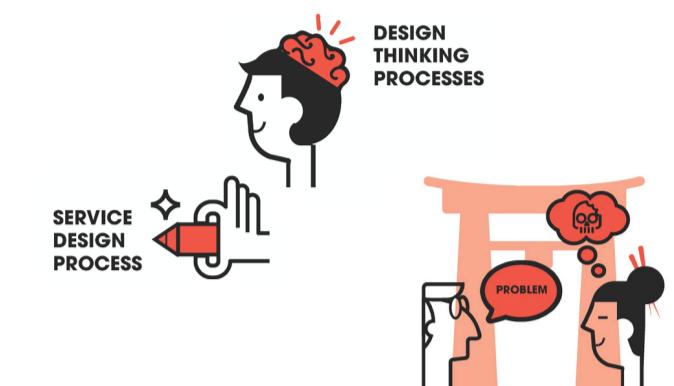
Design Thinking processes (mindset) are widely used to design services. The Western culture, which gave birth to DT and SD, is mirrored in these processes but China owns unique cultural and contextual characteristics and this creates frictions.

References: Wu,Y. (2016). China's services sector: the new engine of economic growth. Eurasian Geography and Economics 56(6), 618-634. https://doi.org/10.1080/15387216.2016.1153429 | Huang, C. (2017). Driven by Wu Xing, Service Design transforms a Chinese firm. Touchpoint, 8(3), 56-61.

Hasso-Plattner Institute, 2010
too focused on abstract thinking
too linear
too simplified
test into the market

Double Diamond, 2005
too abstract
too research-centered
too simplified

The Loop, IBM
fluid structure
too simplified

SERVICE DESIGN IS...

› **SEQUENTIAL, BUT** in China time is perceived as synchronic

› **REAL, AND** Chinese people prefer a pragmatic approach

› **COLLABORATIVE, BUT** for Chinese people is difficult to communicate

› **ITERATIVE, AND** Chinese people accept the unknown and doubtful situations **BUT** they tend to focus on solutions

› **HUMAN-CENTERED, AND** in China relationships with people and environment are fundamental **BUT** is difficult to empathize with others

› **HOLISTIC, AND** in China the world is perceived as inter-connected (objects + environment); relationships are fundamental

References: On-field reserach | Stickdorn, M., Lawrence, A., Hormess, M., & Schneider, J. (2017). This Is Service Design Doing. Canada: O'Reilly Media. | Hofstede, G. (2007). A European in Asia. Asian Journal of Social Psychology, 10, 16–21. DOI: 10.1111/j.1467-839X.2006.00206.x

- Chinese people tend to avoid abstract thinking, a pragmatic approach is needed

- Chinese people tend to focus on results rather than on processes

- connections and relationships are crucial to build something successful and durable in the Chinese context

- creation of value for the users as the key factor to emerge in the Chinese market

- the market asks for speed and scale

the PROCESS

problem

human value — hypothesis

define value FOR

VALUE ECOSYSTEM

service environment

concept

build connections OF — experiment service IN

prototype

service people

service market

implementation — feedbacks

Service Design meets Chinese culture

Service Design (SD) and Design Thinking (DT) share many pillars - both are human-centred, holistic, iterative, real, collaborative - and DT cognitive processes are widely used to design services. Both have Western roots and both are informed by culture (Thoring et al., 2014), therefore, Western culture is mirrored in how these processes are structured, comprehended and applied. With her research, the author aimed at gaining new understandings on the practice of SD outside Western culture.

What happens when a Western thinking model and its application into the services sector are "moved" into a different culture? In order to create value, a process should be crafted for its users and their culture (Stickdorn et al., 2017); hence the hypothesis that China needs a Service Design process tailored to its unique way of thinking and context.

The outcome is a process that considers the Chinese cultural and contextual characteristics and aims at guiding designers to create valuable services for that context. The key Chinese characteristics: the concepts of "connections" and "human value", a fluid and flexible structure that reflects the Chinese synchronic perception of time, the pragmatic approach, team alignment moments to enhance teamwork.

This aims at being a trigger project; many "Chinese barriers" relate to SD methods and methodologies such as brainstorming and ethnographic research (Ann, 2017). Further explorations could address these topics to widen the just started research. Interestingly, although the research focused on the Chinese context, this process can adapt to other cultural realities.

Giulia Capriotti

References:
Ann, E. (Host). (2017, March 23). What you need to know about service design in greater China. Service Design Show [Video podcast]. https://www.youtube.com/watch?v=qAkg299V3Us | de Bont, C., & Xihui Liu, S. (2017). Barriers to Strategic Design: A Perspective from China. She Ji, 3(2), 133-145. https://doi.org/10.1016/j.sheji.2017.09.003 Ip, A. (Host). (2016, November 17). Merging Chinese culture with western philosophy through service design. Service Design Show [Video podcast]. https://www.youtube.com/watch?v=Rjlwr6yZkbM | Nisbett, R. (2003). The Geography of Thought: How Asians and Westerners Think Differently... and Why. The Free Press. | Stickdorn, M., Lawrence, A., Hormess, M., & Schneider, J. (2017). This Is Service Design Doing. Canada: O'Reilly Media. | Thoring, K., Luippold, C., & Mueller, R. (2014). The Impact of Cultural Differences in Design Thinking Education. In: Lim, Y ., Niedderer, K ., Redström, J ., et al., X. (Eds.). Proceedings of DRS 2014: Design's Big Debates. Design Research Society Biennial International Conference 16-19 June 2014, Umeå, Sweden (pp. 744-756). SE-Umeå: Design Research Society, Umeå Institute of Design.

1 The Problem

Working in strategic and creative services, one of the biggest problems is mapping out the best way to consistently produce different work while getting the best out of a team in the grips of the messy part of the creative process.

Each project elicits questions that broadly fit into four main categories.

Keep it consistent.
Keep it fresh.

Messy can be good. We want to keep that.

Questions like

Where are we?	Who am I?
Where are we in the project? Where do we need to go next?	Who are we in this project? Who do we need to be?

What are we doing?	How are we gonna do it?
What are we doing right now? What will we need to do next?	How are we going to get there? What's our final goal? What steps do we need to take?

2 Someone must have figured this out already

People have discovered some great ways to work. Trying a few, we pooled them into categories that helped us frame an approach:

Systematic Approach
Using Agile, Scrum and other project management methods, we tried systems that were intended to free us from the pain of working together.

Ethnographic Approach
We talked to each other, going into depth about how we do certain tasks and why we do them that way, what worked for us and what didn't.

Poetic Approach
We tried to move away from the systems to look for the stuff we were doing that we weren't even noticing.

None of these alone worked for us.

Enter Service Design methods to help make sense of how we work

3 Interviews

We interviewed everyone about what they do all day and how they feel about it:

Account Manager · Project Manager · Designer · Strategist · Operations Manager · Editor · Researcher · Business Development Manager · Office Dog

Everyone had a lot to say

Mapping

Mapping our common methods in projects proved fruitful, allowing us to build approaches to making tools that would help us switch between two ways of working on projects.

Birds-eye view

Moving between these views of work helped us talk to each other about how we should best proceed.

Granular view

Project Workflow Blueprint

Department Manuals

Company intranet

5 Results

Working with service design methods didn't lead us to a perfect way to work, but it did give us some much needed tools that had positive effects.

A Bigger Language
Most of the problems we had in projects were more easily tackled once we named them. It isn't perfect, but now we know what to call it when that one thing happens.

A Frame of Reference
Creative work isn't prescriptive, and messy is good in a creative process. But having the most common structure for our work mapped out meant that we could know when we'd need to deviate.

The Act of Making
All of the methods for creative work and project management we tried were great, but nothing beat the conversations and act of making our own methods of working together.

Work Right
Building a way to work together through Service Design

Formalising the creative process is often wrought with good intentions and the necessity to quantify, package and sell time. When working in strategic and creative design fields, decisions are regularly made about the path to best deliver work that balances both quality and profitability. Is it fundamentally a question of standardisation? Do models that work for the production of more tangible goods work when approaching creative services? How can we develop a way to work that's systematic and messy?

In an attempt to bring elements of standardisation in line with what's best described as the messy parts of the creative process, we set off on an investigation into how we work. Starting with well-travelled roads in Agile and other project management, we began to incorporate broader ways to view our approach to work, leaning on more ethnographic and poetic approaches to gather insights into how our small studio might best function.

Through interviews, mapping and group tool creation, we turned customer-centric service design methods on ourselves to create a framework of our process. Fundamentally, we used service design methods to begin answering who we are, what we're doing, how we're getting where we want to go and why any of us should care.

Not all of it worked. The parts that didn't are probably more interesting than the parts that did. However, we ended up with a foundation, a bigger set of language and a set of tools that resonate with us because we made them – they're still helping us redefine how we work.

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References:
Kalbach, J (2016). *Mapping experiences : A guide to creating value through journeys, blueprints, and diagrams* (First ed.). O'Reilly Media
Polaine, A,Løvlie, L, & Reason, B. (2013). *Service design : From insight to implementation.* Rosenfeld Media.
Ries, E (2014). *The lean startup : How today's entrepreneurs use continuous innovation to create radically successful businesses* (First ed.). Crown Business.
Stickdorn, M, Lawrence, A, Hormess, ME, & Schneider, J. (2018). *This is service design doing: Applying service design and design thinking in the real world.* O'Reilly.
Terkel, S (2004). *Working: people talk about what they do all day and how they feel about what they do.* The New Press
Whyte, D (1996). *The heart aroused : Poetry and the preservation of the soul in corporate America* (Rev. ed.] ed.). Doubleday