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# e-Service Innovation within Open Innovation Networks

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***Abstract*—**Service innovations are central concerns in fast changing environment. Due to the fitness in customer demands and advances in information technologies (IT) in service management, an expanded conceptualization of e-service innovation is required. Specially, innovation practices have become increasingly more challenging, driving managers to employ a different open innovation model to maintain competitive advantages. At the same time, firms need to interact with external and internal customers in innovative environments, like the open innovation networks, to co-create values. Based on these issues, an important conceptual framework of e-service innovation is developed. This paper aims to examine the contributing factors on e-service innovation and firm performance, including financial and non-financial aspects. The study concludes by showing how e-service innovation will play a significant role in growing the overall values of the firm. The discussion and conclusion will lead to a stronger understanding of e-service innovation and co-creating values with customers within open innovation networks.

***Keywords*—**e-Service innovation, performance, open innovation networks, co-create value.

## I. Introduction

OWING to e-commerce generality, companies are increasingly turning to the Internet to deliver products and services to their customers. How to provide better services to customers and more business opportunities to companies by internet applications and wireless communications applications are some of the most important issues that cannot be ignored by contemporary firms. Therefore, it is important to understand the role of service innovation in new business model. However, there does seem to be general agreement about how companies can continue to provide innovative services to satisfy customer demands and enhance service values are more specific objectives and directions for e-service research. Admittedly, with the rapid changes of customer preference and demand, the importance of e-service innovation cannot be overlooked. Unfortunately, very little attention has been directed at exploring the e-service innovation.

From non-electronic perspective, a few recent service innovation studies have focused broadly on new service development (NSD) processes, such as customer involvement (e.g., [13], [29], [32], [33]); customer orientation of the importance of idea generation, screening, and development (e.g., [2]); project learning [5], [6] and communication [27] are critical to service development. Besides, others have emphasized on the typologies of service innovation (e.g., [17], [35]). Thus, we propose e-service innovation by combining both theoretical considerations of service innovation and e-service concepts and their characteristics. The reason behind this is, that we strongly believe that a proper e-service innovation calls for e-service offerings and by the aid of innovation practices the solid ground for e-service innovation can be established. Therefore, the main motivation of this study is to develop an e-service innovation theoretical model and confirms or denies the existence of business models.

In addition, as we gain deeper understanding of the importance of the e-service innovation, we see an increasing opening of innovation processes that are getting increasingly networked. At present, the studies focusing on e-service innovation within the open innovation networks are scarce. Relevant open innovation networks research such as openness to innovation (e.g., [4]); innovation networks (e.g., [38]); networked innovation (e.g., [41], [20]); and open innovation through boundary of the organization (e.g., [8], [9], [25]), of those studies that have examined the concepts of open innovation and innovation networks, none have considered the impacts of organizational interaction with customers (e.g., external/internal customer) within open innovation networks, especially for the issue of co-creating value. Thus, another research motivation in this area is how companies co-create value with customers within open innovation networks.

Therefore, we present an organization-wide view of e-service innovation within open innovation networks and uncover the antecedents of e-service innovation (e.g., technology, individual, and organization) and its great impact on the financial and non-financial performance of the firm in the open innovation networks. The issues of co-creating value with external and internal customers are introduced in this study. Below, we present the concept framework in Figure 1.

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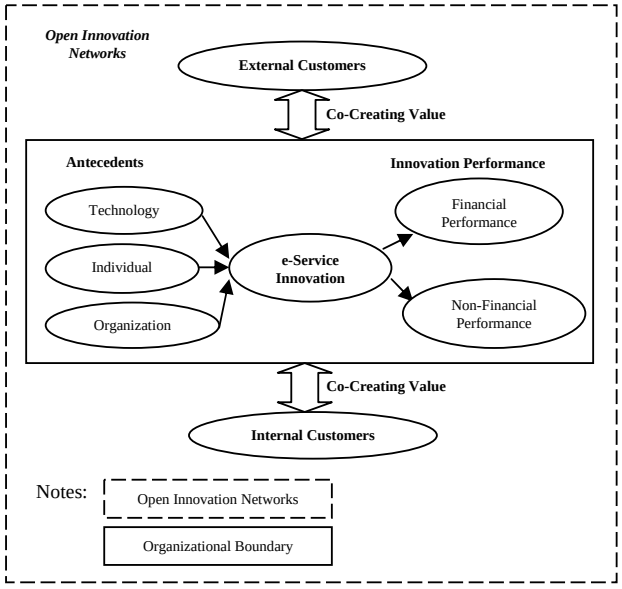


Fig. 1 Conceptual framework.

## II. Theoretical Foundation

Globalization brings new markets, nontraditional competitors and new sources of uncertainty which causes many companies to decide to attain superior performance through innovative strategies. This violent environment affects emerging and incumbent companies in manufacturing and services. Companies possess new strategic positioning do not always produce successful products and services. As a result, they have to serve (new) customers with new products or services through innovative strategies.

A strategic innovation is more entrepreneurial and involves a fundamental or radical reconceptualization of the business [31]. Strategic innovation often leads to dramatically different ways of competing and creating wealth and can encompass product, process, and administrative innovations [45]. In addition, Govindarajan and Trimble [18] stated that a strategic innovation is a creative and significant departure from historical practice in at least one of three areas: 1. value-chain design; 2. conceptualization of delivered customer value; and 3. identification of potential customers. Further, all companies have to think three basic issues at the strategic level: 1. ***Who*** is our customer? 2. ***What*** product s or services should we offer the chosen customer? 3. ***How*** should we offer these products or services cost efficiently? In other words, any company in an industry can strategically identify (1) new, emerging customer segments or existing customer segments that other competitors have neglected; (2) new, emerging customer needs or existing customer needs not served well by other competitors; (3) new ways of producing, delivering, or distributing existing or new products or services to existing or new customer segments [30]. Then, we can say that strategic innovation will occur.

Furthermore, Markides [30] proposed the five ways to kick-start to strategic innovation: redefine the business, redefine the *who*, redefine the *what*, redefine the *how*, and start the thinking process at different points. Further, as for the relationship between strategic innovation and service innovation. Due to strategic innovation emphasizes the firm's strategy as the important determinant of innovation practices. Therefore, given the results of Sundbo's [39] research, he indicated that innovation in service firms is a strategically determined process and concluded that of the several paradigms within traditional innovation theory, the strategic innovation theory is the most adequate one in explaining service innovations. However, the empirical researches about using strategic innovation to explain e-service innovation are still relatively rare. Consequently, based on Sundbo's results, this research tries to build a clear structure of e-service innovation and refers to the concept of applying strategic innovation theory to support e-service innovation research, helping people in the academic and industrial circles to get a better idea about it.

## III. Literature Review

### *A. e-Service Innovation*

Owing to EC generality, companies are increasingly turning to the Internet to deliver products and services to their customers. Nevertheless, how to provide better services to customers and more business opportunities to companies by internet applications and wireless communications applications are some of the most important issues that cannot be ignored by contemporary firms. By using the typologies of service innovation (e.g., [3], [7], [16], [17], [35], [37]) as basis for classification, we propose that e-service innovation as a multidimensional construct consisting of two main distinct and separable dimensions, namely, e-service product innovation and e-service process innovation.

### *B. Open Innovation Networks*

The differences between "closed" and "open" innovation in brief, Helfat [21] presented that closed innovation is that which springs entirely from internal company innovation activity, largely in the form of organized research and development. In other words, companies have successful innovations must on their own [9]. Open innovation, however, springs from sources external to the company, in combination with supplementary internal company innovation activity. Chesbrough [9] stated that internal resources can be taken to market via external channels and to create additional value. Therefore, open innovation can be viewed as using both internal and external ideas at all stages of new business development [25]. There are six principles for open innovation, namely (1) Not all of the smart people work for us so we must find and tap into the knowledge and expertise of bright individuals outside our company; (2) External R&D can create significant value; internal R&D is needed to claim some portion of that value; (3) We don't have to originate the research in order to profit from it; (4) Building a better business model is better than getting to market first; (5) If we make the best use of internal and external ideas, we will win; (6) We should profit from others' use of our

intelligence property, and we should buy others' intelligence property whenever it advances our own business model [8]. Consequently, for an organization to perform innovatively and creativity in competitive environment, transferring "closed" to "open" innovation model are required.

Rothwell [36] argued that innovation relies strongly on interaction and the ability to interact. For that reason, to understand the innovation diffusion process, networks have become more central [44]. These concepts, thus, facilitate the emergence of innovation networks. Van and Weggeman [42] defined an innovation network as an organizational network engaged in product or process innovation or both. It was also viewed as loosely coupled systems [15] that consist of links to customers that transfer information about customer needs and their willingness to pay for different combinations of product attributes, and links to sources of information about technical opportunities including suppliers of different technical solutions [24].

Due to demanding customers/users (downstream) and advanced suppliers (upstream) are essential sources of new inputs [37] (e.g., ideas, concepts, materials etc) for service innovation practices. Hence, a strategic element of all service innovations is the matching of external and internal customer needs, given the customers' willingness to pay for different combinations of products/services characteristics, and existing technical opportunities. This need for matching brings into focus on the innovation networks of the firms conducting e-service innovation. In addition, a network is a pattern of relationships between firms [40], it allows participating firms in an innovation network to make significant investments to maintain relationships with external and internal customers, which in turn makes them reinforce and stabilize the relationships over time [28].

### *C. Co-Creating Value with Customers*

Due to market changes radically, companies can no longer hope to create products/services (value) as they have done. Also, the value is no longer embedded in products and services per se. This leads to the result that customers interact with a network of firms and consumer communities to co-create value. Increasingly, the focus of innovation will shift from products and services to experience environments that individuals can interact with to co-construct their own experiences. These personalized co-creation experiences are the source of unique value for consumers and companies alike [34]. For instance, a good case of Apple's move makes why managers must extend their strategies well beyond making the product quality case to enriching the channels and environments in which consumers create their own value. Because consumers control how, when, and where products are used, they co-create the value proposition with the product or service's creator/provider. As a consequence, the challenge for managers in strategic thinking is to find innovative ways of co-creating value with customers [1]. Recently, it's in good company, such as Amazon.com, America Online, Cisco Systems, Dell, eBay, Yahoo! and other electronic commerce innovators are partnering with their customers to co-create value [23]. Therefore, from these successful cases, they demonstrate that managers need to develop a view of the new strategic (e.g., functional, organizational, infrastructure, and governance capabilities) that will be required for competing on experiences and co-creating unique value with customers.

### *D.Antecedents of e-Service Innovation*

While it is generally agreed that innovation facilitates firm performance, relatively little is know regarding the drivers of innovation. In consideration of this, Damanpour [12] and Wolfe [43] distinguished antecedents of innovation into three categories, namely organizational members, the organization itself, and extra-organizational (environment) factors. Afterwards, Hadjimanolis [19] based on Damanpour's [12] and Wolfe's [43] research and illustrated the "antecedents" model of innovation. The model recognizes that characteristics of organizational members, characteristics of firm, and environmental factors (economic, social, cultural etc.) as three important enablers for innovativeness. Further, in recent innovation research, Hult et al. [22] based on a review of relevant literature and theoretical conceptualizations, they argued that key antecedents to innovativeness are the constructs of market orientation (e.g., organizational culture), learning orientation (e.g., organization's "commitment to learning"), and entrepreneurial orientation (e.g., strategies and actions). Therefore, above literature discussions have primarily described and explained key dimension in the "organization" and "individual" associated with the antecedents of innovation.

Recently, innovation is dependent on the combination of the information technology (IT), a number of information system (IS) researchers have posited IT as an important ingredient of innovation development (e.g., [11], [14], [45]). These literatures also have primarily described and explained key dimension in the "technology" associated with the antecedents of innovation. In addition, from the innovation capability view, Lawson and Samson's [26] innovation capability model, their model further assumes that the organization is focused on "organization", "individual", and "technology" as main dimensions for influencing innovation. They identified vision and strategy, harnessing the competence base, organizational intelligence, creativity and idea management, organizational structure & systems, culture and climate, and management of technology as seven key enablers promoting the innovation capability. For these reason, this research focus the antecedents of e-service innovation on "*organization*", "*individual*", and "*technology*".

### *E. e-Service Innovation Performance*

Overall e-service innovation performance was measured drawn heavily from Avlonitis et al. [3]. In Avlonitis et al. research, they conducted a principle components analysis in the performance scale [10] revealed the existence of two different performance dimensions, namely *financial* (e.g., the service was profitable, total sales of the service were high, the service had a large market share etc.) and *non-financial* (e.g., the

service had a positive impact on the company's perceived image, the service improved the loyalty of the company's existing customers, the introduction of the service enhanced the profitability of other company products etc.) performance. Therefore, this research adopts these two types of performance to measure e-service innovation performance.

## IV. Discussion

Implementing e-service innovation will enhance a firm's financial and non-financial performance. We argue that a firm's superior firm performance needs to be focused on e-service innovation and co-creating value with customer within open innovation networks. Nevertheless, there is still much to learn about the scope (typology) of e-service innovation and interact with customers in open innovation environments. This study compasses key questions that must be answered in order to ensure successful implement e-service innovation and interact with customer. Significant research is needed in four areas: 1. the typology of e-service innovation, 2. the effects of the e-service innovation on firm's performance, 3. the specific factors influence e-service innovation, 4. the interaction with customer in open innovation networks.

## V. Conclusions

The goal of this study is to develop a theoretical perspective for understanding the links among antecedents of e-service innovation, e-service innovation, innovation performance, and co-creating value with customers within open innovation networks. We provide three significant managerial implications. First, we provide an organization-wide perspective about e-service innovation that is valid for the enterprise and business unit. Second, our research highlights an integrated perspective to link antecedents of e-service innovation, e-service innovation, customer, innovation performance, and open innovation networks. Besides, we propose that e-service innovation is important because they visualize how firms continually develop their capabilities and focus on their firms' resources to shape their e-service innovation. Furthermore, e-service innovation captures the interactions among technology, individual, and organization in shaping superior firm performance. Attention to these dimensions of e-service innovation in our model will be important for researchers and managers. Finally, our conceptualizations illustrate the complementarity between organization and customer in open innovation networks. Our research model suggests that gaining co-creating value will require attention to interact with customer (external and internal) within open innovation environment. In addition, researchers should examine the nature of organization designs, governance structures, and managerial skills that will foster such e-service innovation and co-creating value with customer described in our model.

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