ServDes2018 - Service Design Proof of Concept
Politecnico di Milano
18th-19th-20th, June 2018

Service designers, unite! Identifying shared concerns among multidisciplinary perspectives on service design

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Abstract

Service Design is a multidisciplinary approach that asks for further research to be better integrated. This article contributes to bridging this gap by identifying shared concerns among multidisciplinary perspectives on Service Design. A qualitative study involving six focus groups was conducted on international Service Design research centers. Results show the service system concept as an abstraction that supports integrating multidisciplinary perspectives and their contributions to Service Design, by identifying shared concerns across different levels: (a) at an individual-actor level, the shared concern of an actor-centered approach; (b) at an organizational service delivery system level, the shared focus on processes and interfaces; and (c) at network and ecosystem levels, the shared interest in designing for new constellations of actors and their connected roles. This article integrates different concepts and approaches to Service Design developed in dispersed areas, supporting dialogue, collaboration and theory building to advance Service Design as an interdisciplinary field.

KEYWORDS: service design, multidisciplinary, service system, collaboration

Introduction

Service Design is a multidisciplinary, human-centered, collaborative, holistic approach focused on creating new services or improving existing ones (Blomkvist, Holmlid, Segelström 2011; Ostrom et al. 2015; Sangiorgi and Prendiville 2017; Grenha Teixeira et al., 2017). The multidisciplinary character of Service Design is explained by its evolution. In the 80s, the term 'service design' started to be discussed in the context of service blueprinting (Shostack, 1982) and as a specific step within a New Service Development (NSD) process, focused on generating ideas and formulating service concepts (Scheuing and Johnson, 1989). In the 90's, Service Design was introduced as a Design discipline, contributing to advance

the application of design capabilities in the service sector (Erlhoff, Mager, & Manzini, 1997; Pacenti, 1998). More recently, a renewed interest in service innovation has brought the attention towards 'leveraging service design' as one of the key research priorities in Service Research (Ostrom et al., 2015). In this context, Yu and Sangiorgi (2018) present Service Design as contributing to all NSD steps, by involving multidisciplinary teams in human-centered and design-based processes to service innovation.

Researchers have characterized multidisciplinary perspectives on Service Design and their related contributions (Patrício, Gustafsson, & Fisk, 2018), such as from Service Research (Andreassen et al., 2016), Design (Kimbell, 2011), Interaction Design (Holmlid 2007), Service Marketing (Bitner, Ostrom, & Morgan, 2008), Operations Management (Sampson 2012) and Information Systems (Glushko, 2010). Service Research provides the focus and context of Service Design, bringing definitions such as the concept of service (Vargo & Lusch, 2008) and using this approach to enhance process, structure and culture in creating value for customers (Andreassen et al., 2016). Design provides the mindset, the processes and tools that bring the explorative, iterative way to create new service (Kimbell, 2011). Interaction Design contributes to designing and structuring the resources that support service interactions and the user experience (Holmlid 2007), with tools such as storyboarding (Truong, Hayes, & Abowd, 2006). Service Marketing addresses the design of service concepts and multi-interface service systems for the customer experience, with techniques such as service blueprinting (Bitner et al., 2008). Operations Management contributes to designing service processes, making the connection between service front-stage and back-stage through models, such as the process chain network (Sampson 2012). Finally, Information Systems also addresses the technology and the back-office processes that support person-to-person, person-to-machine and machine-to-machine interactions (Glushko, 2010).

However, there is still a lack of a comprehensive understanding of Service Design as an integrated multidisciplinary approach. Different academic communities have been approaching Service Design, resulting in different concepts, approaches and languages. This lack of integration hinders the dialogue and shared ground between Service Designers coming from different backgrounds, risking to researchers and practitioners building knowledge in silos, 'reinventing the wheel' and eventually hampering the potential of Service Design to foster service innovation (Ostrom et al., 2015).

This article examines complementarities among different perspectives on Service Design, in order to understand which are shared concerns to Service Design approached by multidisciplinary perspectives. For that, it presents a qualitative research (Charmaz, 2014; Gioia, Corley and Hamilton, 2012) comprising focus groups (Flick, 2009) with six Service Design research centers, from 5 different countries, involving a total of 40 researchers from multidisciplinary backgrounds.

Study results show that the service system concept is an abstraction that supports integrating multidisciplinary perspectives and their contributions to Service Design. From a Service-Dominant Logic perspective, Edvardsson, Skålén and Tronvoll (2012) define service system as a configuration of inter-related structures and resources that support and enable value co-creation among actors. In this sense, "service systems can be modeled and designed at different levels" (Patrício et al. 2011, p. 181), and the application of the service system concept can cover "a wide spectrum of kinds and levels of systems, ranging from individuals or families, to organizations, institutions, or nations." (Sangiorgi, Patrício, and Fisk 2017, p. 50). This means that, besides focusing on individual-actor and organizational service delivery system levels, Service Designers can work towards transforming bigger entities such as service networks (Akaka, Vargo, & Lusch, 2012) and service ecosystems (Lusch & Vargo, 2014). This service system perspective enabled integrating Service Design multidisciplinary contributions across different levels, identifying shared concerns in terms of an actor-centered approach, processes and interfaces and the design of new constellations of actors and their connected roles. As value, this article integrates different concepts and approaches to Service Design developed in dispersed areas, supporting dialogue and theory building to advance Service Design as an interdisciplinary field (Gustafsson et al., 2016).

Methodology

The aims of this study were to identify and examine complementarities between different perspectives on Service Design, in order to identify shared concerns that could support multidisciplinary theory building and collaborative work in this field. This study involved a qualitative research comprising focus groups (Flick, 2009) with participants from six Service Design research centers. These centers were chosen, because of their leading role in representing areas previously presented that contribute to Service Design: Service Research, Design, Interaction Design, Marketing, Operations Management and Information Systems. The focus groups were developed in five different countries, where each local facilitator was asked to invite researchers, resulting in a total of 40 participants. The profile of each focus group is presented in the Table 1. Based on this profile, focus groups will be referred herein by their numbers and main research focus.

Focus group	**Number of participants**	**Main research focus**	**Multidisciplinary background of participants**	**Country**
Service Design Center 1 (SD1)	9 participants	Information Systems	Information Systems; Service Science; Computer Science	Germany
Service Design Center 2 (SD2)	6 participants	Operations Management	Operations Management; Management	Portugal
Service Design Center 3 (SD3)	9 participants	Interaction Design/ Design	Interaction Design; Design; Cognitive Science; Management	Sweden
Service Design Center 4 (SD4)	4 participants	Design	Design; Architecture	Italy
Service Design Center 5 (SD5)	8 participants	Marketing	Marketing; Service Research	Netherlands
Service Design Center 6 (SD6)	4 participants	Service Research	Service Research; Marketing	Sweden

Table 1: Focus groups' profile.

Focus groups covered two main topics: (1) the characteristics of Service Design activity from multidisciplinary lenses, and (2) how the researchers saw the connections between Service Design and service innovation through multidisciplinary perspectives. Data was audio-recorded and transcribed.

A qualitative approach to analyze the focus groups' results was developed (Charmaz, 2014; Gioia, Corley and Hamilton, 2012). In this context, the transcriptions of the focus groups were examined with the support of the Nvivo software, involving initial and focused coding (Charmaz, 2014). Within this process, fragments of data (e.g. segments of text) were firstly coded closely to their analytical import (initial coding), to be finally condensed, integrated and synthesized in more meaningful categories (focused coding) (Charmaz, 2014). This iterative process enabled to examine different activities, approaches and concepts, leading to the identification of different levels of service systems and shared concerns that Service

Designers have been working on. Based on this comprehension, a new round of literature review was developed in order to theoretically support the themes that emerged from the data analysis. Results from the focus groups are presented in the next section, complemented by a discussion supported by the identified literature.

Results

Results of data analysis show three sets of shared concerns, coordinated by a service system perspective: (a) at an individual-actor level, the shared concern of an actor-centered approach, comprising human-centered and provider-centered perspectives; (b) at an organizational service delivery system level, the shared focus on processes and interfaces; (c) at a network and ecosystem level, a shared interest on designing for new constellations of actors and their connected roles. These results were organized in terms of the themes discussed in the focus groups, presented in the following Tables.

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	INDIVIDUAL-ACTOR LEVEL					
	SD Center 1	**SD Center 2**	**SD Center 3**	**SD Center 4**	**SD Center 5**	**SD Center 6**
HUMAN-CENTERED APPROACH	X	X	X	X	X	X
• ***Learning from people and using people's experiences and capacities as resources***	X	X	X	X	X	X
• ***User and usage focus***	X	X	X	X	X	X
○ *Interpreting and translating user needs into ideas*			X	X	X	
○ *Using technology to support users to develop new roles and competences*	X	X				
○ **Focusing on the usage context*	X					
• ***Customer focus***	X	X	X	X	X	X
○ *Understanding customer needs and cultures*			X	X	X	X
○ *Stimulating new customer roles*	X	X	X			X
• ***Employee focus***	X		X			X
○ *Stimulating new behaviors leading to changes in employees' roles*	X		X			X
PROVIDER-CENTERED APPROACH	X	X				
• ***Guaranteeing the requirements of service providers***	X	X				

Table 2: Individual-actor level.

* Literature describes differences between user-centered approach and usage-centered approaches (Norman, 2005). While the first focuses on the users' needs, the second focuses on the activities performed by these users. We consider the latter as overlapping and complementing a user-centered approach.

	ORGANIZATIONAL SERVICE DELIVERY SYSTEM LEVEL					
	SD Center 1	**SD Center 2**	**SD Center 3**	**SD Center 4**	**SD Center 5**	**SD Center 6**
PROCESS	X	X	X	X	X	X
• ***Designing and improving the Service Design process***			X	X		X
○ *Facilitating design conversations*			X	X		
○ *Embedding design capabilities*				X		
○ *Transforming organizational practices*				X		X
○ *Using Participatory Design processes*			X	X		
• ***Designing and improving service delivery processes***	X	X			X	X
○ *Studying what happens during service usage and after service usage*					X	X
○ *Focusing on implementation, realization, diffusion, scaling and measurement*					X	X
○ *Improving service quality*	X	X				X
INTERFACE	X	X	X	X	X	X
• ***Designing new service interfaces***	X		X	X	X	X
• ***Designing and guiding new service interactions***		X	X	X		
• ***Using technology to support service***	X	X	X			
○ *Change the way people work*			X			
○ *Improving service delivery process*		X				

Table 3: Organizational service delivery system level.

	NETWORK AND ECOSYSTEM LEVELS					
	SD Center 1	**SD Center 2**	**SD Center 3**	**SD Center 4**	**SD Center 5**	**SD Center 6**
NEW CONSTELLATIONS OF ACTORS AND CONNECTED ROLES	X	X	X	X	X	X
• ***Creating new businesses and value propositions***	X			X	X	X
• ***Generating new networks of actors***			X	X		
• ***Supporting B2B services***	X	X				
• ***Enabling more sustainable solutions for society***				X		
• ***Improving public services***			X	X		
• ***Creating conditions for institutional change***			X			X

Table 4: Network and ecosystem levels.

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At an individual-actor level – an actor-centered approach:

All focus groups referred to Service Design as bringing new knowledge to the service innovation process, by learning from individuals or ensuring that the requirements of service providers are also met, which compose an **actor-centered approach**.
In the first case, a human-centered approach has been referred to as user-centered, customer-centered and employee-centered perspectives. A human-centered approach was mentioned by SD3-Interaction Design, which described Design as providing a mindset, practices, tools and reframing approaches that support learning from people.

> *Design as a practice provides maybe mindset, process and tools, but it also provides ways of thinking, it provides reframing of problems (…) Design often claims that through its human-centeredness it addresses topics and concerns on an individual level (SD3)*

Likewise, SD4-Design highlighted the capability that Designers have to interpret and translate user needs into ideas, contributing to early phases of the service innovation process.

> *So, in the early stage, designers can have the capability to interpret and translate the users' needs into ideas, and support engagement of users into idea generation. (SD4)*

A user-centered perspective is also present when creating new technology, where researchers from SD1-Information Systems claimed they can support users to develop new roles and competences. This was complemented by a usage focus of technology.

> *Technical services, they become more and more accessible for consumers (…) Slack has services that are behind, that you can just click on now and integrate this whole product. (…) consumers themselves they become more technically capable. (…) When you design a service, from an Information Systems perspective, you always design for a usage context. (SD1)*

A customer-centered perspective was described as focusing on *learning from customers* (SD5-Marketing*)* and *understanding customers' needs and cultures* (SD6-Service Research). SD5-Marketing highlighted an interest in researching about customer loyalty, while SD6-Service Research reinforced Service Design's stimulus to new behaviors leading to changes in employees' and customers' roles.

> *There are a lot of Marketing studies that do focus on customer experience. (…) customer loyalty, is part of customer experience, so this has been also extensively studied in the past. (SD5)*

> *When you look at academic journals in Marketing, they are all talking about how it is affecting the customer role, or it's being changed, and how the customers are getting new roles. (SD6)*

In parallel, an employee-centered perspective was described as a focus on learning from employees as sources of knowledge and creating new roles for employees, by SD2-Operations and SD6-Service Research.

> *I think that in the service we must consider both [employee and customer], because they are connected. (SD2).*
>
> *(…) to use customer base knowledge to create, for example, new delivery processes, they also have to use an employee perspective and their knowledge, and then creating a new delivery process would be creating also new roles for customer and employees in that interface or interaction in order to create value. (SD6).*

On the other hand, a ***provider-centered perspective*** was defended by SD1-Information Systems and SD2-Operations, in order to guarantee that requirements of service providers can be fulfilled.

> *We also have the provider-centered view (…) So, you want to set up your processes and activities so you can design later on or maintain the service efficiently. (SD1)*
>
> *The perspective of quality depends if it is from the customer or the provider point of view. This reminds me the case of a multinational of the retail sector that (…) wanted to increase the operational flow. (…) they also wanted to increase the time customers spent in their stores, to increase sales. So, these aspects must be counterbalanced. (SD2)*

At an organizational delivery system level – processes and interfaces:

Focus groups' participants described Service Design contributions to create different solutions inside the organizational service delivery system, where *process* and *interface* were identified as shared concerns.

Process:

Process was described as the service design process that supports designing for new service and facilitates embedding changes within organizations. Likewise, process was referred to as the service delivery process that supports service to happen.
As seen in Table 3, designing the **service design process** is a shared concern between SD3-Interaction, SD4-Design and SD6-Service Research participants. In this context, SD3-Interaction Design researchers highlighted the *material and aesthetic process that Service Designers use to deal with complex issues, consisting in a methodological approach more than just a set of tools* (SD3). Likewise, results indicate Service Design creating the conditions to change organizations, by *facilitating design conversations*, *embedding design capabilities* through *training* (SD4) and *transforming organizational practices* (SD4; SD6).
Design contributions to the implementation of new service solutions were described by SD4-Design focus group as depending on whether Designers stop in informing changes or whether they assume leading roles inside organizations.

> *Many design studios maybe stop to understanding the customer, providing the insights, providing ideas of possible developments, then it depends on the company on how much this can be taken in, interpreted, informed and be implemented. Some other ones might be very engaging in the organization (…) so the transformations are maybe helping to implement some of the interfaces, some of the training, or some of the changes of processes, or discussing the business models with all the partners, facilitating conversations, so getting deeper into this transformation. (SD4)*

Data analysis shows SD3-Interaction Design and SD4-Design participants argued for the use of Participatory processes during Service Design. In this context, SD3 researchers claimed *Participatory Design is also part of the outcome*, since it also brings Service Design to the implementation stage, *where we need to actively involve individuals, to enable outcome, such as democratization (SD3).*
Besides, results show that SD1-Information Systems, SD2-Operations, SD5-Marketing and SD6-Service Research participants indicated an interest on designing and improving **service**

delivery processes. In this context, SD2-Operations researchers pointed out that service delivery process is the main object of service design from an Operations' point of view. According to results, the focus on designing for efficient processes is also shared by SD1-Information Systems researchers.
SD5-Marketing and SD6-Service Research participants brought attention to phases during and after implementation, especially in terms of service usage, customer experience and its measurement.

> *Innovation is something that has been head of and is being used, so what's happening during usage and after usage (…) Diffusion and implementation, these are two terms that nobody uses. (…) there is only Service Research that has mainly dealing with it. (SD6)*

Moreover, SD6-Service Research focus group defended the involvement of people that will actually provide the service is fundamental to guarantee the actual service implementation.

> *In health care for example, it's not enough to have a new process, and say that now we are going to work with LEAN. We actually have to work with LEAN to make it happen, so it's not just adopting a new service idea, it has to be used in some way. (SD6)*

Interface:

Interface was characterized as the set of resources and spaces that support service interactions and customer experience to happen (SD3). Data analysis shows **service interface** as a shared object among SD1-Information Systems, SD3-Interaction, SD4-Design, SD5-Marketing, and SD6-Service Research participants. This was described by an interest in *creating technological interfaces* (SD1), *structuring the resources that support interactions* (SD3), *designing the customer experience* (SD4) and *focusing on the servicescape and service clues* (SD5; SD6). Results show that SD5-Marketing and SD6-Service research participants described contributions to understand and design service clues and servicescape.

> *Marketing is more focused on customer experience (…) service interface in terms of service clues, and servicescape. (SD5)*

Data analysis indicates, on the other hand, SD1-Information Systems researchers positioning interface as part of technology, arguing for a technological-perspective to Service Design.

> *I think it is always technology (…) if we take (…) service interface and service delivery process, you can sub classify in technology (…) a technologist perspective, which talks about how new technology influences innovating new services. (SD1).*

As seen in the Table 3, the *use of technology can support service* (SD1; SD2; SD3), *change the way people work* (SD3) and *improve service delivery processes* (SD2).

At network and ecosystem levels – new constellation and roles of actors:

As seen in the Table 4, focus groups shared a common interest in designing for new constellations and roles of actors, bringing complementary perspectives on these topics. In this sense, the design of **new business models and value propositions** was discussed by SD1-Information Systems, SD4-Design, SD5-Marketing and SD6-Service Research focus groups, where SD1 and SD4 highlighted, respectively, an interest in business model innovation.

> *This goes back to the basic idea that technology innovation is not an innovation if don't have a business model to enter it to market (...) So, Information Systems research started a lot to look at service concept, on how to design services, and how to design business models around the technology. (SD1).*

> *There is a lot about understanding how designers help to transform service..., so how to inform business model innovation. (SD4)*

Likewise, results show SD3-Interaction Design and SD4-Design participants indicating that Service Design englobes creating the conditions for the generation of **new networks of actors**. In this context, SD3 mentioned the connections between Service Design and public services.

> *I think that (…) especially in some applications related to public services, in services that there is a recognized aim of enhancing users or generating work by networks, not in the dyadic relationships between producer and consumer (…) what we are talking about is not just someone producing things for someone else, but it is activating people, generating network, identifying relevant actors. (SD3)*

Besides, SD1-Information Systems and SD2-Operations participants described the design of **B2B service networks** to support service.

> *In a time when we talk a lot about one-to-one and process-process (...) we have a lot of inter-organizational link at the process level (B2B) and not necessarily at the organization level. (SD2).*

At a service ecosystem level, results show that Service Design can work towards enabling more **sustainable solutions for society**, which was a topic discussed by the SD4-Design focus group. Likewise, Service Design is reported as connected to **public service innovation**.

> *…we could talk about the impact of design on…society. There is a lot about understanding how designers help to transform service...or help to create more sustainable solutions (…) So, those conversations, can take mainly about how designers are contributing to changing services models to be more sustainable, for more [better] public services. (SD4).*

Finally, Service Design is argued by SD3-Interaction Design and SD6-Service Research participants as contributing to **create conditions for institutional change**, stimulating new behaviors, new practices, new norms and new beliefs.

> *If you see innovation as reconfiguration of resources and institutions and the breaking and the making of new institutions, I think that SD can be really part of questioning and breaking these institutions, creating pre-requisites for new ones, new behaviors, new practices, new norms. (SD3)*

> *Service Design, it assists us (…) it reconfigures the system (…) it doesn't necessarily need to be new behaviors, I think institutionalized practices means that it could be new beliefs: I can feel more secure when I'm receiving a check-in into my cell phone. (SD6)*

Discussion

Data analysis indicates that Service Design researchers from multidisciplinary perspectives bring complementary contributions to design solutions for actors, organizational systems, networks and entire service ecosystems. A service system perspective supports the identification of shared concerns in this context, by integrating Service Design multidisciplinary contributions along different levels of service systems.

Individual-actor level

At an individual-actor level, an actor-centered perspective was mentioned by all centers, which integrates human and provider-centered perspectives. Wetter-Edman et al. (2014) advocate that a human-centered approach considers the importance of a larger network of actors, who are directly or indirectly involved in the service provision. This is reflected by study results, which present complementary foci to a human-centered approach.

From a user-centered point of view, Service Designers can integrate users' needs and design for user experiences (Blomkvist and Segelström 2014). In this context, literature from Interaction and Information Systems backgrounds describe that a usage perspective can complement a user-centered one. While the latter puts the users in the center of every design, the former focuses on the activities these users will perform (Constantine, 2004; Norman, 2005). This can facilitate service scaling, for instance, focusing on the use cases of service (Constantine & Lockwood, 2001).

Through a customer-centered perspective, Service Designers turn the attention to understanding customers' needs and cultures, as well as stimulating new customer roles. A customer orientation definition is found in the Marketing research literature as "the set of beliefs that puts the customer's interest first'" (Deshpande, Farley and Webster, 1993, p. 27).

Finally, bringing attention to an employee perspective, Service Designers can also work towards creating and changing employees' roles. In this realm, literature contributes to understand employees' needs in the service delivery system, as well as use employees' knowledge as sources of customer experience innovation (Bitner et al., 2008; Shostack, 1984).

Nonetheless, results show that a human-centered approach is complemented by a provider-centered perspective. This is a topic that has been extensively explored in Operations research literature, which brings knowledge on the contributions of managing service capacity and creating flexible processes to deal with customer variability, in order to maintain or improve operations' efficiency and efficacy (Frei, 2006; Sampson, 2012).

Results show that understanding how multidisciplinary knowledge can contribute to a human and provider-centered perspectives, enables Service Designers to integrate multidisciplinary competences to address and design for the different roles that actors can assume inside service systems.

Organizational service delivery system level

At an organizational service delivery system level, all centers indicated shared concerns related to processes and interfaces.

Process:

Processes are a common concern among all focus groups, in terms of designing the service design process as the meta-level of Service Design, as well as creating new service delivery processes.

Results indicated a concern on designing and improving the service design process, shared by SD3-Interaction Design, SD4-Design and SD6-Service Research focus groups. In this context, Stickdorn and Schneider (2011) describe the service design process as an iterative process, from exploration until service implementation. Literature supports the shared interest in improving the service design process, by presenting studies that explore approaches and tools to analyze the user experience (Miettinen & Koivisto, 2009), as well as by investigating the creation of service surrogates and the cognitive aspects related to their use (Blomkvist and Segelström, 2014; Blomkvist, 2015). Likewise, literature describes the use of participatory processes to involve users along the design process (Sanders & Stappers, 2008) and to facilitate design conversations and the embedding of design capabilities to transform organizational practices (Junginger & Sangiorgi, 2009). Service Design literature describes that the implementation of new service can be fostered by participatory processes that enable new actors' and resources' integrations within service systems (Holmlid, Wetter-Edman, & Edvardsson, 2017).

Data analysis also shows designing and improving service delivery processes as a shared interest among SD1-Information Systems, SD2-Operations, SD5-Marketing and SD6-Service Research participants. Literature brings studies on service delivery processes in the organizational service system level, in order to support new forms of value co-creation to happen (Ding, Hu, Verma, & Wardell, 2009; Kaltcheva, Velitchka D. Weitz, 2006). Likewise, blueprinting is described as a technique used during service innovation process to identify the potential for new touchpoints and to envision new forms of resource integration along

service delivery processes (Bitner *et al.,* 2008). In this context, literature from Operations, Marketing, IT and Service backgrounds bring specialized knowledge to implement service delivery processes and scale service, as well as to measure the customer experience (Shostack 1982; Fornell, 1992; Glushko 2010).
Results indicate that understanding the contributions brought by Service Design multidisciplinary perspectives along the service design and service delivery processes supports the integration and coordination of resources to enable and evaluate new service. For instance, if we want to design new service delivery processes, it may be interesting to integrate knowledge in terms of understanding capacity and customer variability (Frei, 2006), with an understanding of how to articulate resources along the customer journey to enhance customer experience (Truong et al., 2006). This conceptualization can be supported by designing the technology, that will support the service delivery system (Glushko, 2010), as well as by later measuring the customer experience during service usage (Fornell, 1992).

Interface:

According to Secomandi and Snelders (2011), service interface is the object of Service Design, which is corroborated by the study results. According to the authors, service interface "focuses on the sociotechnical resources immediately associated with exchanges between providers and clients" (Secomandi and Snelder, 2011, p. 29). Results show SD3-Interaction Design and SD4-Design participants describing contributions to understand and structure the resources that support interactions to enable the customer experience.
Data analysis shows, on the other hand, that SD6-Service and SD5-Marketing participants described a focus on understanding and creating service clues and servicescape that also compose the service interface. In this context, literature from these areas brings knowledge to orchestrate all the "clues" that people detect as service interface during the buying process (Berry, Carbone, & Haeckel, 2002), as well as to plan the physical spaces that support the enhancement of customer experience (Bitner, 1992). Literature also reports a focus on service evidences along the service delivery system (Shostack, 1982).
The SD1-Information Systems focus group described service interface as being part of the technology to support service. In this context, literature refers to "user interfaces", which use can facilitate high performance and service quality (Glushko, 2010). In parallel, literature shows that Interaction Design research supports the understanding of interactions between technological solutions and users, which contributes to improve the interfaces that intermediate them (Lee et al., 2010; Zimmerman et al., 2011).
Results show, therefore, the different perspectives and concepts associated with service interface (i.e. resources and spaces, service evidence, service clues, servicescape, user interface), what can facilitate and enhance communication within Service Design multidisciplinary teams. Likewise, this understanding can support coordinating how each professional can contribute to study and create different types of resources that compose service interfaces within service systems - e.g. materials, technology, physical spaces, etc.

Network and ecosystem levels

Results indicated a shared interest among focus groups in creating the conditions for new constellations of actors and their connected roles at network and ecosystem levels. Literature describes service networks involving configurations of resources (e.g. actors, technology) to develop more compelling value propositions (Akaka et al., 2012). Service ecosystem, on the other hand, is defined as a "relatively self-contained, self-adjusting system of resource-integrating actors, connected by shared institutional logics and mutual value creation through their service exchanges." (Lusch and Vargo 2014, p. 161).
Data analysis pointed out shared themes among focus groups' participants, which indicated that Service Design can create new businesses and value propositions (SD1; SD4; SD5; SD6), generate new network of actors (SD3; SD4), support B2B services (SD1; SD2), and foster the conditions for institutional change (SD3; SD6). This is supported by literature that reports the design of networks of service offerings provided by different organizations

(Patrício et al., 2011), the development of service platforms (Morelli, 2015) and the creation of conditions to empower new service networks within a city (Baek, Meroni and Manzini 2015). Likewise, literature from an Operations' background presents the use of a visual framework to depict processes within service supply chains (Sampson 2012), while literature from an Information Systems background describes the use of technology to enhance service delivery processes between business network partners (Davis, Spohrer and Maglio 2011).

Finally, focus groups also indicated Service Design's connection to public service innovation and institutional change. The topic of institutional change has been increasingly studied by Service Researchers, who define it as the change of rules, norms, ways of thinking and practices which constitute a central process for enabling service innovation (Vargo et al., 2015). Service Design projects in this context are exemplified by the development of a collaborative platform among public, private and third sector organizations to support elderly (Hyvarinen, Lee and Mattelmaki 2015) and the design of a multi-actor platform (involving civil, public and private sectors) to co-design innovative solutions related to education, health, environment and economy (Yang & Sung, 2016). Therefore, results indicate that Service Design multidisciplinary contributions can integrate complementing perspectives to achieve changes at network and ecosystem levels, in order to create solutions for communities, public sector and society in general.

Conclusion

This article identifies shared concerns among multidisciplinary perspectives on Service Design, using the service system as an integrative abstraction. A service system perspective is used as a concept to integrate Service Design multidisciplinary contributions across different levels, highlighting shared concerns in terms of actor-centered approach, processes and interfaces and the design of new constellations of actors and their connected roles.

This study contributes to support the design for different roles that actors can assume inside service systems, by involving multidisciplinary contributions that address their different perspectives (i.e. user, customer, employee and provider foci). Likewise, this study contributes to understand how Service Design multidisciplinary perspectives bring complementary contributions that can be integrated to support creating and improving service design and service delivery processes. Besides, the article presents different perspectives and concepts associated with service interface (i.e. resources and spaces, service evidence, service clues, servicescape, user interface), which can facilitate and enhance communication within Service Design multidisciplinary teams. Finally, results show that Service Design can integrate complementary perspectives to achieve changes at network and ecosystem levels (e.g. enabling sustainable solutions, improving public services, facilitating institutional change), thus enabling innovative solutions for communities, public sector and society in general. All in all, the article contributes to enhance communication and collaboration between Service Designers coming from different backgrounds, by elucidating the use of common concepts and indicating complementary contributions from multidisciplinary knowledge along different levels of service systems.

Further research is needed to explore other multidisciplinary contributions to Service Design, as in the case of Anthropology and Psychology, which were briefly cited by focus groups (SD3; SD4; SD6) as contributing to understand and design for the individual-actor level. Likewise, focus groups with Information Systems and Operations backgrounds identified, respectively, technology and service processes, as crossing all service system levels, thus asking for further research to better explore the potential contributions of these areas to Service Design. As future research, literature from Service Design multidisciplinary perspectives must be examined and integrated, in order to further explore each perspective contribution to Service Design. Finally, a practitioner point-of-view should be also explored to understand how Service Design integrates multidisciplinary contributions in practice and how this integration can support service innovation at different levels of service systems.

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