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# A New Conceptualization of Service Innovation Grounded in S-D Logic and Service Systems

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# A New Conceptualization of Service Innovation Grounded in S-D Logic and Service Systems

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**Purpose**—This article conceptualizes service innovation through a service-dominant logic (S-D logic) lens and with a service system foundation.

**Design/methodology/approach**—This conceptual approach entails not only the service-dominant logic but also structuration theory to emphasize the actor's perspective on service innovation. Because the value of innovation unfolds in practice, this study denotes customers as the key actors in value co-creation in context.

**Findings**—A resource constellation gets reconfigured in a service system, which explains service innovation from an S-D logic perspective and highlights customers' value co-creation in practice. The focus is on the interdependencies among the configuration of resources in a service system and schemas that shape customers and other actors as they integrate resources and co-create value.

**Research limitations/implications**—By discussing service innovation in a structuration view, it would be possible to gain a better understanding of the guiding principles or schemas that enable actors to co-create value.

**Originality/value**—Service innovation derives from changes in either resources or schemas (norms and rules) or some a combination thereof, and it results in structural changes to the service system. This conceptualization provides (a) a new definition of service innovation, (b) a new framework to describe the interdependency among change resources and schemas as a basis for an innovative configuration or reconfiguration of a service system, and (c) three propositions that illustrate the relevance of the new framework.

**Keywords**—Service innovation, service system, resources, schemas, service-dominant logic, value co-creation.

**Paper type**—Conceptual paper

## INTRODUCTION

Competition aims to create superior value for the involved actors. To gain competitive advantages, firms can facilitate service innovation by enabling actors to improve their own use value. That is, innovations often stem from a novel or improved way to use existing resources to co-create value, though in some cases, innovations also are based on new resources or new technologies in systems that are capable of creating service. These service systems constitute the basic context and enabler of value co-creation and thus the foundation for service innovation. The customer co-creates and determines the value of service innovation, while the company usually is responsible for the value proposition and facilitating the value creation process (Lusch *et al.*, 2007). Yet to understand the role of the service system in service innovation, we also must look at how structures, such as resources and schemas (rules and norms), co-exist and interact. To advance service innovation, the involved actors must apply the structures in new ways.

Thus far though, innovation has tended to be conceptualized according to a goods-dominant (G-D) logic (Vargo and Lusch, 2004) and in distinct, sequenced steps. Service innovation instead is a complex, often incremental, less radical, and informal process (Johnes and Storey, 1998; Kelly and Storey, 2000). Its nature distinguishes the service innovation process (Alam, 2002; Magnusson, 2009), such that human resources and collaboration are more important than they are for product innovation. More attention thus must be devoted to structures in the service system. In contrast, innovation research often treats services as a special category of products, or as “what goods are not” (Michel *et al.*, 2008; Vargo and Lusch, 2006). In the G-D logic, service offerings are designed with value. In contrast, we propose using the service-dominant (S-D) logic to create a new conceptualization in which service offers a unique perspective on value creation.

The S-D logic suggests that value is always co-created with the customer through the activation of sets of resources. Service companies accordingly need to design resource integration mechanisms within the service system that support customers and other value co-creation actors to enhance service innovation. Edvardsson *et al.* (2011) emphasize that value is co-created in a social context because service systems are embedded in the larger social context, such that customers inevitably evaluate value-in-use in a social context. Value must be understood as part of a collective social context too, and accordingly, service innovation is embedded in a social system. According to social theories, all activities, including value co-creation and innovation, take place within the frame of social systems.

Service innovation therefore might be viewed as a phenomenon embedded in social structures and taking place within social systems, in which actors adopt certain social positions and roles to interact and recreate social structures. Denoting the customer as the key actor and resource integrator implies a new and radically changed status for consumers. In addition, the innovation is encompassed and shaped by social forces (e.g., rules, norms, values), and those forces issue both the inspirations for and the challenges to service innovation. Consequently, to understand and enhance service innovation, we must understand the service; the social context in which the service innovation takes place; the service system; and social structures, such as schemas, resources, and actors’ abilities to acquire, integrate, and use the available structures in the social context. That is, our conceptualization focuses on actors’ interaction with structures during service innovation, viewed through the frame of service systems.

The aim of this article is to develop a new conceptualization of service innovation that reflects both service systems and a wider social context. In the next section, we present our theoretical framework, followed by a new definition of service innovation and a related model. Using empirical illustrations, we then offer three propositions about service innovation, before we conclude by summarizing our contributions and some suggestions for further research.

## **THEORETICAL FRAMEWORK**

### **Service innovation in the S-D logic**

As Ordanini and Parasuraman (2011p. 2) explain, services tend to have been conceptualized in relation (i.e., are subordinated) to physical goods (Vargo and Lusch, 2006) and the innovation process is analyzed by merely extending or adapting some individual insights developed in manufacturing contexts. The apparently piecemeal approach of focusing narrowly on just a few innovation drivers in previous ‘assimilation’ and ‘demarcation’ studies has led to incomplete knowledge about the true nature and impact of service innovations. Empirical studies of innovations similarly have focused mainly on innovation as a category of market offerings, with value embedded in units of output, as suggested by a G-D logic. However, Schumpeter’s original notion of innovation implies that economic development is driven by the discontinuous emergence of new combinations of resources (innovations) that are economically more viable than the old way of doing things (Schumpeter, 1934). Schumpeter (1939) recognizes the importance of the cumulative nature of knowledge and stresses that innovation does not have to be radical or unpredictable to be considered a true innovation. In the S-D logic, innovation pertains to service systems in action, such that actors integrate and act on available resources to create value for themselves and others in new and better ways, just as Schumpeter suggested. Ordanini and Parasuraman (2011p. 2-3) thus consider the S-D logic especially suitable for studying service innovations because it nests both services and tangible goods into an integrated, overarching service view (Vargo and Lusch, 2006) and is consistent with the synthesis approach advocated for examining service innovation (Drejer, 2004). It offers an autonomous conceptualization of service as a co-created process that involves the application of competences, which, in turn, supports a new perspective for thinking about service innovations.

Furthermore, service innovation often gets linked to new, actor-driven ways to integrate resources, use resources, or capture value (business models) within service systems. Using the S-D logic to understand innovation puts the emphasis on the processes of serving, rather than the output, such as goods or services offered. For example, recent research shows that collaborative competences, dynamic customer orientation capabilities, and knowledge interfaces all influence innovation outcomes and firm performance (Ordanini and Parasuraman, 2011), which suggests the need for an integrated or synthesis approach to studying service innovation (Gallouj and Savona, 2009; Ordanini and Parasuraman, 2011). Not only is service innovation less technology based than product innovations (Cooper and de Brentani, 1991), but its results also are more difficult to protect, such as through patents (de Berntani, 2001). Finally, service innovation processes are less formal than product innovation processes (Kelly and Storey, 2000), and it is more difficult to apply a stage-gate process model to them.

## Service System

Vargo and Lusch (2011p. 3) argue that “A system orientation is important to both academics and practitioners because it has different implications for understanding and applying principles of value co-creation, as is particularly essential in an increasingly interconnected, and thus increasingly dynamic, world.” We argue that understanding value co-creation in service systems is key to understanding service innovation. Furthermore, we regard value as created collaboratively in interactive configurations of resources and actors. That is, companies do not develop and offer services. Rather, according to the S-D logic, they design and communicate new value propositions, develop and manage service systems capable of realizing the new value propositions, and ensure that value co-creation results in favorable, memorable customer experiences. Vargo et al. (2010p. 145) call value creation configurations “service systems,” which Edvardsson et al. (2011) argue are always embedded in social systems, such that social forces shape actors, their value co-creation, and the service systems in action.

To understand the role of service systems in service innovation, we consider how structures co-exist and interact. The actors involved in service innovation apply structures in new ways or configure new sets of structures. In particular, they determine ways to use and integrate the resources they hold with the resources made available from the company, as well as with common resources (such as market- and public-facing resources) available in the larger social system. To achieve new schemas and resource integration modes, and thereby attain service innovations, the customer must be able to understand, access, and use the existing resources and schemas.

We consider a dual role of the service system in this setting: to enable, facilitate, and guide value co-creation, and to foster service innovation. Regan (1963, p. 57) used the term “service system” to describe a source for “a large and growing market for commodities”; Spohrer et al. (2007, p. 72) define service systems as “value co-creation configurations of people, technology, value propositions connecting internal and external service systems, and shared information (language, laws, measures, and methods).” In the value co-creation process, which relies on actors’ integration of and use of available resources, the basic function (or purpose) of a service system is to enable and direct actors to create and capture value (Spohrer *et al.*, 2007). A service innovation denotes a novel, better way to enable actors to do so, that is, to create and/or capture value. Service systems in action are created by activities and interactions in which these actors integrate and use available resources. The interactions are first and foremost social encounters, and as Czepiel et al. (1985) argue, the service encounter is a social interaction too, involving human beings interacting with one another. Orlikowski (2000p. 405) continues that “a structural perspective is inherently dynamic and grounded in ongoing human action.” In turn, we investigate the value-creating system as part of the social context.

In this context, schemas play a key role. Schemas refer to knowledge of rules and norms that are shared among multiple actors and exist in multiple settings beyond the particular practice. Thus schemas are grounded in values embedded in society; they are not owned or possessed by any individual actor. Instead, they are detached from individual actors, such that they are shared among the broader group of actors in the society (Högström and Tronvoll, 2012). Actors rely on and use resources in their efforts to co-create value, whether those resources are human or non-human (Tronvoll and Edvardsson, 2011). Human resources are dynamic and related to the actor, such as competence, communication, purpose, and status. Competence and communication are cornerstones of service exchange and value co-creation. Purpose and status explain actors’

behavior. Human resources in action create the organizational culture. In contrast, non-human resources are static and related to the object, embedded in structures within the service and social systems. Thus, these resources have no value until they are integrated and used by the actors for value co-creation in a social context.

A service system is an appropriate frame for studying service innovation, because it moves away from traditional perspectives “rooted in technological product inventions” (Michel *et al.*, 2008p. 54). The S-D logic conceptualizes service innovation as a new and useful “process of application of specialized competences (knowledge and skills) through deeds, processes, and performances for the benefit of another entity or the entity itself” (Vargo and Lusch, 2004p. 2), which in turn exerts an effect on business. Consequently, it is necessary to include structures, including social structures, that shape actors’ value co-creation processes in a service system. Social structures do not determine practices; rather, social structures and practices constitute each other.

### **Toward an extended framework for service innovation**

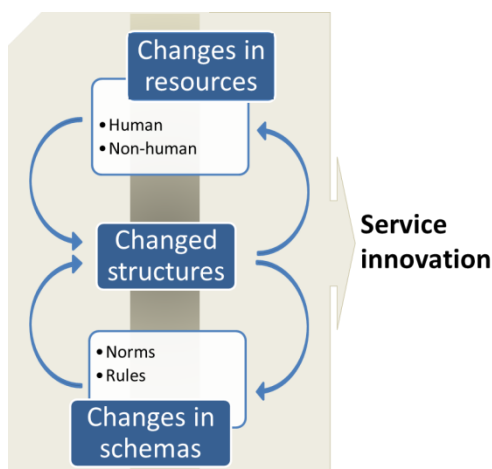
We develop a tentative, extended conceptualization of service innovation based on the interdependencies among resources embedded in a service system and schemas that shape actors in their value co-creation efforts. We employ a structuration understanding of social structures and practices (Giddens, 1984; Sewell, 1992; Reckwitz, 2002) to explain how actors integrate resources provided in a service system, guided by schemas, to co-create and assess value-in-social-contexts. Schemas guide the customer’s understanding of the information and of how to interact with resources, which forms the basis for perceptions about the value of an innovation. Social structures reflect basic values in society and are expressed through practice, in terms of what actors view as significant, legitimate, and possible to control. Thus, signification, domination, and legitimation all institutionalize norms and rules that determine actors’ understanding of meaning, control, and what has value. By using the extended structures concept to understand service innovation, in the context of resource integration, we attain a basic understanding of value-in-social-contexts.

Giddens (1984p. 17) describes social structures as “empirically unobservable rules and resources” and uses the term “virtual existence” to describe phenomena that directly influence social activities through norms and rules, in which resources empower action. Structure refers to the virtual order of practices, organized as procedural rules, moral rules, material resources, and resources of authority that guide action but have no enduring, material aspect. Instead, structures derive continuity by being instantiated in action and through the operation of memory and knowledge. Giddens (1984) further contends that structure refers to a historical accumulation of beliefs, norms, power, and interests that, though constructed through and existing within the actions of individuals, over time become dissociated from any individual and generate an institutionalized social order of longer duration than any individual actor or action.

Institutions both guide and delimit actions, yet this relationship is not deterministic, because actors are aware, reflexive agents with the capacity to either sustain or modify institutions through their actions (Giddens, 1979, 1984). The institutional realm consists of three structural dimensions: signification, domination, and legitimation. Signification processes are rules that help people understand how to do things in a particular organization and communicate those rules to others (Staber and Sydow, 2002). The structures of signification are institutionalized interpretive schemes, such as identities, beliefs, and values, that lend meaning to people’s actions. Structures

of legitimation instead are institutionalized norms and rules. Drawing on Giddens, we define legitimation as the norms and rules that help people know what they should do and how in a particular organization (Staber and Sydow, 2002). Finally, the structures of domination are institutionalized mobilizations of power (Giddens, 1984) that determine different actors' access to and deployment of resources. They also encompass institutionalized authority relationships involved in mobilizing power, as reflected in the representation of the interests of different groups within a social system (Giddens, 1984). Domination structures relate to structures of legitimation, in that the relationships can normatively shape which interests appear legitimate, as well as how people perceive what is in their interest (Giddens, 1984; Clegg, 1989; Lukes, 1974). In turn, the institutional realm frames the action realm, in which people realize institutional orders during day-to-day actions, through which social life unfolds in each moment (Barley and Tolbert, 1997; Ranson *et al.*, 1980). This structuration view thus has substantial implications for our understanding and conceptualization of the empirical phenomenon of service innovation.

Current conceptualizations of service innovation reflect a G-D logic; they cannot explain service innovation, nor do they include contextual elements. We assert that service innovation pertains to new, useful value for the involved actors. It may be driven by changes in the configuration of resources in a service system or schemas, as well as by interdependencies between a resource configuration and schemas in the context of specific practices. Because it entails value in an actor's use context, service innovation in the S-D logic is actor centric and usage related. The key to understanding value co-creation in practice and service innovation therefore is to focus on the involved actors, their actions, and interactions. Using structuration theory, we explain how norms and rules give energy and direction to service innovation. Tronvoll and Edvardsson (2011) similarly suggest a new definition of service systems, based on the understanding that social structures embed resources and schemas that influence actors and thus service systems, or "structures enabling value co-creation for the beneficiaries." The re-creation and transition of structures, with their resources and interactions, enhance value co-creation processes involving one or a constellation of actors within a given social context. With this definition of service system, we define service innovation as *changes in structure that stem from either a new configuration of resources or a new set of schemas and that result in new practices that are valuable to the actors in a specific context.*



**Figure 1: Sources of Service Innovation**

Traditionally, the focus has been on changes in attributes linked to individual resources or in configurations of resources; schemas shaping customers' value co-creation have been neglected. Shared social values in a society are internalized by actors and expressed in their behaviors, constituting the institutional realm that provides the basis for schemas, according to structuration theory. Norms and rules constituting schemas in turn are institutionalized in both social and service system structures. Changes in structures are expressed in changes in behavior among actors during value co-creation processes. The changed structures can reflect



changes in schemas, resources, configurations of resources, or some combination. It leads to improved value in practice and thus represents the heart of service innovations, as we show in Figure 1.

## **PROPOSITIONS ABOUT SERVICE INNOVATION WITH EMPIRICAL ILLUSTRATIONS**

*Proposition 1: Changes in interdependencies between resources and schemas in a focal service system are the sources of service innovation.*

Actors determine if value improves through their assessments of the innovation and their experiences with it in usage contexts. Many innovations replace something that already exists, so value is a question of relative advantage, as perceived by the involved beneficiaries. For example, for many users, Facebook offers a new and improved way to stay connected and manage relations with friends. Its high relative use value has attracted numerous users; the more users who join, the greater the value for those already participating in the innovation. Furthermore, users perceive themselves as in control (domination), consider their uses meaningful (signification), and find the use appropriate in a given context (legitimation). The norms and roles of common social interactions thus can be exercised in an innovative way, which is a key element of the empirical phenomenon of a service innovation.

Another good example comes from the furniture seller IKEA, which focuses on solving customers' real-life problems, such that its vision, as noted in its *Annual Report*, is "to create a better everyday life for the majority of people". Instead of focusing on individual furniture items, it emphasizes solutions, which matches modern norms, in the sense that social trends in twentieth-century Sweden encouraged increasing democratization. Thus, IKEA's leadership recognized the value of actively engaging with customers, wherever they are. In turn, IKEA has actively developed ways to learn about ordinary people's lives, including cultural contexts and life stages (e.g., families with or without children, elderly people, disabled people). The focus is not on the offered products but how customers can use those products in the context of their consumption at home. Using its extensive database of customer surveys, complaints, and suggestions, combined with field observations in customers' homes and focus group interviews, IKEA designs and offers innovative solutions for any home, regardless of where it is located. As CEO Mikael Olsson noted in the 2009–2010 IKEA Annual Report:

*We are now one year into our new strategic direction, Growing IKEA together! It focuses on growth, mainly through serving our customers even better in the future, so we can give more people possibilities to improve their everyday lives at home. We are on a constant journey to further develop our product range, which is distinctively IKEA but with the local flavor of each market.*

The innovations introduced by IKEA range from low prices to product quality (durability) to interesting design (experiences), often in combination. The service system is people's home; the stores are experience rooms that allow customers to be inspired and test drive the service before any purchase or use (Edvardsson and Enquist, 2009). For example, IKEA recently introduced the "kitchen planner," which customers can use to test out a kitchen before

purchasing it for their home. The customer builds different virtual models (or service system designs) of a new kitchen that matches his or her home's measurements and tests them in the virtual service system (Edvardsson *et al.*, 2005). The customer thus becomes a co-innovator.

Both IKEA and Facebook offer examples of innovations initiated in the service system that indicate a clear understanding of actors' schemas and usage contexts. In both cases, customers play the starring role, and customer involvement ensures that the innovation reflects the norms and rules of social structures, as well as a development mode.

*Proposition #2: A service innovation must be studied in practice, because value always is co-created and assessed in the context and over time.*

Only after some time in operation can a reconfigured service system reveal whether a new value proposition will become an innovation in line with Schumpeter's view. Value-in-use contexts always refer to specific practices, so any potential service innovation needs some time on the market before we know if it is actually an innovation. Value often is relative to other alternatives for resource integration and value co-creation. Thus, while offerings such as Google, Spotify, Starbucks, Apple, and Skype became innovations, many similar developments did not.

Service innovations also often change the role of the involved actors, both customers and employees, in co-creating value (Edvardsson *et al.*, 2010). New technology (e.g., Internet banking, booking flights online, checking in online, using Google's search engine to find information, e-commerce) can increase distance between customers and employees, which makes it more difficult for employees to understand their customers and also can diminish customers' ability to understand the potential benefits of complex technology or articulate what they need and want. As a consequence, customer integration in service systems is receiving increasing attention as a potential means to understand the customer and translate customer information, including customer values, into value-creating resource configurations and attractive customer experiences (Alam, 2002; Edvardsson and Enquist, 2009).

*Proposition #3: Service innovation is always actor centric and practice related in a specific service system context.*

Service innovation is not about resources as such; it is about actors using resources (including their knowledge and skills) in specific contexts. Thus, the outcome of the service innovation must be improved value and attractive experiences. From a company perspective, customers as innovation developers take responsibility for service innovation, which can be highly rewarding, because the cost of service innovation is low or nonexistent. But it also is a risky strategy, in that when it is taken too far, customers and other actors outside the company become more knowledgeable than company specialists and develop innovations without it, perhaps even marketing the innovation themselves. Linux is a good example of customers as innovators: In 1991, Linus Torwald, a young student in Finland, e-mailed people to ask them for their reactions and feedback to a new, open source computer operating system. Linux had a market share of 6.8% in 1997, which jumped to 26% by 2011. Companies such as IBM, Hewlett-Packard, Intel, Volvo, and Motorola use Linux, and the network of customers continues to engage in innovation on a continual basis.

User-driven service innovations reflect users' needs, solutions to their problems, and their expertise. The outcome of the innovation process is a value proposition and supporting configuration of resources for customers to integrate and operate on, creating value for

themselves and thus for other stakeholders. We use “configuration of resources” to refer to the set of resources available for an intended user. Value is co-created by users who apply their skills and knowledge to the resources; their perception of the value differs according to their needs and preferences. A service business based on the S-D logic would be essentially actor oriented and relational (Vargo and Lusch, 2004, 2008)—a major conceptual shift away from the traditional emphasis on output and toward an emphasis on mutually satisfying, interactive processes and outcomes. Service innovation then is always about value creation processes in usage contexts, with a concomitant shift from static to dynamic resources (e.g., employees, competences, value-creation partners, customers). In its ideal form, the S-D logic envisages the co-creation of value through innovative resource integrations (Vargo and Lusch, 2008).

## **DISCUSSION**

With this article, we aimed to develop a new conceptualization of service innovation according to the S-D logic, which highlights the key role of actors (or operant resources) and customers in particular (e.g., Vargo and Lusch 2008). We have articulated and conceptualized this crucial role of involved actors. Customers contribute their knowledge and skills; simultaneously, social forces, through the modalities of signification, domination, and legitimating, determine how actors and resources emerge and interact and thus how service innovations arise. We have emphasized what actors bring to the service innovation process. They are embedded in social systems and shaped by schemas, including norms and rules grounded in enacted values. Furthermore, all involved actors must perceive value in their specific contexts. Because our focus is on business innovation, we address business-related value here.

First, we offer a new definition of service innovation, as changes in structure that stem from either a new configuration of resources or a new set of schemas and that result in new practices that are valuable for the actors in a specific context. This definition emphasizes that innovation is about changes in structures, expressed in innovative ways, that allow actors to co-create value. Second, our proposed model outlines the sources of service innovation, grounded in changes in resources, schemas, or both, which drive changes in service and social structures. Third, we confirm the relevance of the definition and model with propositions: Changes in interdependencies between resources and schemas in a focal service system are the source of service innovation. A service innovation must be studied in practice, because value always is co-created and assessed in the context and over time. Service innovation is always actor centric and practice related in a specific service system context.

We have argued that service innovation is often linked to a new actor-driven way to integrate and use resources and schemas or capture value (business models) within a focal service system. Resources and schemas are embedded in social and service system structures, re-created over time. The very DNA of innovation constitutes the re-creation of these structures, resulting in changed, new, and useful value creating systems. Actors are the engines; their knowledge and skills integrated with other (operand) resources are the fuel. The engine, if we maintain this metaphor, is created to accomplish something novel and useful. In the area of business innovation, usefulness is expressed in terms of business value. Furthermore, schemas largely shape and direct customers, as well as other actors. Therefore, it is vital to model not only novel ways to acquire, integrate, and use available resources but also the social forces that shape customers and other actors through their practices. The suggested definition of service

innovation thus captures interdependencies among changes in resources and schemas, resulting in changed structures (see Figure 1).

The reason both IKEA and Apple have been so successful and innovative cannot be understood solely through their operant resources. We also need to include norms and rules linked to design, ease of use, and the power (domination) given to customers, for example, during the value co-creation process.

This new conceptualization of service innovation differs from previous views, which focused on either innovate redesigns of offerings or the design of new services (Johns and Storey, 1998; Alam, 2002; de Berntani, 2001) including innovative reconfigurations of resources (Edvardsson, 1997; Tax and Stuart, 1997), which form the basis for new and better service offerings. The G-D logic has been the basis, and conceptualizations of service innovation relate to physical products. The distinct nature of service and service innovation has not been captured sufficiently. Consider for example Tax and Stuart's (1997, p. 127) well-known contribution, which focuses on the challenges of integrating a new service into an existing service system. The study centers on resources, actors, and processes but ignores schemas and institutionalized forces in social structures. Customers and other actors contribute "knowledge and skills," but that article ignores how social forces direct their value co-creating behaviors or assessments of value in context. The approach is clearly based on a G-D logic, and the authors describe service systems as mechanistic production systems, isolated from social structures. Our conceptualization of service innovation differs, in that we show that the key is to understand systems in action. Service innovation is based on structural changes, driven by shifts in schemas or resources.

Our approach provides the foundation for regarding innovative value propositions as resulting from a changed structure in the linked service system, rather than innovative service offerings or their prerequisites. Both IKEA and Facebook are examples of an S-D logic-informed innovation, initiated in the service system, with a clear understanding of actors' schemas and usage contexts. In these cases, customers have an important role, and their involvement ensures that the innovation reflects the norms and rules of social structures. The Body Shop offers another example; its innovation was to change the norms and rules in the area of social and ethical responsibility, which in turn became its primary value driver. Such innovation can be understood only according to the S-D logic. Service innovation is linked to neither resources nor schemas; instead, it reflects their interdependencies when actors integrate and operate on resources and schemas in a specific practice to accomplish specific value-in-context.

Our article also extends work by Vargo et al. (2010, p. 145), who argue that "value is created collaboratively in interactive configurations of resources and actors" but do not explicitly include actors' schemas. We show how the duality of structures—that is, resources and schemas—shapes resource integration and value co-creation. In our conceptualization, service system innovations transcend a configuration of resources to include schemas that consist of norms and rules that guide the actors. We thus have developed a way to describe, analyze, and explain service innovation as influenced by social systems, in theory and practice. Resource integration and value co-creation, and the way innovation in service systems comes about, cannot be understood without including interdependencies between resources and schemas, embedded in social context.

## **FURTHER RESEARCH**

The framework proposed herein, focusing on the sources of service innovation, offers a starting point for additional theoretical and empirical research. The suggested framework and three propositions should be empirically studied and tested in unique, specific service contexts, such as retailing, transportation, telecom, banks, higher education, and management consulting, where actors function in different social contexts and thus confront widely varying schemas. To further develop and empirically ground our framework, we suggest that innovative service systems with various changes in structures should be selected and studied on different system levels.

By comparing different innovative service systems, it also would be possible to advance the framework and propositions offered here. Further research could include self-service-based systems, in which customers' resource integration is very important, such as e-learning and e-banking, or a service system in which human interactions are especially important, such as a university or health care. In these settings, actors often have varied professional and cultural backgrounds, as well as different levels of familiarity with the co-creation of value.

Service innovation is only possible to study in practice over time (Proposition 2), so ongoing research should conduct a pathway analysis to describe and analyze the development of a service innovation over time. What are the critical drivers of success and failure? Why and how do service innovations "scale up" or "decline"? A dimension of particular interest is how value is captured, including the business model design and development over time.

Finally, to portray and understand the DNA of service system innovation, researchers should investigate service system innovations in which the innovation depends heavily on outside resources. In this area, the customer or other actors may operate on service platforms or integrate resources in more than one system at the same time, such as in a ski resort, where the customer uses accommodation, restaurants, transportation services, and lifts. Resource integration does not take place merely within one service system, and innovations are often based on resources and schemas spread across multiple service systems.

Finally, service system innovations can and should be studied as embedded in practices. A study that identifies and analyzes how actors in various service systems dealt with the challenges of the interdependencies between resources and schemas could reveal the mechanisms underlying service innovation. We also call for studies that focus on service practices, to better determine the extent to which and why such practices enable or constrain service innovation.

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