

Co-created e-Services: The Synthesis of a New Field of Study

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Abstract -This paper utilizes prior case study research and empirical data in order to synthesize an entirely new field of study – Co-created e-Services. Co-creation enables the sharing of innovation and development activities in a close partnership between end-users and service providers. This partnership is enhanced through the innovative use of information technology by creating new interfaces which facilitate the interactions required for the effective co-creation of e-services. The synthesis method involves the logical combining of diverse research from multiple fields of study into a cohesive whole. Prior research from the fields of co-creation, service transformation and e-Services is used to introduce this new field of study.

Case studies have provided qualitative insights into the interactions between end-users and service providers, while empirical studies provide quantitative measures upon which to make judgments. The synthesis method enables the simultaneous combining of case study and empirical results from three different fields of study into a cohesive framework with the implementation steps necessary to enable the transformation to Co-created e-Services. A transformational framework and the associated steps are necessary to guide future research in this new field and to enable product- oriented organizations to achieve enhanced economic growth and development through the implementation of Co-created e-Services.

Keywords- *e-Services; Co-Creation; Synthesis Method; Service Transformation; Network Economics*

I. INTRODUCTION

The synthesis of co-created e-Services as a new field of study requires that the terms co-creation and e-Services be defined and explained. First, co-creation is described as a way of engaging customers and end-users in the value creation process. Secondly, a broad definition of e-Services is used to enable the co-creation of value.

A. Co-Creation

The term co-creation has been attributed to C.K. Prahalad and Venkat Ramaswamy [31,36]. In their seminal work, *The Future of Competition: Co-creating Unique Value with Customers*, they explain that companies are moving away from the traditional system of “company- centric” products to “consumer-centric” products and services [30]. Consequently, firms can no longer focus solely on the cost, speed, or efficiency of a product. Additionally, they must focus on innovation and creativity to better fit the needs of the individual users.

Furthermore, Ramaswamy and Gouillat, co-authors of *The Power of Co-Creation*, state that the “core principle underlying the transformation of enterprises toward co-creation is this: engaging people to create valuable experiences together while enhancing network economics [33].” Network economics refers cost efficiencies from leveraging economies-of-scale in the design of engagement platforms. The following diagram illustrates the co-creation principle:

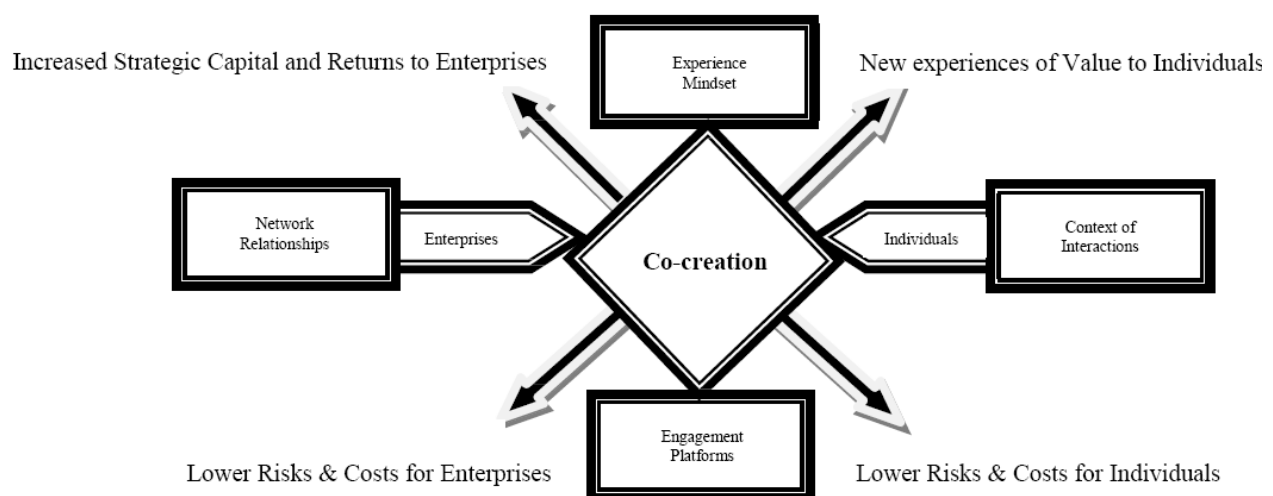


Fig. 1 The Core Principle of Co-creation [33]

Starting at the top of the diagram, the experience mindset requires the acceptance of the fundamental premise that the customer experience is “central to enterprise value creation, innovation, strategy, and executive leadership [33].” Value is created jointly with the customer, not by the firm acting in isolation. Value is based on human experiences rather than product features or processes. It is the interactions with people that enable learning and innovation. This view of value creation is a significant departure from the traditional product-oriented mindset.

Moving clockwise in the diagram, the context of interaction recognizes that customer experience is highly variable. The differences between individual customers and other stakeholders in the value creation process must be fully taken into account when orchestrating co-creation experiences. The goal is to leverage the knowledge and skills of all participants in a way that mutually creates value in the context of each interaction.

Engagement platforms are mechanisms by which all of the stakeholders in the co-creation process interact to co-create mutual value while simultaneously lowering costs and risks. An example of an engagement platform is a multi-channel website. The multiple channels allow each stakeholder to cost effectively engage in their preferred manner, whether it is simply browsing the website or virtually engaging in service design. An important aspect of the engagement platform is that it should be designed to evolve over time [33]. Additionally, the platform should provide the necessary transparency to enable individuals to conduct their own risk assessment.

Network relationships include the company managers and employees, suppliers and other stakeholders of the enterprise working with, not on behalf of, customers, end-users and user communities. These relationships need to be nurtured to develop long-term partnerships that are based on mutual trust and transparency. In a traditional enterprise relationship, customers are researched and then segmented for marketing purposes with the hope of profiting from their purchase of a product. A co-creation relationship, in contrast, involves a meaningful interaction with customers on their terms during the entire lifecycle of a product or service.

At the center of the diagram is co-creation. Co-creation is depicted as the glue that holds the experiences, interactions, engagements and relationship together. The output of the co-creation process is higher profits, greater opportunities for companies and greatly enhanced experiences at lower cost and risk for individual consumers. The co-creation paradigm stands in sharp contrast to the traditional firm-centric and product-oriented mentality that is “rapidly becoming obsolete [33].”

B. e-Services

The global expansion of the Internet and the proliferation of personal mobile devices have enabled vast opportunities for the development of e-Services. Various definitions have been documented in e-Services literature. Javalgi et al. define e-Services as “those services that can be delivered electronically [19].” Similarly, Rust and Kannan define e-Services as “provision of services over electronic networks [34].” Boyer et al. use the definition “interactive services that are delivered on the Internet using advanced telecommunications, information, and multimedia technologies [8].” Hofacker et al. further define e-Services as “an act or performance that creates value and provides benefits for customers through a process that is stored as an algorithm and typically implemented by networked software [17].” The authors focus on the distinction between service production (a stored algorithm delivered by software) and service outcome (the desired benefit received by consumers) [17]. Herein, e-Services is defined as “deeds, efforts or performance whose delivery is mediated by information technology [20].” This definition is used because it simultaneously defines what is meant by service (deeds, efforts or performance) and e-Service. A broad definition of e-Services is used to include not only e-Services over traditional Internet connections but also e-Services that are delivered via all forms of information technology to include services which utilize personal wireless communications and broadband networks.

II. METHODOLOGY

The research methodology used in this paper involves the synthesis of prior case study and empirical data in the research fields of co-creation, service transformation and e-Services. The synthesis methodology is derived from the systems approach and entails the logical combining of disparate pieces of information into a cohesive whole. This is consistent with Webster’s definition 1a. “the composition or combination of part or elements as to form a whole” and 1c. “the combining of often diverse conception into a coherent whole [39].” This research combines prior case study and empirical research to form a cohesive framework for the transformation from a product orientation to co-created e-Services. Fig. 2 graphically illustrates this concept.

Although a significant body of information exists concerning the individual fields of research in co-creation, service transformation, and e-Services, no prior research has been conducted concerning co-created e-Services. This new research field is the result of synthesizing the conclusions of case studies with empirical results from the three fields of study. The two sections which follow are illustrative in demonstrating the synthesis of prior case studies and empirical research to develop the conceptual framework and the associated seven steps which support the transformation from a product orientation to a co-created e-Services business strategy.

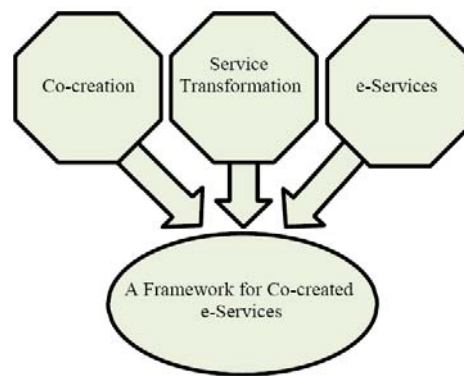


Fig. 2: The Synthesis of Co-Created e-Services

A. Case Studies

Case studies provide a foundation upon which a concept or theory can be developed. Furthermore, case studies enable researchers to “better understand the mechanics of how businesses might be affected by a variety of factors [35].” Neil Salkind states that “there is simply no way to get a richer account of what is occurring than through a case study [35].” This paper synthesizes a multitude of case studies from three distinct fields to conduct a detailed examination of how co-creation can enable organizations to successfully transform from a product-oriented approach to a co-created e-Services business orientation.

The use of case studies in the development of a framework is justified on two principle grounds. First, a review of the extant literature revealed that the fields of co-creation, service transformation and e-Services are relatively new fields of research. Thus, qualitative methods are needed to develop a framework for further testing. Second, a deeper understanding of the synthesis of these three fields is required. The depth and detail of case analysis enables a closer and more complete examination of the factors which can enable organizations to successfully transform to co-created e-Services. Kristensson et al. state that “there is a lack of firm theoretical foundation on which to base an understanding of the strategies (e.g. antecedents and critical processes) which are required for success during the co-creation of services [23].” Consequently, they use a case study as the primary means to add to the body of knowledge in this under-investigated area.

They further state that “case studies are especially useful for exploring topics in which there is a relative lack of strong theory [23].” Their research was conducted at two Swedish telecommunications services companies, Ericsson and TeliaSonera. These companies were selected because company managers were dissatisfied with the input they received from the traditional methods of user focus groups and surveys. They wished to obtain a deeper understanding of the success factors for user involvement when implementing “co-creation as a practice [23].” The case study involved 38 participants which generated 106 new ideas for future mobile phone services. A discussion of these ideas during the case study workshops revealed that similar ideas could not have been generated by company developers because they were “removed from the context and needs of ordinary users [23].” The case study researchers concluded “the real benefit of a user involvement project is the generation of solutions to practical problems in the context of the user’s real-life experience [23].” This conclusion was enabled by an aspect of the case methodology which allowed users to conduct audio and video recording of situations in which user ideas were generated. Thus, this case study facilitated a deeper understanding of the value of user ideas to co-create new services.

One of the limitations of the above case study is that the findings are limited to two Swedish companies in the telecommunication industry. In order to be of significant benefit, similar findings from case research conducted by other researchers needed to be obtained. For example, Matthing et al. did a field experiment at TeliaSonera involving 86 end-users of mobile phone services. The results showed that high scoring unique ideas were “triggered by a sudden experience [26].” This result correlates with the finding by Kristensson et al. that users generate ideas “in the context of the users real life experience [23].” This is an important finding for two reasons. First, it supports the notion that a transformational framework for co-created e-Services should focus on innovations that are conceived by end-users. Secondly, it supports the co-creation strategy of enabling a firm/user interface which allows end-users to develop ideas in the context of their own environment. Furthermore, the principle finding of the experiment conducted by Matthing et al. is that “user service ideas are found to be more innovative, in terms of originality and user value, than those of professional service developers [26].” This conclusion is consistent with observations recorded during the analysis of the 106 new ideas generated during the case study conducted by Kristensson et al. wherein researchers concluded that ideas generated by users were not only more original, but feasible and valuable [23]. The synthesis of these two case studies conducted by different researchers in the same setting and industry provide evidence to support a preliminary conclusion that end-users provide a valuable source of innovation during the course of their actual experiences.

Comparing co-creation strategies with that of a traditional product orientation yields additional insights to support the idea of involving end-users in an effort to improve new product and service innovation. The traditional approach to innovation

focuses on ideas generated by employees of the organization. Typically, engineers and scientists provide the preponderance of these innovations. It is not uncommon for these innovators to be detached from the intended users of the innovations. This approach stands in sharp contrast to co-creation strategies which, by design, integrate end-user innovation with those of the organization during the entire life cycle of a product or service. Co-creation strategies provide additional input to the innovation process that is absent from the traditional approach to new product development. The additional input comes in the form of ideas from end-users as a result of a more practical understanding of how the innovation will be used in the course of supporting everyday needs as well as problems that can inevitably arise in the actual environment vice the laboratory environment where traditional innovations take place.

To examine the co-creation idea in more detail, let us re-examine the Swedish Telecommunications case study. This case study revealed that co-creation provided a superior source of innovation when compared to traditional approaches to new product and service development. Specifically, the insight into how users leverage innovative new technology during the course of their daily activities proved to be invaluable [23]. Company developers simply could not have gained this insight on their own volition. Furthermore, the creative ideas furnished by end-users to developers during interaction sessions served as a catalyst for developers which spawned even further innovation [26].

In order to broaden the applicability of these results, case research in other settings and industries was examined. Bartley et al. performed benchmarking case analysis on New Zealand companies in the finance, manufacturing and service industries. They found that organizations which engaged customers to determine “how their services added value” and actively solicited new ideas from customers, achieved superior performance results [4]. Furthermore, in examining the case of customer innovation in the custom semi-conductor chip industry, Thomke and von Hippel found that “customers know what they need better than the manufacturers [37].” For this reason, a U.S. manufacturer was able to reduce cycle time and rework rate, lower cost per chip, and increase customer satisfaction and competitive advantage by enabling the co-creation of semi-conductor chips with their customers. Franke and von Hippel found that in the case of Apache security software, users that utilized customized features of the software had “significantly higher satisfaction levels” than those that did not [14]. These cases provide additional evidence in different settings and industries that support the findings of Kristensson et al. von Hippel also concluded that developers need “context-of-use information (generated by users)” in order to be successful [38]. Naturally, “users generally have a more accurate and detailed model of their needs than manufacturers.” In examining the case of scientific instruments, “users tended to develop innovations that enabled the instruments to do qualitatively new types of things for the first time [38].” Conversely, manufacturers tend to enable users to do things “more conveniently or reliably [38].”

Likewise, Alam and Perry conducted case study research involving 12 firms in the financial services industry. A principle finding of this case study is that customer involvement was necessary for developing a superior and differentiated service with better value for customers [1]. In this case study a total of 36 interviews involving managers and decision makers were conducted. All managers routinely participated in new service development from idea to launch. These managers obtained user input from customer meetings, customer observations and in-depth interviews. The findings indicate that customer input is vital to the “success or failure of a new service.” This finding, though not conclusive by itself, is consistent with the conclusion that user generated ideas offer value not otherwise obtainable with company resources alone as proposed by Kristensson et al. [23]. This consistency provides the basis to justify the incorporation of these findings into the framework for co-created e-Services depicted in Fig. 3. Thus, the value of individual case studies is enhanced throughout the synthesis of the results with other case studies which demonstrate consistent results.

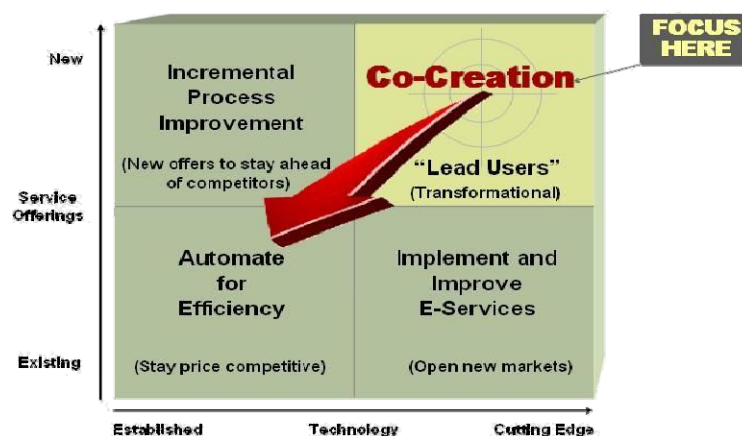


Fig. 3. Framework for Co-created e-Services [27]

B. Empirical Research

This type of research has provided valuable input to the development of the framework for co-created e-Services. However,

before the conclusions presented in prior empirical studies were utilized in the construction of the framework, the data were analyzed and validated against a defined and rigorous standard of integrity. Once an empirical study was determined to have relevance to this research, the research findings were reviewed to determine if the conclusions reached were adequately justified based on the analysis of data. Next, the p -value was determined for all relevant findings. If the p -value was greater than .05, the findings were rejected regardless of documented conclusions drawn by the researchers. The p -value of .05 or less was selected to ensure that the framework is based upon stringent standards of validity.

Additionally, calculations leading to the determination of p -value were reviewed for accuracy. If the p -values were correct and were .05 or less, the study findings were compared with the conclusions from case studies and other empirical studies in order to determine if the study findings were consistent. The process thus ensures the validity of empirical inputs used to develop the framework for co-created e-Services.

To illustrate the validation of prior empirical research, an article entitled: *The influence of customer activity on e-Service value-in-use*, is highlighted below. This research, published by Dr. Kristina Heinonen, is relevant to the framework in Fig. 3 since the primary purpose of transforming to a co-created e-Service approach is to increase value. Her empirical study concluded that “customer activity level positively influenced value-in-use [16].” Customer activity is considered to be high when the customer co-creates the service with the provider. Medium customer activity is defined to be activity in which customer input is used to customize a standard service. Low customer activity is characterized by customer participation in the performance of a standard service delivered by the firm.

The study results were based on analysis of 3,328 responses to an online questionnaire. Four dimensions of value were used including functional, temporal, spatial and technical. The number of responses and multi-dimensional aspect of the data provide a rich basis of comparison. Dr. Heinonen performed an ANOVA analysis to compare the mean responses between customer activity levels and e-Service value-in-use across the four dimensions. Table I below summarizes the results.

TABLE I: E-SERVICE VALUE BASED ON DEGREE OF END-USER INVOLVEMENT [16]

| | Low Activity | Moderate Activity | High Activity | Mean |
|------------|--------------|-------------------|---------------|------|
| Technical | 0.62 | 1.06 | 1.67 | 1.03 |
| Functional | 0.71 | 1.22 | 1.8 | 1.19 |
| Temporal | 0.89 | 1.65 | 2.14 | 1.58 |
| Spatial | 0.77 | 1.36 | 2.06 | 1.33 |
| TOTAL | 2.96 | 5.24 | 7.59 | 5.26 |

The table shows that end-user involvement has a significant impact on service value ($p < .05$). Specifically, high end-user involvement (i.e. co-creation) produces the highest value-in-use for the customer. This conclusion is consistent with the finding of Bendapudi and Leone that high user involvement in service development and delivery resulted in higher overall satisfaction [5].

A comparison of co-created services with that of traditional firm-based innovation revealed greater value could be attained by involving end-users as the primary source of novel ideas [23]. These case study results are consistent with Dr.

Heinonen’s research conclusions and support the concept that service transformation should begin with a focus on co-creation. While a product orientation is centered on the firm’s internal resources as the source of value creating activities, co-created e-Services require that external competence and the means by which a meaningful exchange can take place between end -users and service providers are the focus of value creation. A detailed examination of Dr. Heinonen’s empirical data provides clear evidence that value-in-use increases with a corresponding increase in meaningful exchange between users and service providers [16]. Therefore, in order to maximize this value, Fig. 3 depicts the co-creation quadrant as the focus of transformational activity.

Furthermore, in the development of the seven steps shown in Fig. 4, Dr. Heinonen’s findings were utilized in order to build a co-creation strategy. Here, firms must find an effective mechanism to establish and/or enhance interactivity and dialogue with customers. Dr. Heinonen’s findings provide supporting rationale for the development of Step 3 (build a co-creation strategy) in transforming from a product orientation to co-created e-Services.

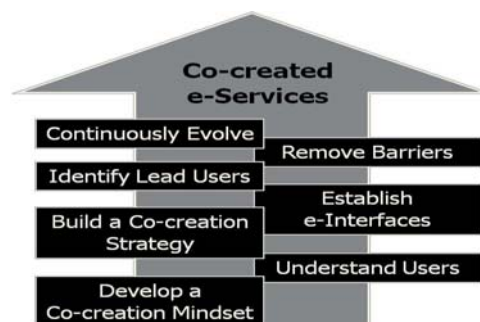


Fig. 4 Seven Steps to Co-created e-Services [27]

III. CONCLUSIONS

Because prior research has shown that service organizations depend upon the continuous innovation of new service offerings, product-oriented firms which desire to undergo a transformation to services should focus on co-creation as the primary source of new service innovations [1,23,26]. Since technology drives new and more advanced services [22], the upper right quadrant of the framework in Fig. 3 represents the union of advanced technologies and co-creation of new service offerings. Prior research has demonstrated that users, particularly lead users, provide superior quality innovations that can offer a significant competitive advantage [38]. It is therefore logical to leverage this advantage by establishing an effective interface which enables a firm to obtain the skills, talents and knowledge of users during the innovation of new service offerings. Baldwin and von Hippel found that by doing so, firms could reduce development costs and increase user acceptance [3]. Therefore, a transformation from a product-based approach to co-created e-Services begins with co-creation by leveraging lead user innovations to establish new services offerings.

Process improvements to increase the utility of services while lowering operating costs enable firms to stay ahead of competitors. Bartley et al. empirically demonstrated that process improvement involving users is a best practice of successful firms [4]. Lusch et al. have also demonstrated that the higher the adaptive competence of a firm the greater is their competitive advantage [24]. It follows that co-created e-Services should be continuously enhanced in order to maintain a competitive advantage. As Boudreau and Lakhani conclude, a firm's strategy must evolve and adapt to an ever-changing competitive environment [7]. Co-creation of services thus provides significant competitive advantages when compared to traditional strategies.

As new technologies enter the environment, firms need to apply them in innovative ways in order to open markets and opportunities. Matthing et al. have shown how new technological advancements have created tremendous opportunities for the development and provision of new service experiences [25]. Additionally, Henk Pretorius demonstrated that the application of web tools can enable co-creation to occur on a broad scale [31]. More recently, Curran and Poland have concluded that broadband communication networks have fostered innovation and improved the delivery of services [9]. The application of established technology can be efficiently utilized to reduce costs. For example, routine activities can be automated to allow company resources to be applied to more value creating activities [16]. Empirical data gathered in the custom computer chip industry demonstrated that firms could reduce costs, increase speed of delivery and improve customer satisfaction by simplifying design tools and making them available to online users [37]. Thus, service automation can improve cost competitiveness, particularly if it is done quickly enough to stay ahead of competitors.

The seven steps shown in Fig. 4 provide a means for successfully applying the framework to transform from a product-based approach to co-created e-Services. The seven steps are an important consideration in building an effective implementation plan. These steps should be used as a guide and modified as necessary to suit a particular business environment.

The development of a co-creation mindset is a critical and necessary first step in the transformation process. It is also necessary to consistently maintain this mindset. Hsu and Spohrer performed case study research to conclude that the co-creation mindset must be the guiding principle and be rigorously applied throughout the life cycle of services [18]. Ramaswamy also conducted case study research and concluded that the co-creation mindset must continuously be reinforced by top management [32]. Management emphasis and reinforcement is essential in ensuring that a co-creation mindset becomes engrained in all aspects of service development and delivery.

The synthesis of numerous co-creation case studies revealed that users involved in a co-creation relationship are primarily intrinsically motivated [7,11,38]. This finding has significant ramifications for firms as they implement co-creation strategies. Several case studies have concluded that firms attempting to motivate users in a similar manner to that of their employees experienced significant shortcomings. Whereas, firms that recognized and accounted for intrinsic motivations such as enjoyment, learning and creative expression, as well as social aspects including status and reputation, achieved positive outcomes [2,7,13]. Accordingly, firms should create interfaces with users that enable intrinsic motivations to be satisfied and enhanced throughout the service co-creation process.

An effective co-creation strategy requires a firm to make fundamental changes to their business models. Users need to be fully engaged and involved in the co-creation of value [23]. Ziemer and Long demonstrated the need to create an environment whereby a "platform of exchange" becomes an effective mechanism for user engagement [40]. The growing demand for individualization of products and services necessitates a continuous involvement of end-users during the entire life cycle. Berger et al. demonstrated how user involvement could be accomplished using the appropriate technical infrastructure to acquire user knowledge [6]. Additionally, firms should evolve this infrastructure in order to sustain co-creation relationships over the long term [1].

Baldwin and von Hippel refer to a major paradigm shift resulting from the advancement in technologies [3]. Exogenous developments in computer processing coupled with advances in communication and web applications have enabled firms to

co-create individualized services on a massive scale. As Bruce Friesen states, the Internet makes it “possible for companies to engage in meaningful and targeted dialogue with their customers [15].” He further states that “dialogue enables co-creation [15].” Lusch et al. conclude that internal collaborative networks have dramatically altered traditional producer/user interfaces [24]. Case study research demonstrated that interface design and integration were the crucial success factors to effectively engage end-users [10,13,29]. Therefore, firms should first focus on the creation of a user interface rather than developing solutions for users. Additionally, a firm’s technology infrastructure has a direct bearing on its ability to integrate emerging technologies [28]. The ability to incorporate new technologies rapidly into a firm’s infrastructure and thereby improve and enhance the firm/customer interface is essential for the successful co-creation of e-Services.

The identification of lead users to co-create new services is also found to be essential in transforming to co-created e-Services. Eric von Hippel used empirical data to demonstrate that users develop the majority of innovations [38]. However, Kaisa Koskela found that firms often ignore user innovations [21]. She also found that lead users offer significant benefits to the innovation process for new services [21]. Therefore, firms should find ways to identify and incorporate lead users into new service development. Lead user developments often become attractive to the general population of users thus offering firms the opportunity for expanded markets and reduced design costs [3,23]. Hence, harnessing lead user innovation provides significant competitive advantage and is vital in achieving a successful co-created e-Service transformation.

The removal of barriers and resistance is also critical to effective transformation. Internal organizational resistance is a significant barrier to successful incorporation of users into firm processes [12,25,37]. Incentives should be developed for company staff to involve and work with users. With proper incentives, employees are motivated to develop an understanding of the context in which the user ideas are relevant. This understanding enables company employees to more effectively leverage user innovations when compared to traditional methods [25,32,37].

Finally, firms must evolve in order to adapt to an ever-changing environment. Lusch et al. have characterized today’s environment as turbulent and complex [24]. To adapt, best practice organizations continuously evolve their strategies and processes in order to improve their user interface and the e-Services that they co-create with their customers [4].

IV. AREAS FOR FURTHER RESEARCH

The framework for co-created e-Services (Fig. 3) and the associated seven steps (Fig. 4) require additional study. Case studies using the framework as the basis of research need to be conducted. These case studies should encompass a wide array of industries and geographical areas to include developing economies. Empirical studies based upon case study results should also be conducted to gain a quantitative measure of the efficacy of research findings. The knowledge gained could lead to possible framework modifications or additional steps to better support organizations as they transform from a product-orientation to co-created e-Services.

A deeper investigation of the customer/firm interface should also be explored. This could include practices, process and technologies that best reflect the type of interaction required for effective co-creation of value. Additionally, methods to improve the functionality of the interface require further study. Software applications designed to enable co-creation are currently in their infancy and provide fertile ground for exploratory case investigations. Studies should also be conducted to determine the specific firm resources that users wish to engage with. Furthermore, a deeper probe into the merger of the three research fields may provide additional possibilities for case and empirical research.

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