THEMATIC ANALYSIS OF SERVICE INNOVATION TAXONOMY WITHIN SUPPLY NETWORK, CREATING VALUE FOR THE SYSTEM

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ABSTRACT

Even though innovation is considered as a driver of economic growth, research about innovation within services sector is lagging. Most innovation related research is related to products or goods, therefore some service innovation taxonomy swap findings from innovation in the goods domain to the services domain. This categorization keep the intangible nature of the service as a ‘particular class of goods’ rather than a process.

In the new millennium, the main issue is on how innovation takes place within service firms. A large number of publications suggest, services are less marginal, topic of research for economists and researchers. However, a driving question that emerged earlier and still remains relevant today “is not just whether services are innovative, but also whether certain services are critical for innovation in manufacturing and other industries” (Miles, 2000, p.381). This question takes the discussion beyond an approach characterized by exploring innovation within service firms, and helps examine a service as a process that affects value propositions.

Keywords: Innovation, Service Innovation, Supply Chain, Value, SCM

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1. INTRODUCTION

Supply Chain Management (SCM) is the management of the flow of goods and services, involving the movement, under process inventory and finished product or service from point of origin to point of consumption. Interconnected networks, channels combine the products and services required by end customers in a supply chain. Even though innovation is considered as a driver of economic growth, research about innovation within services needs more attention.

Service innovation regardless of a customer centric standpoint, the role of innovation rests on the firm’s management. Major approaches to innovation in services are technology assimilation, service oriented differentiation and integrated synthesize, revealing the trend of convergence between goods and services. This integrative approach is aligned with the idea that everything is service (Glushko and Tabas, 2008), a convergence that denotes passing from service economies to economies based on service relationships (p.162) - the statement stresses the importance of interactions and the combination or re-combination of resources among actors within a supply network in order to co-create value for the system (Vargo et al., 2008).

Another perspective is that in the services sector, innovation is multidimensional and may cover products with service concepts, processes and service systems in the organization.

2. LITERATURE REVIEW

Review of literature on service innovation topic suggests majorly two separate approaches-European and American. European researchers view innovation from a macro perspective by stressing economic impacts, policy making and an understanding of the nature of innovations. To add clarity to the discussion below, this path is referred to as the European approach.

American approach on the other hand, attributes fewer articulated structures about works in marketing, management and operations; researchers, mainly from the US, bring clarity to the discussion ahead. This perspective is referred as the American approach.

Beyond this “artificial” distinction based on location, the literature on service innovation has grown steadily over the past few decades. Figure - 1 shows the trend in number of papers related to service innovation found.

![Figure 1 Service Innovation Articles per year in Journal (Author’s development)](http://www.iaeme.com/IJMET/index.asp)

The above Figure shows how research on Service Innovation is still evolving. four hundred and thirty two articles were identified, when searching for the words “service” and “innovation” in title, abstract or key words of publications in sources relating to business, management and accounting. Of these, 113 were directly related to service industries and 128 featured the two words in the article’s title. Averages are used in Figure 1 to show an upward trend in number of publications on SI issues. In all research papers from year 2000, 66.3% are
directly related to service firms, and 71.8% have the words service and innovation in their titles. These figures show that during the last decade, the topic has caught the attention of researchers of different disciplines. A large amount of articles appearing in the database were in some way related to innovations based on progresses in technology.

Kindström et al. (2012) state that “service innovation is a broad concept that encompasses a considerable number of discrete dimensions”. One dimension is related to processes (Kindström and Kowalkowski, 2009), a concept aligned with service as understood in this research. The approach for this research is not one-dimensional, as it also includes several dimensions and actors within a supply chain network.

3. EUROPEAN PERSPECTIVE

European frame of reference addressing service innovation is Barras (1986), who focuses on information technology and how it plays a prominent role in service industries innovation. These innovation processes are linked with what was called the Fifth Kondratiev or new services, based on the information technology revolution (p.169). In that logic, Barras showed a direct connection to previous works on economic cycles or waves, and their implications in both innovation and technological revolutions (Schumpeter, 1939, Dosi, 1982, van Duijn, 1983); nonetheless, there is scope for the better understanding of how non-technology service innovations occur in service firms and other industries. In reviewing Barras’ theoretical proposal, Gallouj (1997) notes: “it is less a theory of innovation in services than a theory of the diffusion to services of technological innovations originating in industry” (p.418) - a statement that supports both the richness of Barras’ work and its limitations.

European efforts to understand how service innovations take place have led to identifying at least three sub-approaches: first, a traditional perspective, governed by the idea that innovation is dominated by suppliers and characterized by the use of technology (Miozzo and Soete, 2001, Miozzo and Ramirez, 2003, Miozzo and Grimshaw, 2005); second, the so-called ‘Lille school’, which holds the nature of services innovation differs from that in manufacturing (Sundbo, 1997, Djellal and Gallouj, 2001, Gallouj, 2002); and third, a perspective according to which sources different from technology are explored and sectors are compared in an attempt to explain diversity in the field (Tether, 2003). Nevertheless, the three sub-approaches are not divergent and in some respects are interlinked. The following paragraphs review some of the works, without separating sub-approaches.

Miles (2000) notes that despite the growth of services in the global economy, economics treats services as a marginal issue; but it would appear this perception has changed over the last decade. A recent working paper has shown that economics is one of the disciplines contributing most to the emerging service innovation field (Siddike et al., 2013); and additional evidence of this change is slowly but surely offered by Gallouj and Djellal (2010a). At the end of the 20th century the main issue at hand centered on how innovation takes place within service firms; since then, a growing number of publications suggest services are now less marginal—not just for economists but for researchers in general—and additional questions are being explored. However, a driving question that emerged years ago and still remains relevant “is not just whether services are innovative, but also whether (certain) services are critical for innovation in manufacturing and other industries” (Miles, 2000, p.381). This question takes the discussion beyond an approach characterized by exploring innovation within service firms, and helps examine a service as a process that affects value propositions.

Miles (2000, 2005, 2008) also points to “the role the knowledge-intensive business services (KIBS) play in facilitating innovation” (2000, p.381); he recognizes greater understanding is required of interactions between a service supplier and a client. However,
Miles focuses chiefly on the dyad rather than on multidirectional relationships within business networks or supply networks. Along the same lines, den Hertog (2000) highlights how knowledge-intensive business services defined as indicated in the footnote by (Miles et al., 1995) are co-producers of innovation. He states that service innovation is a process useful also for manufacturing firms to differentiate products, and that interactions among members of a business network “can shape innovations” (p.505); just as services provided by a firm may influence customers’ innovation processes, client feedback may as well influence firms’ service propositions. Den Hertog noted that many knowledge flows - both tangible and intangible are present between a service provider and client firms, mentioning as many as twenty-five without seeking to provide a thorough list. Most flows identified are complex in nature and include several interactions, processes and moments through which knowledge flows.

Other studies (Hipp and Grupp, 2005, Karmarkar, 2010, Sampson, 2010) focus on identifying differences between innovation in services and manufacturing, or differences among service firms, in order to better understand service innovation. The European Innobarometer Survey concluded that there is no uniqueness to innovation in services as compared to that in manufacturing, albeit recognizing some modes of innovation may be more commonly found in one or the other (Tether, 2005). As to differences between service firms, there are variations in behaviors expressed in sources of innovation, level of engagement in R&D activities, cooperation towards innovation, and objectives pursued by the innovation (Tether, 2003); the significance of differences found varies, but are not the object of analysis for this research. *(The Innobarometer is a survey on activities and attitudes related to innovation. Each year, it gathers opinions and feedback from the general public and European businesses and provides a unique source of direct information on innovation for policy makers.)*

Lancaster (1966) proposed a new set of assumptions, including “the good, per se, does not give utility to the consumer” (p.134); what provides utility are the service characteristics embodied in both goods and services. This early work by Lancaster is aligned with some of the arguments presented in the Service Dominant logic debate (Lusch and Vargo, 2008). A main premise of Service Dominant logic defenders is that value co-creation involves competencies emerging from the interaction of both providers and customers.

Each type of innovation implies certain changes in one or more vectors. Self-service, which entails direct customer participation in producing the service, is explicitly mentioned. In every case studied, Gallouj and Weinstein (1997) focused on the characteristics of the innovation rather than on the processes taking place to reach a ‘new’ stable stage. Almost a decade later, de Vries (2006) suggested that interactions could also take place between the customer’s and the providers’ technologies, and that the customer’s competencies could interact with its own technology. The new vector supports the idea of spreading the interactions or combinations of competencies and technology across a network of organizations rather than on dyadic interactions. The models proposed by both Gallouj and Weinstein (1997) and de Vries (2006) explicitly consider that clients are co-producers of services. However, they remain, in a sense, locked in the Goods Dominant logic, considering tangible and intangible goods that are the object of the innovation rather than the processes.

In Figure 2, the authors adapt the model developed by Windrum et al. (2008), making it possible to trace the vector concepts introduced by Saviotti et al. (1984), Gallouj and Weinstein (1997), and de Vries (2006), in order to show service interactions and innovations leveraging provider and user competencies.
The Windrum and García-Goñi (2008) proposal makes it clearer that the service characteristics are an outcome of the interaction and co-creation of both provider and user. Second, it features policy makers as actors who influence both the service characteristics and the interactions between provider and user. The neo-Schumpeterian approach allows for considering different kinds of innovation, from product to process, from organization to market as well as innovations on the input side. Another element shown is that innovations seem to advance by stages, starting with improvements that lead to higher efficiencies, continuing with changes in the organization and ending with new products.

In relation to the user, Windrum and García-Goñi (2008, p.664) state: “An important simplifying assumption that we make here is that all staff within the hospital share a common preference set. In practice, there may be more than one distinct preference set.” Therefore, the authors openly suggested the need to include multiple actors on the user front, which could lead to a network structure.

The author agrees with the statement “a technological innovation is the medium through which multiple agents communicate their preferences and competencies” (p.655); but in practice, the interaction between suppliers’ technologies and customers’ technologies may go beyond communications. SCM literature presents several examples showing different interactions between technologies (Angeles and Nath, 2001, Schoenherr, 2008, Karimi et al., 2009).

The aforementioned researchers recognize the innovation process features a higher degree of complexity, organizational and process innovations are interlinked within services, and their approach may not necessarily fit all services (Windrum and García-Goñi, 2008, p.664). Also there are several studies on service innovation that follow a manufacturing perspective, meaning Goods Dominant logics. Nonetheless, the studies also note that the interacting technology and that a supply network is involved, mainly on the providers side (de Vries, 2006). Aligned with this statement, de Jong and den Hertog (2010) identify three phases of
innovation within service industries triggered by information technologies: back office improvements, economies of scope, and open networks. They stress the importance of networks in creating and capturing value, particularly in terms of the interdependencies among actors and power shifted to customers.

Almost by way of synthesis, Gallouj and Savona (2009), in a review of innovation in service, note that conceptualization in the field has been dominated and “nurtured by skeptical neo-industrial scholars” (p.151), who argue in terms of productivity measurements developed in Goods Dominant logics rather than in terms of value creation. Despite critiques, gaps identified and research opportunities spotted, by 2009 this work also became aligned with the Service Dominant logic. First, they define the service as a process (Gallouj and Savona, 2009) as others have stated (Grönroos, 2000, Edvardsson et al., 2005), and as people close to the S-D logic have also argued (Vargo et al., 2008, Lusch et al., 2010). Second, Gallouj et al. also consider “the act of consuming as the act of satisfying a need” (Gallouj and Savona, 2009, p.163) which agrees with the ideas presented by Lusch and Vargo (2008) to the effect that value realization emerges from interactions with customers’ competencies.

According to Gallouj and Savona (2009), the literature offers three main approaches to innovation in services: technologist or assimilation, service-oriented or differentiation, and integrative or synthesizing. Among these approaches, the latter reflects the trend towards convergence between goods and services, leading in turn to a new definition of product; this integrative approach is aligned with the idea that everything is service (Glushko and Tabas, 2008), a convergence that denotes passing from service economies to economies based on service relationships (p.162). This statement stresses the importance of interactions and the combination or re-combination of resources among actors within a supply network in order to co-create value for the system (Vargo et al., 2008).

In addition, it has been argued and proven that when a Schumpeterian perspective is used to review studies based on surveys of services, the integrative approach is more robust, whereas the conceptualization of the service oriented perspective needs to be strengthened (Drejer, 2004). Another point to highlight from the work of Gallouj and Savona (2009), fundamental for this thesis, is the recognition that innovation is a process and not just the result of a process; and from de Vries (2006, de Vries and Huijsman, 2011) that the conceptualization proposed includes both the possibility of a network-shaped structure and the presence of public entities among the actors involved.

Among other studies, one proposed a customer-employee interaction for a service-innovation model (Liu and Chen, 2007), in which customers provide information and employees then create value for both. Another perspective (van der Have et al., 2008) is that in the services field, innovation is multidimensional and may cover products (service concepts), processes, and the organisation(s) (service systems). Under this perspective van der Have et al. (2008), introduced the term “renewal” to describe three dimensions of innovation: target, nature, and radicalness. However, these authors analyse innovation as an outcome of the innovation process while in this thesis the focus is on the process, rather than the outcome.

4. AMERICAN PERSPECTIVE

Literature review of American researchers suggests a slightly diverse perspective from the European researcher and it became visible that service innovation becomes almost part of the service marketing subfield. Several scholars illustrate that they may be embracing the service dominant logic debate in the Services Science field (Bitner and Brown, 2006, Michel et al., 2008).

The article by Smith (2008) provides a framework for the literature review with focus on technological innovation, and evolving process of the innovation concept from theoretical
models and principles sustained by R&D structures within universities and industries. He 
acknowledges that the formal study of innovation is just fifty years old. In the past the 
approach was towards standardization to improve efficiencies. Smith also recognized 
Schumpeter’s creative destruction, which he described as “the march of invention, innovation, 
and change across the face of society and business” (p.60).

Scholars consider innovation experience and knowledge developed in manufacturing 
based on the Good Dominant logic, but the American scholars has often been closer to 
management disciplines such as marketing and operations. A common topic, previously 
linked with firms seeking to recover competitive advantage is quality. A series of works 
pointed to the service quality construct as an innovation output that can be measured (Zsidisin 

Table 1 presents a summary of innovativeness classifications, beginning with one focused 
on goods innovation developed in 1982 by Booz, Allen and Hamilton.

Table 1 Types of Service Innovation (Adapted, complemented and updated by the author, based on 
Alam, 2006b)

Scholars who had embraced the Service Dominant logic took note of both research 
strengths and weaknesses. For example, Möller, Rajala and Westerlund (2008) show how an 
Service Innovation over emphasize on the service production process from the perspective of 
a single actor has led to competing from a network perspective creating value for the members 
involved in the complex system services. As prominent from literatures, the predominant 
view is intra organizational. Some argue that, in discussing value creation, the Resource 
Based View (RBV) provides a valid theoretical framework; but RBV is firm-centric and 
requires to be expanded in order to include how resources could be transformed into customer 
offerings (Möller et al., 2008, p.32).

Bitner et al. emphasize that service blueprints with customer focus and the customer 
experience is taken into account in the design stage. Supply Chain Practitioners also reflect on 
service blueprinting technique that allows presenting in a graphic way - the activities, 
relationships and interdependencies of a service process with emphasizing the human-to- 
human and human-to-technology interfaces.

Many European researchers consider the similarities and differences between service 
innovation and product innovation. One study by several researchers points to three 
differences: the role that people, especially providers, play through being part of the customer 
experience; the required physical presence of the customer; and the absence of a tangible 
product to carry a brand (Berry et al., 2006). Based on these differences a two-by-two matrix
is proposed to classify service innovations according to the markets each serves (Berry et al., 2006, p.59).

Service examples from widely known firms illustrate the type of service represented by each unit. The classifications constructs four units and the scholars give a number of examples:

1. Flexible Solution - when the use is separate from production and the benefit (Courier services like FedEx)
2. Controllable convenience - when the type of service is benefit to the buyer in delivery (Internet search engines like Google)
3. Comfortable gains - when the benefit is core and the service inseparable (Online ticketing services like Book My Show)
4. Respectful access - when the benefit is in delivery and the service inseparable (Airlines).

5. RESEARCH ON SERVICE INNOVATION IN THIS PAPER

Although most works undertaken in both Europe and America still focus on the firm very few mention is made about research in service innovation where analysis is at network level. An research approach is necessitated that shows willingness to engage customers, suppliers, partners, implementers and competitors in the flow of information i.e. ideas, projects, etc. Henry W. Chesbrough (2003, 2004) wrote two provocative articles recommending manufacturing companies to “open” their internal R&D capabilities and engage in a dialogue, in a model of open innovation that allows ideas and projects to flow from firm to market and from surroundings to firm at different stages of the development process. Chesbrough proposed a service value web, as shown in Figure 3, through which he challenged the idea of adding value through sequential steps in the value chain, proposing a more interactive model where tacit knowledge is shared, together with other resources. However, his argument still falls short in terms of interactions at network level and how these influence the service innovation process.

Service innovations attribute two distinctiveness. First, despite a customer centric perspective, the entire role of innovation stands on the firm’s shoulders; and second, classifications leave unanswered the question regarding what a service innovation is. Nonetheless, classifications clarify the field in which this research could take place. As mentioned earlier, most innovation related researches are related to goods or products. Therefore, some service innovation classifications swap findings from innovation in the goods domain to the services domain. The limitation is that classifications keep the intangible nature of the service as a “unique class of products” rather than as a process.

Figure 3 A typical service value web (Adapted and modified by the author based on Chesbrough, 2011)
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6. CONCLUSION

Service innovation was delivering benefits to the customer and supplier and the supplier’s suppliers perceived as creating value in the system. The innovation in the supply network is seen of having two dimensions, the value co-creation process and the transformations in the members’ roles and their relationships within the network. This observation also implies that the innovation was developed not just by the supplier but by several network members.

The findings are the theoretical concepts in three sets: those related to
1. Network structure,
2. Service innovation,
3. Interactions.

With service innovation at the heart of this research, the findings are grouped in two sets. First, those are associated to value creation - the key concept in the service dominant logic debate and second, those associated to changes in roles and relationships which are used to explore, identify and communicate the dynamics within the supply network.

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