

Analyzing Social Platforms in Value Cocreation Exchange

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Abstract:

The service system is a central object in service science research and has been put forward as the most fundamental abstraction of service science. A differentiating aspect of service systems is value cocreation in which two or more entities interact to create value together. Successful value cocreating exchange requires innovative uses of technology to support relationship building, group interactions, knowledge sharing, and knowledge creation across organizational and geographic boundaries. There is growing interest in social media and social networking techniques (i.e., social features or social platforms) to support work activities. Social features include: personal profiles; articulated networks; communities or groups; user-generated content; and, comments on existing content. In this paper, we position past work on enterprise social media in the context of service science and discuss how enterprise social media can be used in value cocreation exchange in service ecosystems. We consider four case studies of enterprise social platforms and discuss the case studies in the context of a service ecosystem value cocreation framework and how social platforms might help in increasing accessibility, adaptability, and integrability.

Keywords: service science, social platforms, value cocreation, service interactions

Introduction:

Compared to manufacturing and commodity-based organizations that produce and sell goods independently of customer inputs, customer input is required in service delivery (Spohrer *et al.*, 2007). This differentiating aspect of service systems is called value cocreation because (at least) two entities must interact to create value together (Breidbach *et al.*, 2019; Vargo and Lusch, 2016). Successful value cocreating interactions or exchange require innovative uses of technology to support relationship building, group interactions, knowledge sharing, and knowledge creation (Breidbach *et al.*, 2019). Despite an increase in the complexity and importance of value cocreating service exchange (Breidbach *et al.*, 2019; Feldmann *et al.*, 2019; Glushko and Nomorosa, 2013) and a growing interest in social media and social networking techniques (together referred to as social features or social systems) to support work activities (Kane, 2015; Lam *et al.*, 2016; Leonardi *et al.*, 2013; Mandviwalla and Watson, 2014), there has been little focus on social features for service system exchange within the service science community. There is, however, recognition that the growth of social networking systems is contributing to the need for a wider conceptualization of relationships in value cocreation and exchange beyond the transactional (Archpru Akaka *et al.*, 2012).

In this paper, we describe and compare four case studies that make use of social platforms for supporting value-cocreating interactions and exchange in service ecosystems (Hayat *et al.*, 2015; Kolari *et al.*, 2007; Lyons *et al.*, 2010; Moradian *et al.*, 2014). We use a service-dominant logic (S-D logic) ecosystem value-cocreation framework to analyze the case studies (Archpru Akaka *et al.*, 2012). For each case study, we describe the social platform (or features), the actors participating in the exchange, the resources, and the nature of the exchange. We consider each case study from the perspective of the service ecosystem value-cocreation framework (Archpru Akaka *et al.*, 2012) and discuss the ways in which the social platforms might help in increasing accessibility, adaptability,

and integrability of resources by actors in the network. Our study of value cocreation and exchange in social platforms and the networks that underly them extends and applies past investigations into relationships, networks, and interaction in value creation and exchange (Archpru Akaka *et al.*, 2012; Gummesson, 2006; Lusch and Vargo, 2006).

Service-dominant Logic Ecosystem Value-cocreation Framework:

We adopt a service-dominant logic (S-D logic) ecosystems perspective (Archpru Akaka *et al.*, 2012; Maglio *et al.*, 2009; Vargo and Lusch, 2016) to conceptualize value cocreation and the actors involved in exchange within a service system. In an S-D logic ecosystems perspective, service exchange takes place among social and economic actors (actor-to-actor exchange) which includes more traditional client-provider exchange as well as broader configurations of actors (Archpru Akaka *et al.*, 2012; Vargo and Lusch, 2016).

A service system is defined as, “a dynamic value-cocreation configuration of resources, including people, organizations, shared information (language, laws, measures, methods), and technology, all connected internally and externally to other service systems by value propositions” (Spohrer *et al.*, 2007, p. 5). Cities, universities, companies, departments within companies, non-profit organizations, government agencies, even people can be viewed as service systems (Maglio *et al.*, 2009) that are capable of applying resources, taking action, and working in mutually beneficial ways with other service systems (Archpru Akaka *et al.*, 2012).

Similar to service systems in service science, a service ecosystem in S-D logic 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” (Vargo and Lusch, 2016, pp. 10-11). Because no individual actor (or even group of actors) possesses all of the resources and knowledge they need to create value for themselves and others, the process of resource integration and exchange with other actors is necessary and also continuous (Archpru Akaka *et al.*, 2012).

In an ecosystem view of value cocreation in the context of networks, it is useful to consider organizations as entities that cocreate value through exchange but also to consider the individual employees in those organizations who create and share knowledge internally and externally (Archpru Akaka *et al.*, 2012). In our conceptualization of social platforms and value cocreation exchange, we analyze individual actors (employees of service entities), the relationships and networks afforded by the social platforms under analysis, and the exchange and value cocreation that takes place through knowledge transfer and knowledge generation. Because information and knowledge ultimately drive value cocreation, it is important that relationships and the network materialized through those relationships are structured such that resources are available when needed and can be accessed and integrated at appropriate times (Archpru Akaka *et al.*, 2012). The process of transferring resources through the network results in knowledge sharing and knowledge creation.

In this paper, we analyze social platforms using the S-D logic ecosystem value-cocreation framework presented in (Archpru Akaka *et al.*, 2012). This framework takes a service-ecosystems view of service exchange by identifying three mechanisms that facilitate exchange through networks of relationships: 1) *access*: through the relationships in the network, actors can access resources; 2) *adapt*: the resources that are accessed can be adapted in ways to support value creation; and, 3) *integrate*: the resources can also be integrated within broader contexts. These mechanisms support knowledge creation within the network by developing new resources, knowledge, and experience and contributing those back to the broader social context and service ecosystem. Figure 1 illustrates the access, adapt, and integrate components of the value cocreation

framework presented in (Archpru Akaka *et al.*, 2012). The framework represents value cocreation as a continuous process that takes place among a system of actors where the value that is created depends on how the system is configured and how interaction takes place within it (Archpru Akaka *et al.*, 2012).

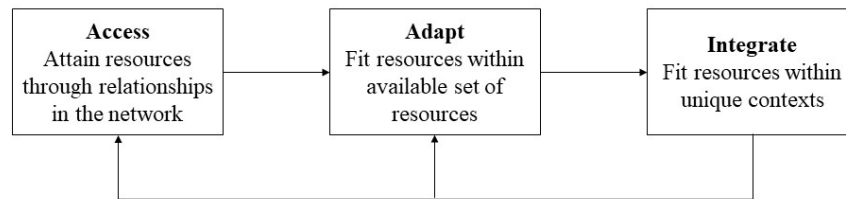


Figure 1: Service Ecosystem Value-Cocreation Framework adapted from (Archpru Akaka *et al.*, 2012).

Studies of Technology in Service Systems:

Before addressing social platforms and social features as a special kind of technology in service systems, we briefly highlight some of the ways in which technology has been studied in the context of service systems and service science. While there has been recent interest in big data, data analytics, and artificial intelligence in the context of service systems and smart service systems (Borangiu and Polese, 2017; Breidbach *et al.*, 2019; Breidbach and Maglio, 2013; Lim *et al.*, 2018; Qiu *et al.*, 2019), in this paper, we focus our overview specifically on the use of technology in mediating or facilitating exchange or interaction in service systems.

Atiq *et al.* differentiate between “technology-mediated customer contact” in which customers interact with the service provider using a medium of technology and “technology-generated customer contact” in which customers participate in the service activity through self-service (Atiq *et al.*, 2017). Service experience blueprinting (SEB) is a method for designing technology-mediated service experiences (Patrício *et al.*, 2011). The SEB technique compares different interfaces for the same customer offering according to a number of criteria and goals. Glushko and Nomorosa use a hotel service system to show how technology enables information about a client to substitute for interactions such that service encounters and service systems are personalized to the client across the spectrum of technology-mediated and technology-generated interactions (2013).

Service interactions and exchange can also take place among employees within the provider service system or with customers for the purpose of service system design and innovation. Feldmann, *et al.* identify three value cocreation configurations each with different levels of customer and employee participation: 1) customers are involved in value cocreation with providers for the purpose of service provision to the customer; 2) customers are involved in value cocreation with providers for the purpose of innovation in providing service; and, 3) employees are involved in service provision for the purpose of innovation in providing service (Feldmann *et al.*, 2019). Involving customers actively in the design of technology-based service systems has been proposed as a method for addressing customer requirements as well as for supporting innovation in service systems (Atiq *et al.*, 2017).

Briedbach and Maglio (2016) considered four case studies in the consulting industry (a complex type of business-to-business service system) which involve customer-provider value cocreation interactions facilitated or mediated by technology. Through a detailed empirical analysis, they studied the economic actors participating in the interactions and identified roles of service customers and roles of service providers. They studied interactions in the context of different service targets (process targets or output targets). Among their theoretical and practical findings,

and their research indicates that value cocreation activities that are enabled by technology are more affected by scarcity of resources than in face-to-face interactions (Breidbach and Maglio, 2016).

In this paper, we focus on enterprise social media as a particular enabling technology for supporting value cocreation interactions and exchange in service systems among individual actors who may be client or provider employees.

Enterprise Social Media:

Before describing our four case studies that make use of social platforms for value cocreation exchange, we must define what we mean by enterprise social media and social features or social platforms. Companies have evolved from using social media primarily for marketing to engaging with social media to support collaboration among employees, manage company talent, facilitate operations, and grow capital (Kane, 2015; Leonardi *et al.*, 2013; Mandviwalla and Watson, 2014).

Based on a review of the literature, five key features of social platforms are identified in (Lyons and Lessard, 2012): personal profiles; articulated networks; communities or groups that can be created and joined; user-generated content (UGC) that can be created and shared; and, comments on existing content (see Figure 2). A similar set of capabilities is identified in (Leonardi *et al.*, 2013) where enterprise social media is described as a web-based platform that supports employees in: communicating with individuals or with the entire organization; making explicit the people among whom communication takes place; creating content and editing content posted by others; and, viewing information posted by and edited by others in the organization. More recently, two uses of specific features have been identified as important for organizational benefit: establishing and managing the social networks of employees and enabling employees to find and access digital content (Kane, 2015). These two capabilities have been found to enable more effective interactions with customers, among customers, with employees, and among employees. In (Mandviwalla and Watson, 2014), methods for generating capital from social media include: listening and branding, a more traditional use of social media in enterprises; performing data analysis on social media data to drive decisions; generating and sharing knowledge; and, cocreating and innovating new products and services.

This evolution of the ways in which social media have been used in enterprises parallels the evolution of thinking on value cocreation and exchange in service systems. Just as social media use in enterprises has evolved from a mechanism for customer engagement and marketing to a platform for supporting knowledge sharing, relationship building, and capital growth, so has value cocreation evolved from a more dyadic view of client / provider service interactions to a systems of actors accessing, adapting, and integrating resources to create mutual value.

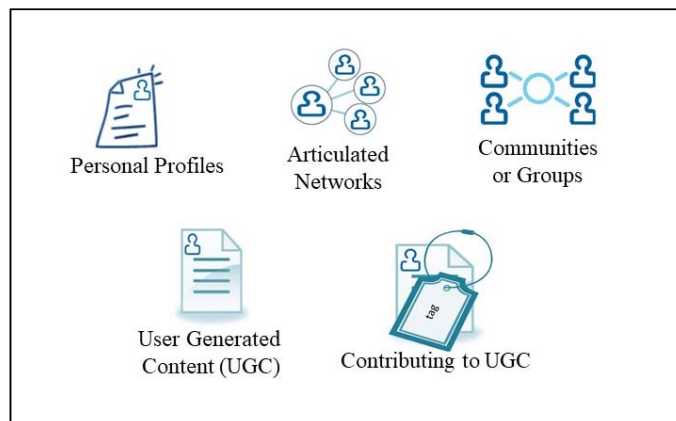


Figure 2: Five key social features identified in (Lyons and Lessard, 2012).

A contribution of this paper is to connect research on social media in the enterprise to research on value cocreation and exchange in service systems.

Four Case Studies that Use Social Platforms in Enterprise Settings:

Our four case studies all make use of social platforms to facilitate interaction and exchange among individual actors. For each case study below, we describe the social platform used for exchange in an enterprise environment and highlight results of a past study conducted on that platform that investigated some aspect of knowledge sharing and exchange. After describing the case studies in this section, in the next section, we present an analysis of each case study using the S-D logic ecosystem value-cocreation framework presented in (Archpru Akaka *et al.*, 2012). Table 1 provides a summary of the case studies, the social platform involved in each, the actors participating in the exchange, the resources, the nature of the exchange, and an overview of the past study for each described below.

Case Study A Knowledge Sharing in an Internal Blog Platform:

This case study analyzed internal blogs within IBM between November 2003 and August 2006 (Kolari *et al.*, 2007). Most enterprises have public blogs either through product bloggers, evangelists, or individual leaders within the company. However, a second key aspect of blogs for business is their use within the organization for knowledge sharing. Internal corporate (enterprise or business) blogs encompass all non-public blogs hosted within the organization on their intranets. Employees use such blogs to share expertise on products and services, to voice opinions, and to initiate discussions on issues of interest to other employees. Overall, blogs are viewed as a collaboration tool enhancing productivity, and as an enabler for business and competitive intelligence. Bloggers have personal profiles, create networks by commenting on and linking to blog posts, topics, and other bloggers. In this case study, we analyzed the structure and property of internal blogs including the reach of blog conversations within organizational hierarchies (Kolari *et al.*, 2007). We analyzed roughly 23,500 blogs (each owned by an individual or group of individuals) hosting 48,500 posts. During the nearly three years of our study, the number of blogs doubled every 10 months. We analyzed the distance between two employees in the corporate hierarchy who connect through blogging (that is, engaged in a conversation through the blog platform) and found that conversations are high across users working in close hierarchical proximity, but less exclusive among peers and between employees and their managers; however, some conversations take place across the organization (Kolari *et al.*, 2007).

Case Study B Collaborative Decision Making in Streamwork:

Streamwork was an online social platform that was designed to support individuals coming together to work virtually (Moradian *et al.*, 2014) (note that Streamwork is no longer available). Individuals create personal profiles and explicitly identify others in their network. They can create content, contribute to others' content and join groups (see Figure 3). In Streamwork, participants can define an activity and invite coworkers to participate in the activity. In this case study, we investigated how game elements can incent participation in group decision making in Streamwork (Moradian *et al.*, 2014). We designed an activity in Streamwork to enable the collaborative creative idea generation processes of brainstorming followed by a convergence activity. We created two versions of the activity, one with game elements to incent participation and one without. We compared teams using the platform with and without game elements to investigate the effect of the elements on collaborative work activities. We found that game elements can help teams produce more ideas during brainstorming and engage in more discussion during the subsequent convergence activity, without negatively affecting idea quality (Moradian *et al.*, 2014).

Case Study C Knowledge Sharing in a Community Platform:

MyCA is a platform for employees and customers to share information and communicate with one another. The MyCA platform enables its participants to create profiles, connect to (“friend”) other participants, join communities or groups (each community is tied to a particular product or family of products), create content and comment on others’ content. MyCA provides a place and community to discuss different topics related to those products (see Figure 4). We analyzed 106,022 registered users, their registration date, last login, and community affiliations, as well as 168,328 board posts, 676 Twitter handles, and 392 communities (Hayat *et al.*, 2015) with a goal of identifying methods for increasing participation and contributions in the platform. We found that friendship centrality and community centrality are strong predictors of both future content posting and future login. We generated community recommendations for MyCA users using association rule mining of current community affiliation patterns and generated friend recommendations for MyCA users based on the community affiliation network structure to identify users who are affiliated with the same or similar communities. We also prioritized friendship recommendations for users who are more active.

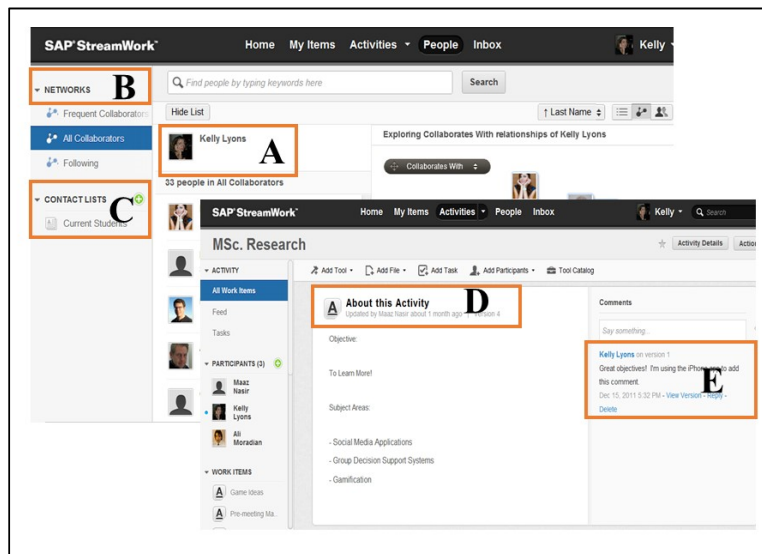


Figure 3: Streamwork as a social platform with A: personal profiles; B: explicit networks; C: groups; D: user-generated content; and E: contributions to content

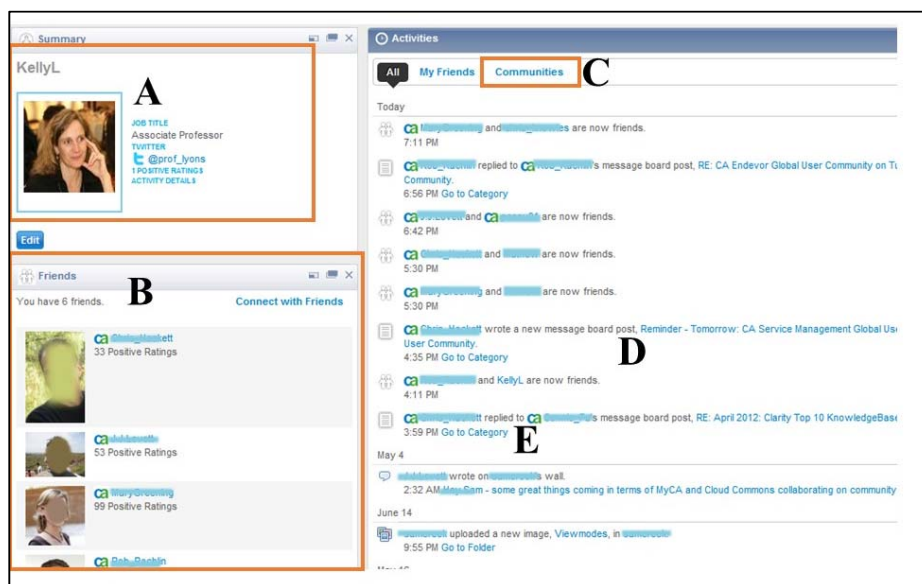


Figure 4: MyCA as a social platform with A: personal profiles; B: explicit networks; C: groups; D: user-generated content; and E: contributions to content

Case Study D Meetings in Virtual Worlds:

Second Life is a virtual world in which individuals, represented by their avatars, interact with other individuals, create (and buy and sell) objects, participate in group activities, work, explore, play, and interact socially. Second Life provides a platform for individuals to collaboratively develop shared content, including objects used by avatars (e.g., clothing, houses, furniture, and artwork). It is also an economic ecosystem with numerous business applications and opportunities including marketing, retail, and as a virtual workspace for employees where meetings can take place (Linden Lab, 2009; Messinger *et al.*, 2009). Meetings are increasingly taking place over distance, supported by some combination of technology including teleconferences, video conferences, electronic meeting software and, more recently, virtual worlds. In this case study, we investigated the use of virtual worlds for online meetings and considered issues of multitasking in meetings conducted over virtual worlds (Lyons *et al.*, 2010). There are mixed opinions about multitasking during online meetings. In past research, most people reported that multitasking during meetings is advantageous because they can accomplish other work and attend more meetings; however, some people in the same study reported that multitasking was a “distraction and detriment” (Mark *et al.*, 1999). We found that people feel the level of multitasking that takes place during virtual worlds meetings falls somewhere between the level of multitasking in face-to-face meetings and that in teleconferencing (Lyons *et al.*, 2010). When meeting participants multitask, they simultaneously engage in other activities (e.g., e-mailing and texting) while attending the meeting, thereby paying less attention to the meeting’s agenda. Technologies that support distributed meetings should, therefore, afford an opportunity to engage in some degree of multitasking but not so much as to distract participants from the meeting goals. Our study suggests that virtual worlds are capable of providing this desired balance (Lyons *et al.*, 2010).

Table 1: Summary of the Case Studies

Case Study	Social platform	Actors	Resources	Exchange	Overview of Past Study
Case Study A Knowledge Sharing in an Internal Blog Platform	Internal blog platform	Employees in a large enterprise	Knowledge, information, ideas	Technical discussions and knowledge sharing, interacting across departments	Analyzing the structure of the social platform and patterns of knowledge sharing across departments
Case Study B Collaborative Decision Making in Streamwork	Streamwork	Participants in collaborative decision making (not necessarily in from the same company)	Ideas, decision goals, decision outcomes	Interactions for the purpose of collaborative decision making	Incenting participation in the decision-making process through the use of gamification in the social platform
Case Study C Knowledge Sharing in a Community Platform	MyCA	Customers and employees of an enterprise organized around product-affiliated communities	Knowledge, information, and product know-how	Technical discussions and knowledge sharing, specifically around products	Making recommendations to increase participation and contributions

Case Study D Meetings in Virtual Worlds	Virtual worlds	Participants in meetings over distance (not necessarily in from the same company)	General knowledge and knowledge, information specific to particular meeting topics	Discussions for the purpose of participating in meetings	Understanding multitasking in online meetings in virtual worlds
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Social Platforms and the S-D Logic Ecosystem Value-cocreation Framework:

In this section, we consider each case study from the perspective of the service ecosystem value-cocreation framework and discuss the ways in which the social platforms might help in increasing accessibility, adaptability, and integrability.

Increasing Accessibility: Accessibility considers how actors and their relationships and positions within the network influence interactions and the development of new relations as well as how actors discover what resources are accessible and how to access those resources (Archpru Akaka *et al.*, 2012). In Case Study A, all employees have access to the blog posts and knowledge resources within them. However, the position and role of bloggers in the network on the platform enable them to access more targeted knowledge and access new relationships through conversations and interactions with other bloggers. For Case Study B, participants in the Streamwork collaborative decision-making activity contribute ideas and engage in an online discussions with other participants to converge on a decision. Their position in the platform and participation in the activity give them access to resources in the form of others’ ideas and discussions. The game incentives have been shown to increase the number of ideas generated and the level of online discussion. Therefore, actors participating in the game version of the activity may have access to increased resources (ideas) and, through their increased participation in discussion, may have access to stronger relationships. In Case Study C, the MyCA platform, recommendations were identified that would help increase participation on the platform (more people logging into it and more content being produced). Increasing participation and contributions on the platform is expected to increase interactions, relationships, and thus, accessibility. In Case Study D, because virtual worlds are meant to mimic real world settings, actors can discover resources by “looking around” but may need to engage in interactions with other actors to learn how to access them. Furthermore, the way in which people present themselves through their avatar may influence their position within the network and their relationships. For example, people with more attractive avatars than their real selves have been found to be more confident and extraverted in virtual worlds than they are in the real world, particularly those who have low confidence and are introverted in the real world (Messinger *et al.*, 2008).

Increasing Adaptability: Adaptability considers how the available resources complement current ones, whether actors have the knowledge and skills to create value with the resources, and the overall context into which the resources are being adapted (Archpru Akaka *et al.*, 2012). Because all of the social platforms discussed above enable actors to bring their own resources (knowledge, ideas, posts, etc.) and context into the shared platform environment, the platforms inherently support adaptation of resources. In Case Study A, one of the outcomes of the blog platform study was the reach of conversations across department boundaries. Bloggers are able to complement their existing (intra-departmental) knowledge with new (inter-departmental) knowledge from other bloggers. If bloggers do not have the skills and knowledge to create value, they can engage in conversations with other bloggers in the network to learn how to create value and bring the knowledge into their own departmental context. For Case Study B, the game elements incent participants to share their ideas with others on the platform and engage in discussion to complement

each other's ideas and, ultimately, each actor participates in adapting the resulting knowledge to the shared context of the decision-making activity. In Case Study C, the main goal of the MyCA platform is to enable customers of a specific product to come together and exchange knowledge in the MyCA community associated with that product. In fact, a main reason that people participate in the MyCA platform is to gain access to resources (knowledge and information about a specific product) that complement their own product knowledge as well as to gain the skills they need to create value with that information; that is, the skills they need to apply and adapt the knowledge in their own organizational context. A challenge with meetings in virtual worlds (Case Study D) is the fact that ultimately the knowledge exchanged and resources accessed in the virtual world must complement knowledge that exists outside the virtual world in a different context. Participants must have the knowledge and skills to create value with the resources outside the virtual world and move them into contexts where they will ultimately be adapted.

Increasing Integrability: Integrability considers the kinds of new knowledge that can be created by applying particular resources as well as how actors acquire new meaning or uses for value created through resource integration (Archpru Akaka *et al.*, 2012). In Case Study A, the new knowledge does not necessarily stay within the blog platform. Individual employees (actors) acquire new meaning from the posts they read and the conversations that take place and create new knowledge as a result. The blog platform facilitates access to the resources and relationships such that the ultimate creation of new knowledge can take place within the enterprise. For Case Study B, the decision that is made as a result of the Streamwork activity is new knowledge that is created through resource integration. The participants (actors) acquire new meaning as they converge on a shared decision outcome. Intuitively, the more that individuals participate and contribute, the greater the potential is for new meaning and new uses of the knowledge created. The game incentives may support knowledge creation by increasing participation. Similarly, in Case Study C, growing participation in the MyCA platform can potentially increase integration as participants create new knowledge by integrating other's experiences in new ways to create value in their own organizations. In Case Study D, actors must transfer meaning that has been newly acquired in the virtual world outside the virtual world and integrate it to create value in the real world.

Conclusion:

Value cocreation through exchange is a key aspect of service systems. Technology is often used to mediate exchange or replace humans in the exchange. Social platforms are a particular type of enabling technology that have the following features: personal profiles; articulated networks; communities or groups that can be created and joined; user-generated content (UGC) that can be created and shared; and, comments on existing content (Lyons and Lessard, 2012). Regardless of the role that that technology may play or the particular type of technology involved, service exchange can take place among employees within a provider organization, with customers, or among employees and customers. In this paper, we focused on social platforms as a particular enabling technology for supporting value cocreation interactions and exchange in service systems among individual actors who may be customer or provider employees.

Four past studies of social platforms were presented: 1) a study of IBM's internal blog community provides a characterization of blogs within a service system and identifies techniques for analyzing the impact and reach of a blog post (Kolari *et al.*, 2007); 2) a study of SAP Streamwork and gamification shows that game elements in decision-making interactions increase the number of ideas generated and result in more discussion (Moradian *et al.*, 2014); 3) a study of MyCA and recommendations identifies potential predictors of increased participation (Hayat *et al.*, 2015); 4) and, a study of meetings in virtual worlds showed that virtual worlds may afford an opportunity to engage in some degree of multitasking but not so much as to distract participants from the meeting goals (Lyons *et al.*, 2010).

We used an S-D logic ecosystem value-cocreation framework (Archpru Akaka *et al.*, 2012) to analyze each case study and identified ways in which the social platforms might increase accessibility, adaptability, and integrability of resources by actors in the network. The framework was applied to the social platform studies after the studies had been carried out. There was alignment between the platforms, the studies carried out on them, and the components of the framework; however, it would be interesting use the framework to structure and inform futures studies on social platforms so that specific aspects of resource access, adaptation and integration could be evaluated, tested for, and analyzed. By analyzing value cocreation and exchange in service ecosystems through case studies about social platforms, we can increase our understanding of the role of networks, relationships, and knowledge sharing and creation in value cocreation and exchange.

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