SERVICE ECOSYSTEM DESIGN: DOING INSTITUTIONAL WORK THROUGH DESIGN

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ABSTRACT

Purpose – This paper supports the continued conceptual evolution of service design in service research through the integration of a service ecosystem perspective.

Approach – This paper illuminates a convergence toward a new perspective on service design called "service ecosystem design". The conceptualization of service ecosystem design is supported through the development five propositions that are contextualized using empirical examples from Mayo Clinic.

Findings – Service ecosystem design is an ongoing, collective process in which actors shape value-in-context by making, breaking and maintaining institutional arrangements to realize desired futures. While actors are embedded and entangled in the service ecosystems they design, participation in design methods can build reflexivity, helping actors to overcome the constraints of existing institutional arrangements.

Research implications – This research positions service design as not only as a means of improving service user experience, but also a way of reshaping institutional arrangements in service ecosystems. As such, service design is highlighted as a valuable practice for actors looking to support the intentional adaptation of service ecosystems.

Originality/Value – Through the conceptualization of service ecosystem design, this paper offers an extended understanding of service design in service research and builds a platform for future research on reshaping institutional arrangements through design.

Key words

Service design; institutional work; service ecosystems; reflexivity; systems thinking

Paper type – Conceptual paper

INTRODUCTION

Over the last decades, the conceptualization of service design has evolved from the "design of services" to "design for service" through increased integration of service-dominant logic (Kimbell, 2011; Wetter-Edman et al., 2014). As such, the focus of service design has shifted from expert designers who create value-in-exchange by forming tangible artifacts and interfaces to a co-design process with service providers and service users that aims to create the conditions for value-in-use. In recent years, service-dominant logic (S-D logic) has continued its own development toward an emphasis on service ecosystems (Lusch & Vargo, 2014; Vargo & Lusch, 2016a; 2016b). A service ecosystem is defined as a "relatively self-contained, self-adjusting system of resource-integrating actors connected by shared institutional arrangements and mutual value creation through service exchange" (Lusch & Vargo, 2014: p. 161). Despite some promising advancements in this area (Patrício, Fisk, Falcão e Cunha, & Constantine, 2011; Sangiorgi, Patrício & Fisk, 2017), a service ecosystem perspective has not yet been fully reflected in the conceptualization service design.

As research on service design is a clear priority within the service research community, there is a pressing need to advance the underlying assumptions within this discussion (Ostrom, Parasuraman, Bowen, Patrício, & Voss, 2015). To this regard there are growing calls for a richer conceptualization of service design amid increasing recognition of the complexity of service systems (Sangiorgi et al., 2017). Thus, the purpose of this conceptual paper is to support the continued conceptual evolution of service design through the integration of a service ecosystem perspective. In doing so, the authors propose "service ecosystem design" as the next iteration in the evolution of the conceptualization of service design. Service ecosystem design is a process of collective designing that involves actors in making, breaking, and maintaining institutional arrangements (Lawrence & Suddaby, 2006; Lawrence, Suddaby & Leca, 2009) to enable value-in-context. By building on research related to design in complex social systems (e.g. Benathy, 1996; Jones, 2013; Nelson & Stolterman, 2012) and institutional work in service ecosystems (e.g. Koskela-Huotari, Edvardsson, Jonas, Sörhammar & Witell, 2016; Vargo, Wieland & Akaka, 2015), this perspective suggests that actors can design for, albeit not control, the emergent adaptation of service ecosystems.

This paper contributes to the ongoing discussion on service design within service research by suggesting an alternative perspective on the fundamental assumptions of service design. To do so, the authors begin by briefly summarizing the evolution of perspectives on the conceptualization of service design in the last 35 years, highlighting a fundamental shift from "design of services" to "design for service". Expanding the purview slightly to include related literature from S-D logic and systemic design, the authors outline a convergence toward a new "service ecosystem design" perspective within the literature. These three perspectives on service design are summarized in Table 1. By drawing on research from service design, systemic design and service ecosystems, the authors outline five propositions supporting the conceptualization of "service ecosystem design", contextualized through empirical illustrations from Mayo Clinic.

SHIFTING PERSPECTIVES ON SERVICE DESIGN

Design of Services

Service design was first recognized in service research through Shostack's article in 1982 introducing service blueprints. Shostack (1982; 1984) presented the service blueprint as a tool for managers to

more rigorously support new service development and set the tone for the "design of services" perspective on service design. The service blueprint has continued to play an influential role in service design discussions within service research up until the present (Bitner, Ostrom & Morgan, 2008; Patrício, Fisk & Falcão e Cunha, 2008; Patrício et al., 2011). Aligned with this perspective, service researchers have highlighted a variety other service design tools for new service development, such customer journeys (Zomerdijk & Voss, 2010) and experience rooms (Edvardsson, Enquist & Johnston, 2005; Edvardsson & Enquist, 2010). Informed by early research from Edvardsson and Olsson (1996), service design is often perceived as a phase in the new service development process (Holmlid, Wetter-Edman & Edvardsson, 2017). This focus on service design tools and methods for new service development can also be seen in design literature (Sangiorgi & Prendiville, 2015) and popular service design discourse (Miettinen & Koivisto, 2009; Stickdorn & Schneider, 2011).

In this perspective, service design is seen as a means of shaping the physical or virtual environment in which services are delivered (Bitner, 1992; Vilnai-Yavetz & Rafaelim, 2006) or the touchpoints users interact with (Clatworthy, 2011). Researchers emphasizes the design of the digital and material artifacts that shape the service encounter (Kimbell & Blomberg, 2017) and the client-provider interface as the object of service design (Secomandi & Snelders, 2011). In this vein, service design is often referred to as something that is carried out by managers or professional designers with an expert mindset, where users are seen subjects (Sanders & Stappers, 2008). In the "design of services" perspective, services are seen as special kind of intangible good to be designed and methods and tools for new service development are emphasized.

Design for Service

In contrast to the "design of services" perspective, another perspective on service design has emerged in the last decade, which has been labeled "design for service". The design for service perspective recognizes *service* as the fundamental unit of exchange (Meroni & Sangiorgi, 2011) rather than referring to *services* as a category of market offerings (Edvardsson, Gustafsson & Roos, 2005). This shift in perspective relates to an increased integration of S-D logic within service design research (e.g. Cautela, Rizzo, & Zurlo, 2009; Morelli & Götzen, 2016; Wetter-Edman, 2009; Wetter-Edman et al., 2014). Design for service is distinct from the design of services perspective in that design for service does not see service as an end-product to be designed, but focuses instead on creating the conditions for value cocreation (Kimbell, 2011; Meroni & Sangiorgi, 2011).

In this view, service design is done through co-design – a partnership between designers, service providers and service users throughout the design process (Sanders & Stappers, 2008; Steen, 2013; Steen et al., 2011). In the design for service perspective, the output is not a new service, but a rather a platform or proposals to support the actions of related actors over time (Kimbell, 2011). Emphasis within this perspective is placed not on the physical resources used in the process, but rather the skills and knowledge of participating actors. While the importance of context is noted, the focus of the service design process is on the experience of users and their value-in-use (Zomerdijk & Voss, 2010; Wetter-Edman et al., 2014). Researchers note that a more contextual understanding of service design in service settings is still needed (Akama & Prendiville, 2015; Meroni and Sangiorgi, 2011).

Service Ecosystem Design

Within service design literature, there has been growing attention paid to the importance of service systems and service ecosystems in service design (Patrício et al., 2011; Sangiorgi, Patrício & Fisk, 2017; Wetter-Edman et al., 2014). In this way, there is increasing convergence between service design, S-D logic and a closely related area of design research called systemic design - which integrates systems thinking and design (Jones, 2013). Systemic design emerged from the area of design science with early contributions by Fuller (1981) and Simon (1969), who asserted that "[e]veryone designs who devises courses of action aimed at changing existing situations into preferred ones" (p. 111). As this discourse has evolved, there is continued emphasis that systemic design should involve all actors effected by the system (Banathy, 1996: p. 228). While systemic design recognizes that everyone in social systems designs (Jones, 2013), it also highlights the distinct role of professional designers in guiding that process (Nelson & Stolterman, 2012).

Furthermore, the systemic design literature overtly calls out that the service relationship is the fundamental purpose of design (Benathy, 1996; Nelson & Stolterman, 2012), revealing an intimate overlap with the research on design for service and S-D logic. Systemic design doesn't not distinguish between the design of goods and services, but rather sees all design as focused on service and all design outputs related within complex systemic entanglements (Benathy, 1996). Systemic design has evolved to focus on actors guiding social systems toward preferred futures, heavily devoted to the realm of norms and values (Banathy, 1996). Interestingly, within service design literature there is also growing recognition of social-material configurations and that the design process cannot be decoupled from the institutions it is embedded within (Kimbell & Blomberg, 2017). As such, there is a growing convergence between discourse on service design and systemic design that is intimately aligned with the service ecosystem perspective offered through S-D logic.

In the most recent advancements of S-D logic (Lusch & Vargo, 2014; Vargo & Lusch, 2016a; 2016b), the central role of institutions in service ecosystems are emphasized. Institutions are the socially constructed rules, roles, norms and beliefs that endure to become 'the rules of the game' (North, 1990). Arrangements of institutions guide the value co-creation and resource integration processes of actors (Edvardsson, Kleinaltenkamp, Tronvoll, McHugh, & Windahl, 2014; Vargo & Akaka, 2012). While it is widely acknowledged that institutional arrangements influence the actions of actors, it is increasingly recognized that actors can also alter the institutional arrangements they are embedded within (Edvardsson, Skålén & Tronvoll, 2012; Skålén, Aal, & Edvardsson, 2015). Research in S-D logic suggests that actors can shape institutions in service ecosystems by engaging in institutional work – purposefully creating, disrupting and maintaining institutions (Vargo et al., 2015). By intentionally altering the institutional arrangements that guide resource integration, actors can enable novel ways of co-creating value and thus catalyze innovation (Koskela-Huotari et al., 2016).

A service ecosystem perspective recognizes literature on systems thinking and institutional theory as core theoretical pillars and S-D logic has also called out design as a promising area for further exploration (Vargo & Lusch, 2016b). Based on the integrative nature of the service ecosystem perspective, the authors of this paper label the third perspective emerging through the convergence of research on service design, systemic design and S-D logic "service ecosystem design". Service ecosystem design is a process of ongoing, collective designing that involves actors in creating, disrupting, and maintaining institutional arrangements to enable value-in-context. Table 1 below

summarizes the differences between these three perspectives on service design. Following the table, the service ecosystem design perspective is further elaborated through the development of five propositions.

Table 1: Core Assumptions within the Shifting Perspectives on Service Design

	Design of Services	Design for Service	Service Ecosystem Design
Design Materials	physical artefacts/interfaces	relationships	institutions
Key Actors	designers & managers	designers, managers and users	all actors
Approach	expert design	co-design	collective design
Means	methods and tools	proposals and platforms	institutional work
Output	new services	conditions for value co-creation	emergent adaption
Desired Outcome	value-in-exchange	value-in-use	value-in-context
Primary Enablers	physical resources	skills and knowledge	reflexivity
Representative References	Shostack (1982; 1984) Bitner (1992) Edvardsson & Olsson (1996) Secomandi & Snelders (2011)	Zomerdijk and Voss (2010) Kimbell (2011) Meroni & Sangiorgi (2011) Wetter-Edman et al. (2014)	Bethany (1996) Nelson & Stolterman (2012) Sangiorgi, Patrício & FIsk (2017) Kimbell & Blomberg (2017)

CONCEPTUALIZING SERVICE ECOSYSTEM DESIGN

Proposition 1: All design is service ecosystem design and is experienced through the emergent adaptive qualities of service ecosystems.

S-D logic suggests that value is cocreated and resources are integrated within the context of service ecosystems – a complex configuration of actors and resources coordinated by assemblages of institutions (Vargo & Lusch, 2016a). As design is a process of value cocreation and a service in and of itself (Nelson & Stolterman, 2012; Vink, Wetter-Edman, Edvardsson & Tronvoll, 2016), it too exists within service ecosystems. In addition, all design outputs, whether they take the form of visual communication, material objects, or service offerings, exist within complex systems (Buchanan, 1992). "Every design is either an element of a system or a system itself and is part of ensuing causal entanglements. No design exists in a vacuum" (Nelson & Stolterman, 2012: p. 57). As it seeks to create the ideal in the real, by enacting particular norms and values, design is focused on service within the context of complex systems, regardless of the form (Nelson & Stolterman, 2012). As such, bringing to life that which does not exist yet through design influences the configuration of actors and resources in service ecosystems.

Within ecosystems, all elements have close interaction and interdependence, displaying qualities experienced only in aggregation (Nelson & Stolterman, 2012). Thus, the consequences of design are realized in service ecosystems through emergence – "a set of properties that arise from a new arrangement of the components of an entity that did not pertain to the individual components" (van Alstyne & Logan, 2007: p. 128). When designing, actors' intentional behaviors co-occur with the emergent properties of the complex systems they are connected to (Jones, 2013). All end products of design are subsystems or parts of sub-systems within service ecosystems (Nelson & Stolterman, 2012). Ultimately, design works to attain aspirations by creating systems (Banathy, 1996). In this way, all design is service ecosystem design, regardless of the form, and qualities of design outputs are experienced through the emergent, adaptive qualities of interlinked, complex configurations of relationships.

To put this understanding of service ecosystem design in context, one can examine the role of actors in the evolving service ecosystem of Mayo Clinic. Mayo Clinic is one of the most well-known brands in medicine internationally and one of the top health systems in the United States, serving over one million people a year. The design of complex surgical operations, routine patient visits, electronic medical records, hospital buildings, patient-provider interactions, health education brochures and clinic signage all influence the health service ecosystem and how it is experienced by actors. The feelings of hope and professionalism in care are qualities that emerge through the complex configuration of actors, resources, and institutions within this ecosystem.

Proposition 2: Service ecosystem design is an ongoing, collective process in which all actors shape value-in-context.

Service ecosystem design recognizes that design is not a one-off activity carried out by professionals, but rather an ongoing, collective process in which all actors have a role to play. Service ecosystem design recognizes that design is a seminal human tradition (Nelson & Stolterman, 2012) and that everyone designs through what Manzini (2015) calls diffuse design. That is not to say that everyone has the same level of skills designing as professional designers, but rather that everyone intentionally works to shape the systems around them and realize preferred futures through their actions. As actors work to bring to life their own ideal version of systems, all actors contribute to the complex configuration of actors, resources and institutions within service ecosystems. A service ecosystem perspective reinforces that the context, and particularly the social context, of value cocreation is collectively constructed by actors (Edvardsson, Tronvoll, & Gruber, 2011). As actors configure proposals for new relations within a socio-material world (Kimbell, 2011), design becomes entangled in and contributes to the social structures of a given situation (Schön, 1992).

The concept of service ecosystems has been informed by Simon's (1969) work in *Sciences of the Artificial* (as cited in Vargo & Lusch, 2016a), which has also had a significant influence in the field of design. As such, the conceptualization of service ecosystem design draws on Simon's inclusive perspective of design as changing existing conditions into preferred ones that is widely cited in design literature. However, Simon's diminishment of judgement, aesthetics, intuition and experience in relation to design has also received significant critique within design discourse (Huppatz, 2015). While service ecosystem design builds on Simon's definition of design, it does not negate the immense value of practices informed by disciplinary design, especially attention to aesthetic experiences when shaping value-in-context (Stephens & Boland, 2015; Tonkinwise, 2015). The value

of disciplinary design and related methods in service ecosystem design will be discussed further in Proposition 5.

The conceptualization of service ecosystem design also has strong ethical implications for staged service design processes. This perspective suggests that no one is an expert in designing an idealized system and no one actor has the right to design service ecosystems *for* other actors (Banathy, 1996). Service ecosystem design emphasizes that ethical, sustainable service ecosystems can only emerge through the involvement of all actors affected by that service ecosystem. Service ecosystem design necessitates a fully participatory process for staged service design activities and emphasizes the ability of all actors to design and contribute to the shaping of service ecosystems. In this way, service ecosystem design also converges with discussions happening within social design (Koskinen, 2016) around the politics of participatory social design processes (Vink, Wetter-Edman & Rodrigues, 2017).

The example of Mayo Clinic can again shed light on understanding the collective process of service ecosystem design. The value-in-context experienced by patients visiting Mayo Clinic is shaped by all actors connected to the health system including patients, family members, administrations, physicians, nurses, receptionists, technology providers, researchers, and so on. While the service ecosystem of Mayo Clinic is continually evolving through the actions of all the actors working to create their preferred health system, Mayo Clinic also employs professional designers to support staged participatory service design processes to intentionally and collectively work toward a shared future vision for the Mayo Clinic Health System.

Proposition 3: Service ecosystem design involves creating, disrupting and maintaining institutional arrangements to realize desired futures.

The service ecosystem perspective suggests that design is a means of re-shaping the institutions that guide value co-creation in service ecosystems. In this way, designing is a unique form of institutional work where actors intentionally create, disrupt and maintain institutions (Lawrence et al., 2009; Lawrence & Suddaby, 2006). Creating institutions refers to the role of actors in the formation of new institutions. Disrupting institutions, involves attacking or undermining the mechanisms that lead actors to comply with institutions. Maintaining institutions involves the engagement of actors in activities to repair or recreate the controls which underpin an institution. Most institutions do not reproduce on their own, so they rely on social mechanisms to ensure compliance (Lawrence & Suddaby, 2006).

Many of the existing accounts of actors' efforts to create institutions focus on the role of institutional entrepreneurs; that is, actors with sufficient resources who take opportunities to realize their own interests through the formation of new institutions (DiMaggio & Powell, 1991). Service ecosystem design offers an alternative narrative for how institutions can be created in contrast to that of the heroic, individual institutional entrepreneur (Leca, Battilana & Boxenbaum, 2008). Service ecosystem design involves a collective, rather than an individual, effort. This perspective reinforces recent research on the power of collectives to engage in institutional work (Dorado, 2013). One way actors do institutional work through design is through the prototyping of preferred futures (Blomkvist, 2012). By testing out and experiencing different ways of working, actors iteratively develop and establish new rules, roles, norms, and values to support their preferred future. In service ecosystem design, creating, disrupting and maintaining institutions involves ongoing, interdependent and intertwined activities in service ecosystems (Koskela-Huotari et al., 2016; Vargo et al., 2015).

One can see an explicit example of how actors do service ecosystem design by reshaping institutions when examining the early days of Mayo Clinic. At the beginning of the 1900s, the Mayo brothers, Will and Charlie, worked to develop the first group medical practice with a number of other actors including the Sisters of Saint Francis. In doing so, the actors involved in early days of the hospital worked to establish new norms for how clinical staff could work collaboratively to provide the best patient care. As people started to come from far and wide to learn about the group practice approach, the actors involved worked to actively disrupt the existing role of physicians as a "lone wolf". While this way of running a medical practice revolutionized the industry, much of what the actors within the clinic did was work to maintain the existing norms, rules, roles and values of a high quality medical practice. In this way, the actors involved in the early days of Mayo Clinic together reshaped institutions to realized their desired future medical practice.

Proposition 4: Actors are embedded and entangled in the service ecosystems they design.

As actors do service ecosystem design, they are not separate from the systems they are designing, but rather intimately intertwined and embedded within them. While research on institutional work focuses mainly on how actors' actions influence institutions, it also recognizes the recursive relationship between institutions and actions (Barley & Tolbert, 1997; Fairclough, 1992; Phillips, Lawrence & Hardy, 2004). Certainly, actors' actions affect institutions, as discussed above, but institutions also provide templates and regulative mechanisms for action (Lawrence et al., 2009). Service ecosystems design highlights that institutions enable and constrain human action and interaction, with significant implications on resource integration and value co-creation (Edvardsson et al., 2014; Vargo & Akaka, 2012). Fully understanding the duality of this relationship is critical for building a systemic, institutionally situated understanding of design.

Within service ecosystems, institutions support actors to interact and integrate resources efficiently (Edvardsson et al., 2014). Institutions reduce uncertainty by providing dependable and consistent frameworks for action (North, 1990). By creating structure for actors' relations with others, institutions give actions common meaning. Service ecosystem design is by no means free from these established social patterns. As a central force for coordination in service ecosystems, institutions provide a somewhat stable and predictable landscape for actors involved in design. In fact, service ecosystem design benefits from existing institutions because without them actors could not make sense of existing situations or interact with others effectively to work toward realizing preferred futures.

While service ecosystem design is enabled by institutions, institutions also constrain design. Certainly actors are not "cultural dopes" trapped by institutions as sometimes depicted in early institutional studies, but their actions are limited by the institutions guiding them (Lawrence et al., 2009). Both formal institutions, such as codified rules and policies, and informal institutions, such as codes of behavior, constrain the actions of actors by prohibiting certain activities or specifying under what conditions certain activities can take place (North, 1990). Institutions define appropriate action in a situation and encourage punishment if violated. In this way, actors' choices in service ecosystem design are bound by institutions. In some cases, established institutions can even persist when they are suboptimal or not serving anyone's interest (Akerlof, 1976; Zucker, 1986). Like all human action, service ecosystem design is constrained by the institutions governing particular circumstances.

The Mayo Clinic example again can help to contextualize the understanding of how actors are embedded in the service ecosystems they design. While actors at Mayo Clinic are continually looking to improve and innovate within the health system, their efforts to do so are enabled and constrained by the existing institutions within the clinic. In many ways, existing norms aid in the service ecosystem design process. For example, the patient-first value upheld within Mayo Clinic referred to through the mantra of "the needs of the patient come first" helps actors coordinate their improvement efforts and work toward a common goal. Alternatively, as nurses look to recraft their role within a medical practice to better serve the patient, they must also adhere to existing regulations about their scope of practice as a registered nurse.

Proposition 5: Participation in design methods can enhance actors' reflexivity, enabling actors to overcome the constraints of embedded agency.

Service ecosystem design raises the question: how can actors contribute to institutional change, if actors' actions and thinking are conditioned by the very institutions they wish to change (Holm, 1995)? The recursive relationship within service ecosystems between institutions and actions creates the paradox of embedded agency – the simultaneous tension between institutional determinism and agency (Seo & Creed, 2002). As all forms of institutional work require the agency of actors (Lawrence et al., 2009), conditions that enable agency are a central concern for service ecosystem design. While most explanations stress structural and field level explanations of agency, such as institutional contradictions (Pache & Santos, 2010; Rao, Monin & Durand, 2003; Seo & Creed, 2002), there is increasing recognition of the individual conditions for agency (Battilana & D'Aunno, 2009). Recent research suggests reflexivity – "an individual's general awareness of the constraints and opportunities created by the norms, values, beliefs and expectations of the social structures that surround them" (Suddaby, Viale & Gendron, 2016: 5) as the key individual factor enabling actors to do institutional work.

Service ecosystem design recognizes that disciplinary design practices and methods can support the reflexivity necessary to aid actors in shaping institutions. While design methods are not ends in and of themselves, they stage aesthetic experiences that support actors to become aware of existing institutions and reshape them. These methods support sensory, bodily ways of knowing through an iterative process of seeing, moving and seeing again (Schön, 1992). Design methods help actors build reflexivity within a situation by tapping into their sense of sight, sound, taste, touch, and smell (Stephens & Boland, 2015). Aesthetic experiences enable actors to build an understanding of the many, interacting dimensions of a situation and better understand the perspective of other actors (Wright, Wallace & McCarthy, 2008). It is through these aesthetic experiences staged through design methods that actors learn about a situation and then re-frame how the situation is being perceived to enable a preferred future (Stephens & Boland, 2015; Dorst, 2011). In this way, while service ecosystem design recognizes that all actors design, it also recognizes the value of professional designers in staging aesthetic experiences through design methods to support reflexivity.

The value of actor participation in design methods can be seen at Mayo Clinic. As mentioned previously, Mayo Clinic has a Center for Innovation that includes over a dozen designers that help to stage participatory design processes with patients, clinicians, administrators, and so on to aid them in realizing their preferred future. By engaging these diverse actors in design methods, like prototyping new clinical practices in a clinical ward-turned lab, designers help other actors to become more

aware of the different roles, rules and values at play within specific situations. This staged aesthetic experience of prototyping new ways of working in the lab builds actors' reflexivity, enabling actors to more intentionally change related institutions.

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