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Technology-enabled value co-creation: An empirical analysis of actors, resources, and practices

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ABSTRACT

How do economic actors in complex business-to-business (B2B) service systems co-create value when resource exchange is contingent on available and accessible Information and Communication Technology (ICT)? In this paper, we draw on findings from a multiple case study of the consulting industry to provide empirical insights into the nature of these technology-enabled value co-creation processes. Our analysis demonstrates that technology-enabled value co-creation processes are complex interactions between interdependent actors who perform any of eight distinct roles. Specifically, our theoretical contribution consists of five propositions that define the roles of actors (who?), resources (what?), and practices (how?) underlying technology-enabled value co-creation in complex B2B service systems. This exploratory study establishes a foundation for future research, and offers managerial guidance in this increasingly important area.

1. Introduction

The notion of "high touch, low tech" (Bitner, Brown, & Meuter, 2000, p. 138) traditionally implied that service interactions occur only at physical interfaces or touch-points (Bitner, 1990). Today, however, Information and Communication Technologies (ICT) enable economic actors to exchange resources, and thereby co-create value, through virtual rather than physical interfaces (Davis, Spohrer, & Maglio, 2011; Makarem, Mudambi, & Podoshen, 2009). The resulting *technology-enabled value co-creation* processes are the central phenomenon investigated here.

Advanced ICTs such as video conferencing, teleconferencing, or email allow for interpersonal communication and resource exchange that may resemble, and therefore substitute, face-to-face (F2F) contact (Breidbach, Kolb & Srinivasan, 2013; Froehle & Roth, 2004; Makarem et al., 2009). As ICTs expand the boundaries of customer–firm interfaces beyond temporal, organizational, and national boundaries, new opportunities and challenges for value co-creation arise (Edvardsson, Gustafsson, Kristensson, & Witell, 2010). However, we know very little about how economic actors engage in the process of value co-creation in traditional, co-located contexts (Payne, Storbacka, & Frow, 2008), let alone in technology-enabled ones. More specifically, it is unclear which roles and activities economic actors perform in conjunction with one another, how their ICT-enabled interactions are structured, and how resources can ideally be exchanged by means of ICT (Grönroos, 2011; Payne et al., 2008; Vargo, Maglio, & Akaka, 2008). Despite recent scholarly advances in the field (i.e. Lempinen & Rajala, 2014), technology-enabled value co-creation processes remain largely unexplored, and understanding the performance implications of ICT remains a key challenge for service research (Ostrom et al., 2010; Rai & Sambamurthy, 2006; Vargo et al., 2008).

The current academic debate, as exemplified in this special issue of *Industrial Marketing Management*, recognizes the need to advance our understanding of the mechanisms and processes underlying value co-creation processes in complex business-to-business (B2B) systems. Here, we provide what we believe is the first detailed empirical analysis of technology-enabled value co-creation processes in the context of the consulting industry, a complex B2B system. To do this, we build on the argument of Anderson, Challagalla, and McFarland (1999) as well as Füller (2010) that the context of any interaction, including value co-creation, can be explored using the three core constructs of actor (who?), resource (what?), and practice (how?). We therefore adopt a conceptual lens of service-dominant (SD) logic and service science to explore the roles of actors, resources, and practices underlying technology-enabled value co-creation processes in complex B2B service systems (Maglio & Breidbach, 2014; Vargo et al., 2008).

Drawing on empirical findings from a qualitative multiple case study that we conducted in the context of the consulting industry, enables us to provide four important contributions to the SD-logic, service science, and marketing literatures: First, we address the key research priority of

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developing insights into the role of ICT in service (Ostrom et al., 2010; Rai & Sambamurthy, 2006). Second, our research design is based on recommendations for such prospective studies. Specifically, each of our four cases consists of an entire service system (Maglio, Srinivasan, Kreulen, & Spohrer, 2006), represented through one or a combination of consulting firms, which engage by means of ICT with one or a combination of customer firms in technology-enabled value co-creation processes. Studying both technical *and* interpersonal exchange patterns of the service provider *and* customer enables us to provide a novel systemic (rather than firm-centric) perspective only, which has been the focus of much service research to date (Heinonen et al., 2010). It also enables us to explore technology-enabled value co-creation processes from a socio-technical standpoint, which provides more in-depth insights compared to studies focusing on ICTs alone (Makarem et al., 2009). Third, this work culminates in five propositions that explain the complex interplay of actors, resources, and practices underlying technology-enabled value co-creation. And fourth, we delineate future research opportunities and guidelines for practitioners attempting to transform their value co-creation processes through ICT.

The paper is organized as follows: We first provide a comprehensive overview of the current literature on value co-creation and ICT, then describe our research method, and next present our findings, which are structured following the roles of actors, resources, and practices embodying technology-enabled value co-creation. We conclude by discussing theoretical and managerial implications, and identifying future research opportunities.

2. Technology-enabled value co-creation processes

The process of service is interactive and collaborative, and involves multiple economic actors or service systems entities (Vargo, Lusch, & Akaka, 2010); the service 'provider', who creates and offers value propositions by applying specialized knowledge and skills for the benefit of another, and the beneficiary or 'customer', who may realize the value of such propositions through use (Vargo & Lusch, 2004) or experience of the interaction itself (Grönroos, 2011). Put differently, "service is exchanged for service" (Bastiat, 1979) and, when viewed through the lens of service-dominant (SD) logic (Vargo & Lusch, 2004), service represents the foundation of all economic exchange.

The benefits of SD-logic to advance service research are well documented (e.g. Peters et al., 2014; Spohrer & Maglio, 2008; Vargo et al., 2010), and we consequently position our study within its foundational premises. With SD logic as the philosophical foundation of service science, the service system is our unit of analysis (following Maglio et al., 2006; Vargo et al., 2008). Service systems embody an abstraction on value co-creation (Maglio & Spohrer, 2008), and consist of entities or configurations of resources (including people, information, and technology) that are connected by value propositions (Vargo et al., 2008). Such a systems perspective has more explanatory power than a singular, entity-level perspective that may focus on service customers or providers only. The service system, therefore, provides an ideal analytical framework and unit of analysis for rethinking value and how it is created (Maglio & Breidbach, 2014; Vargo et al., 2008).

The performance of a service system is contingent on its ability to co-create value (Spohrer & Maglio, 2008). Because all social and economic actors are considered resource integrators in SD-logic (Vargo & Lusch, 2008), successful value co-creation requires that economic actors are able to interact by exchanging resources and integrating these in the context of their own reality (Prahalad & Ramaswamy, 2004; Vargo & Lusch, 2008). SD-logic thus broadens existing perspectives on human economic exchange by implying that all economic actors are service-providing and value-creating entities. Any perceived differences between business-to-consumer (B2C) and business-to-business (B2B) exchanges are therefore invalid, since "all exchange can be considered B2B" (Vargo & Lusch, 2011, p. 181). Like Vargo and Lusch, our understanding of service more generally, and value co-creation in the context of the consulting industry, more specifically, is that resource exchange and integration are the fundamental mechanisms of human economic exchange, regardless of context.

The exchange and use of resources during value co-creation is understood to occur without constraints in SD-logic (Vargo et al., 2010). For example, within the consulting industry, information is considered the key resource (Mills & Marguiles, 1980). The performance of a service system in consulting would therefore be contingent on the ability of a consultant and customer to co-create value by exchanging information and applying information in their own contexts (Xue & Field, 2008). However, there are also alternative perspectives that do not align with SD-logic; for example, Grönroos (2011) and Heinonen et al. (2010) argue that the process of co-creation, and value as its outcome, are separate end-results of an interaction between economic actors, which implies that successful value co-creation is not necessarily guaranteed in every instance. Though an important debate, we will not further engage in it here in the context of our empirical study on technology-enabled value co-creation.

The concept of value co-creation has been discussed for over a decade, but empirical examples of how firms actually interact and exchange resources to co-create value with customers are just emerging (i.e. Aarikka-Stenroos & Jaakkola, 2012; Nätti, Pekkarinen, Hartikka, & Holappa, 2014). Consequently, we still know very little about the mechanisms and processes of how economic actors engage in value co-creation, and have few managerial guidelines on how this process could ideally be structured (Payne et al., 2008). Grönroos suggests that "the roles of the firm and customer […] in the total process leading to value for customers cannot be established" (Grönroos, 2011, p. 287), meaning that it is unclear which activities and processes are relevant for the emergence of value (Akaka & Chandler, 2011). Furthermore, advances in ICT substantially transformed service systems, and these technology-driven advances also need to be taken into consideration when attempting to explore value co-creation (Edvardsson et al., 2010).

The notion of "high touch, low-tech" (Bitner et al., 2000, p. 138) is indicative of our prior understanding that service interactions only occur at face-to-face (F2F) interfaces (Bitner, 1990). However, the physical location of economic actors involved in value co-creation processes may now be irrelevant since ICTs like video-conferencing, social media or email provide the ability to exchange resources anytime and anywhere (Ostrom et al., 2010). This results in technological knowledge-intensive business services (Glückler & Hammer, 2011), technology-enabled service encounters (Makarem et al., 2009), or technology-enabled value co-creation processes (Breidbach, Kolb et al., 2013; Breidbach, Smith and Callagher, 2013). Though terminology varies, the common denominator is the high level of ICT-mediated *interpersonal* interaction between human economic actors, which differentiates technology-enabled value co-creation from other ICT-driven service interactions such as self-service, which do not rely on human-to-human exchange (Glückler & Hammer, 2011).

As ICTs extend the boundaries of service interactions, new opportunities and challenges arise. For one, ICTs can be beneficial for service firms on the developmental and executional level (Ostrom et al., 2010), increase their profitability (Rust & Miu, 2006), or be a source of innovation (Sheehan, 2006). However, despite these well-documented advantages, early work exploring ICT and value co-creation (i.e. Lempinen & Rajala, 2014), has not yet explored the transformative role and impact that ICTs may have on value co-creation processes (Breidbach & Maglio, 2015; Rai & Sambamurthy, 2006).

To provide recommendations on how to manage ICTs in service systems more effectively (Lee & Park, 2009, p. 9618), or to provide guidelines on how the process of technology-enabled value co-creation may be organized, it is important to explore how service systems operate and interact by means of ICT (Vargo et al., 2008); specifically, exploring and analyzing the roles of economic actors, practices, and resources underlying technology-enabled value co-creation processes could provide