



Service innovation: Inward and outward related activities and cooperation mode[☆]



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ABSTRACT

Knowledge of how customers co-create value, the way that suppliers and providers co-produce services, and how research and development centers and universities transfer technologies is becoming increasingly important to scholars' understanding of service innovation. This paper presents an analysis of the relationship between inward and outward innovation activities in service organizations and their modes of innovation, using network innovation premises and an extended innovation model. Empirical data from retail, health and education sector service organizations show the existence of a relationship between the degree of development of the inward innovation process and the degree of development of outward innovation activities. The majority of service organizations have innovation processes with an orientation toward customers and suppliers rather than other service network members, and leading service organizations follow a path that the literature defines as oriented toward the service value network. Findings lead to implications of how innovation managers could develop their internal innovation capacity to balance inward and outward activities properly.

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1. Introduction

As services become more important for society and customers demand more complex and personalized solutions, researchers are dedicating more time to understanding their innovation processes. Service innovation and new service development processes are priorities for academic research (Karniouchina, Victorino, & Verma, 2005), innovation on the basis of network activity is an emerging theme (Tidd & Bessant, 2009), and service theory as a discipline is evolving from good-dominant logic to service-dominant logic, where customers co-create value through service (Vargo & Lusch, 2004). Since the service economy is growing and customers demand better value proposals and improved service, the innovation process is becoming essential to providing a timely response to the market with new or improved service solutions. Globalization and new information and communication technologies are pushing innovation processes to become more open, flexible, integrated, complex, multi-actor and network-oriented, in line with the pioneering perspective of fifth-generation innovation models (Rothwell, 1992).

Understanding how particular service characteristics (co-production and customer co-creation of value) define the innovation process, and how cooperating innovation activities involve co-producers, customers,

suppliers and co-developers (universities and research centers) together with the service provider, could enhance the development of new or improved services (Karniouchina et al., 2005). The European Community Innovation Survey 2010 (Eurostat, 2011) reveals that 32.7% of organizations with 50 to 249 employees and innovation activities develop some type of cooperation for product and process innovation. Suppliers and customers are the agents that engage most heavily in cooperative innovation projects, followed by universities, consultants and research and development (R&D) centers. As innovation becomes more reliant on network activity, connect and develop models emerge as an improved and successful form of innovation processes (Huston & Sakkab, 2006; Lafley & Charan, 2008).

The objective of this paper is to analyze the relationship between inward and outward innovation service activities, and identify their cooperative mode of innovation. In times of open innovation, findings help shed light on the degree of balance between internal and external innovation activities, and capacities that service network members require.

Section two describes the theory and relevant literature regarding service, network, collaboration, and innovation models. Section three presents the framework to analyze inward and outward service innovation activities. Section four describes the empirical study. Section five presents the findings and section six offers the conclusions, along with limitations and managerial implications.

2. Theoretical review

Gadrey (1992, p. 19) defines service as, "the set of processing operations carried out by a service provider (B) on behalf of a client

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(A), in a medium (C) held by A, with the purpose to bring about a change of state in the medium C." With service-dominant logic, service is the fundamental basis of exchange. Service is the process of using one's competencies (knowledge and skills) for the benefit of another party, while goods act as distribution mechanisms for the provision of services. Furthermore, the customer is always a co-creator of value (Vargo, 2009; Vargo & Lusch, 2004).

A service system is a complex configuration of resources that interact in a non-linear way; a dynamic disposition of resources (people, technology, organizations and shared information) that creates and delivers value between service provider and customer (IfM & IBM, 2008). The development and use of information and communication technologies enables service organizations to expand the role that customers and suppliers play in the service system. In the unified theory of services (Froehle & Sampson, 2006), the concept of the bidirectional service supply chain considers an expanded role for customers, namely as suppliers of inputs more than labor co-producers. Bidirectional refers to the ways in which information, goods and people flow within the service process.

A network is a set of actors or nodes, and a set of ties of a specified type that link them. The ties interconnect through shared end points to form paths that indirectly link nodes that are missing direct ties between one another (Borgatti & Halgin, 2011). The degree of hierarchy, structure, content, functions, institutional form and styles of learning are network characteristics (Powell, 1990). Instead of a linear chain, services involve a complex network of customers, suppliers, universities and R&D centers, where the service provider plays a prominent role to satisfy customers' value demands. Organizations that develop a network of heterogeneous collaborative actors in line with their innovation strategies perform better in terms of turnover from new or improved products (Faems, van Looy, & Debackere, 2005).

2.1. Innovation models

Innovation is a multi-player game. As a process, innovation increasingly links organizations making use of wider networks (Tidd & Bessant, 2009). Linking services organizations through cooperative innovation activities means active participation in joint R&D, strategic alliances and other less formal collaborative organization arrangements, to develop innovation projects with other organizations. Cooperative innovation through a service network means people talking, sharing, building, and launching ideas that then crystallize into new or renewed services (Tether, 2002).

Innovation models have evolved in the past five decades. The first two generations represent innovation as linear, with a project orientation, on the basis of demand pull or technology push strategies. The third generation recognizes the value of interaction and feedback between different stages of the innovation process. More recently, fourth generations of innovation models show how organizations connect upstream with key suppliers and downstream with customers that are keen to gain an understanding of how knowledge, ideas and teamwork transform into success. Examples are the process-based model of innovation (Chiesa, Coughlan, & Voss, 1996), the pentathlon model (Goffin & Pfeiffer, 1999; Oke & Goffin, 2001), the TEMAGUIDE model (COTEC, 1999), the process of innovation management (Tidd & Bessant, 2009), and studies on how innovation processes take place in service organizations (COTEC, 2004; den Hertog, 2000; den Hertog, Van der Aa, & de Jong, 2010; Oke, 2007).

Tether and Tajar (2008) propose an innovation model using three dimensions: type of innovation (product or process), type of technology change (hard or social) and locus of innovation (internal or inter-organizational). The European Community Innovation Survey IV (Eurostat, 2004) identifies three modes of innovation: (i) product-oriented, more prevalent in high-tech manufacturing organizations; (ii) technological process-oriented, typical of low-tech manufacturing firms; and (iii) organizational cooperation-oriented, which prevails in service organizations where organizational innovation is the main

innovation and cooperation with suppliers or customers is the main source of technology. In this context, the survey also reveals that the qualification and professionalism of the workforce is the main driver of innovation.

Fifth-generation innovation models comprise open-innovation models (Chesbrough, 2003) and the connect and develop model (Sakkab, 2002), which pays more attention to how the innovation process requires higher levels of integration and extensive networking to be more efficient.

2.2. Collaboration

In many service sectors, suppliers are an important source of technology and knowledge. R&D centers and universities develop technologies and play a fundamental role in the development of innovation projects, and suppliers link up in a so-called supplier-dominated trajectory (den Hertog & Bilderbeek, 1999; Pavitt, 1984). Collaboration in service organizations through strategic alliances or other distribution forms is important to stay competitive and innovative (O'Farrell & Wood, 1999).

Customers, particularly users, are always co-creators of value and their collaboration is a fundamental source of competitive advantage. The ability to integrate operant resources between organizations increases the ability to gain competitive advantage through innovation (Lusch, Vargo, & O'Brien, 2007; Vargo & Lusch, 2004). Customer participation mediates the relationship between technical and non-technical innovation capabilities and service quality (Ngo & O'Cass, 2013). Customer expenditures to create and modify consumer products become more important in relation to improving R&D internal outcomes (von Hippel, Ogawa, & De Jong, 2010). Each type of user has different levels of involvement throughout the innovation process. Requesting users have a greater involvement in the idea stage, lead users in development, and pioneering users in launching activities (Jespersen, 2010).

Exploitative-oriented collaboration, more associated with incremental innovation, supports the improvement and further development of existing technologies and products, while explorative-oriented collaboration, more closely related to radical innovation, has greater benefits for creating new technologies and products. Customers and suppliers tend to have a greater involvement in exploitation projects aiming to generate high levels of turnover stemming from improved products, while collaborations with universities and research organizations, typically more explorative, are more likely to focus on new products (Faems et al., 2005).

Finally, customer involvement in service innovation has a positive impact on technical quality and innovation speed. Working with customers, service innovation processes improve prototyping and beta testing activities (Ettlie & Rosenthal, 2011). Findings reveal that perceived technological turbulence has a positive impact on customer involvement in new service performance, independent of the stage of innovation process development (Carbonell, Rodriguez-Escudero, & Pujari, 2009).

3. Methodology

This research proposes a set of service network innovation premises, their application to an innovation model, and then presents the field work phase and the analysis of the findings. A broader view leads to the concept of the service value network as the set of activities in an extended process, where actors or nodes such as suppliers, universities and research centers, among others, that link together through a structural relationship, integrate resources through service. The concept of the service value network integrates dimensions of co-production and customer value co-creation through service in a spaghetti network form of innovation (Tidd & Bessant, 2009).

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