

Service Innovation, Ambidexterity and Dynamic Capabilities

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Introduction

The importance of innovation has been widely recognised on both theoretical and empirical levels (Gallouj & Weinstein, 1997), especially since Schumpeter (1934), who argued that innovation is one of the most important driving forces in generating economic value and performance. Innovation also helps a firm redefine the competitive rules and improve their competitive position and performance (Nijssen, Hillebrand, Vermeulen, & Kemp, 2006). Services sector now represent 62.4% of the world's GDP (CIAWorldFactbook, 2016) and academic research has reflected an interest in the innovation of new services or service innovation (Dotzel, Shankar, & Berry, 2013; Witell, Snyder, Gustafsson, Fombelle, & Kristensson, 2016).

Before delving into the relevance of service innovation, it is important to understand the differences between traditional (normal) technological innovation and service innovation. Technological innovation is also known as traditional innovation because technological breakthroughs were at the core of Schumpeterian perspective (Schumpeter, 1934). It embodies inventions from applied sciences, industrial arts, engineering and/or pure science (Garcia & Calantone, 2002). Service innovation, on the other hand, involves the development of new or enhanced intangible offerings intended to benefit customers (Storey, Cankurtaran, Papastathopoulou, & Hultink, 2016). Extant literature points to the fact that there is limited understanding of how service innovation comes about (Janssen, Castaldi, & Alexiev, 2015). Coombs and Miles (2000) categorised research on service innovation into three different perspectives and a recent systematic review of service innovation literature still uses this approach (see Witell et al., 2016). There is a limited understanding as to how service innovation comes about because existing literature predominantly use the same theories and instruments developed for traditional product innovation search and apply them to service innovation (Miozzo & Soete, 2001; Witell et al., 2016). This approach to understanding service innovation is known as the assimilation perspective. The other perspectives are the demarcation perspective and synthesis perspective. The demarcation perspective suggests that service innovation differs in nature and character from product innovation (Coombs & Miles, 2000). The synthesis perspective is a critique of both the assimilation and the demarcation perspective which argues that theories on service innovation should be broad enough to encompass innovation in both services and manufacturing without being limited to just technological innovations (Gallouj & Savona, 2009).

This essay takes the demarcation perspective to understanding service innovation. Although it can easily be argued that service innovation is different because it does not comply with Schumpeterian perspective of innovation, there are other crucial features which differentiate service innovation from traditional innovation. Consistent with the argument that

service specific characteristics need to be more clearly identified to facilitate conceptualization of service innovation (Cowell, 1988; Salunke, Weerawardena, & McColl-Kennedy, 2013), the first part of this essay looks at specific characteristics of service. Yet, both Cowell (1988) and Salunke et al. (2013) do not go beyond pinpointing the characteristics of services. This essay aims to fulfil that gap by explaining specific characteristics of services and what that means for service innovation. The second part of this essay will then draw upon dynamic capabilities theory, ambidexterity and related literature to see the relevance of specific facets of dynamic capabilities theory for service innovation. The final part of this essay will look at pinpointing avenues for future research based on the first part and second part of the essay.

Specific Characteristics of Services

Service quality literature has consistently highlighted the fact that service characteristics include inseparability (simultaneous production and consumption), heterogeneity (requirement of human effort and interaction) and perishability (service cannot be stored) (Zeithaml, Parasuraman, & Berry, 1985). Technological innovations are primarily introduced by technical personnel who work in differentiated units of an organisation (Damanpour, 1987). The traditional distinction between product and process innovations becomes weaker with service innovation especially because service process and outcomes are hardly separable (Mina, Bascavusoglu-Moreau, & Hughes, 2014) or because of their inseparability characteristic. Similarly, heterogeneity as a characteristic of service innovation means that unlike technological innovation where tangible assets play a significant role, organisational and human factors play crucial roles in service innovation (Carbonell, Rodríguez-Escudero, & Pujari, 2009; Hipp & Grupp, 2005; Sirilli & Evangelista, 1998). This has been consistently covered by service quality literature which refers to the fact that product quality can be measured in physical terms whereas service quality cannot. Therefore, service quality papers have widely accepted the SERVQUAL model which measures perceptions and expectations to determine quality of services (see Parasuraman, Zeithaml, & Berry, 1988).

Technological innovations are backed by heavy research and design (R&D) expenditures, and although service firms use technological innovations to improve their existing offerings, the money they spend on R&D is significantly lower to that of manufacturing firms (Tether & Tajar, 2008). Even within manufacturing firms, services can complement sale of tangible products and help increase its demand (Mathe & Shapiro, 1993). Manufacturing firms have been seen to offer new services so as to improve acceptability, functionality, flexibility and performance of existing goods (Santamaría, Jesús Nieto, & Miles, 2012). The perishability characteristic of services means that it cannot be kept in stock to serve as a buffer between fluctuating demand and limited production capacity (Lievens & Moenaert, 2000). Services are instantly created and delivered which makes it extremely difficult for service companies to manage capacity and demand. Technological innovations can complement service innovation especially as service firms can use information technology to deal with capacity related problems (De Brentani, 1991).

Elements of the Dynamic Capabilities Theory and its Ties with Service Innovation

The dynamic capabilities theory has been widely used in studying service innovation as services are intangible and more intertwined with the capabilities embedded in processes and routines throughout an organisation (Hertog, Aa, & Jong, 2010). The dynamic capabilities theory has its roots embedded in evolutionary economics from which the concept of routines and path dependencies come about (Helfat & Peteraf, 2009). Dynamic capabilities also has its roots in organizational theory and resource-based theory (with its base in Ricardian economics) which gives it a well-founded theoretical base. In other words, the theory of dynamic capabilities takes a holistic approach itself. It is therefore, logical to view service innovation from a dynamic capabilities perspective and this has been reflected in wide array of literature studying service innovation (see Kindström, Kowalkowski, & Sandberg, 2013), Stauss, den Hertog, van der Aa, & de Jong, 2010, Coreynen, Matthysens, & Van Bockhaven, 2016; Janssen et al., 2015 etc.).

Routines

Dynamic capabilities theory stresses the role of organizational routines (Teece, 2007; Teece & Pisano, 1994; Teece, Pisano, & Shuen, 1997; Zollo & Winter, 2002). The role of key new routines and the willingness to change existing routines is crucial for service innovation in the sense that unlike technological innovation where only mere changes might be required to manufacturing staff's capabilities, service innovation requires staffs to acquire new skills so as to operate newly modified software or even adopt new service procedures (Atuahene-Gima, 1996). Moreover, service offerings cannot be standardized unlike manufacturing as aforementioned and are more intertwined with the processes and routines throughout an organization (Droege, Hildebrand, & Forcada, 2009). Service innovation can also take place through trial and error learning which eventually gives rise to the accumulation of knowledge about service offerings which can then be embedded with existing organisational routines (Cohen et al., 1996). Although dominant designs normally emerge from considerable trial and error in the marketplace even within the manufacturing industry, they require much more capital investments (Teece, 1988). Traditional Schumpeterian innovation model where the lone entrepreneur brings innovation to markets has been superseded by a variety of actors working together in iterative processes of trial and error to bring superior services to customers (Laursen & Salter, 2014). Routines undoubtedly have a role to play in innovation in services. Yet, the conceptualisation of the term 'routines' is itself very controversial. The two seminal papers that have expanded dynamic capabilities theory have two divergent views about routinized processes. Teece et al. (1997) argue that dynamic capabilities rely on highly routinized processes whereas Eisenhardt and Martin (2000) argue for reduced routinization. Wohlgemuth and Wenzel (2016) have recently tried to address this gap and they find that higher levels of routinization at a strategic level and lower levels of routinization at operational level support dynamic capabilities.

Levels of Capabilities

Winter (2003) introduced the terms 'zero level capability', 'first order dynamic capability' and 'higher order capabilities'. Zero level capability has been defined as a stationary process whereby a firm just continues its normal day to day operations. First order capabilities are those that would change the product, the production process, the scale, or the customers (markets) served which are not at the zero level (Winter, 2003). In the case of services, first order capabilities will be those that would change the service, the service production and delivery process (heterogeneity concept), the scale or the customers served. Higher order capabilities are those capabilities which facilitate the creation and modification of dynamic capabilities in a way that it 'changes the game' or in a way that 'takes it to a higher level' (Winter, 2003). More recently, Fainshmidt, Pezeshkan, Lance Frazier, Nair, and Markowski (2016) argued that lower order capabilities are about being able to learn whereas higher-order dynamic capabilities are about being able to learn new ways to more effectively and efficiently assimilate new knowledge. For example, a higher order capability exists when a company carries out R&D to change their existing R&D capability along with their resource base. A lower order capability only introduces the improvement to the existing activities of the firm whereas higher-order capabilities result in more metaphysical strategic insights and generative change (Fainshmidt et al., 2016). In the case of services, a lower order capability would be to make improvements to current service offering and a higher order capability would be to work with the customer to learn new ways of offering service which in turn will change the entire service delivery process.

Whilst both higher level and lower level capabilities have their relevance in facilitating innovation, exploration and exploitation are equally necessary for service innovation (Nooteboom, 2000). In the next paragraph, this essay explores the concepts of service exploration, service exploitation and dynamic capabilities associated with it.

Service Exploration and Service Exploitation as Dynamic Capabilities

Exploration requires firms to continuously reconfigure their assets, resources, and capabilities so as to meet the changes in the external as well as the internal environment (Ambrosini, Bowman, & Collier, 2009; Zajac, Kraatz, & Bresser, 2000). Firms will have to realign themselves to changing nature of the environment and since the environment changes are inevitable, it is almost impossible for firms to reach a stagnant phase of alignment (Raisch, 2008). Aligning a firm to be receptive to boundary conditions is a dynamic process rather than a question of static configurations according to modern contingency theory (Ketchen, Thomas, & Snow, 1993; Raisch, Birkinshaw, Probst, & Tushman, 2009). Similarly, exploitation requires firms to have a behavioral mechanism in place which encompasses absorption of new approaches into existing sets of routines (Zollo & Winter, 2002). Essentially, firms that pursue exploitation are path dependent, have distinct organisational processes or routines and positions all of which are strategic dimensions under dynamic capabilities theory (Lavie & Rosenkopf, 2006; Quintana-García & Benavides-Velasco, 2008; Teece & Pisano, 1994). There is consensus in the academia regarding the importance of exploration and exploitation in the firm's innovation process (March, 1991, 1996)

Service innovation can be seen from both explorative and exploitative point of view dependent on the organisation (Groysberg & Lee, 2009; Gustafsson et al., 2010; Menor, Tatikonda, & Sampson, 2002). Firms can engage in exploration, exploitation or ambidexterity to achieve service innovation. However, they need resources and capabilities in order to engage in either one of these options. These resources could be either physical capital resources, human capital resources and/or organisational capital resources (Barney, 1991). Organisational ambidexterity refers to the ability of a firm to pursue incremental innovation (exploitation) and discontinuous innovation (exploration) simultaneously (Gibson & Birkinshaw, 2004; He & Wong, 2004; Raisch & Birkinshaw, 2008). Numerous studies have also established the link between firm performance and ambidexterity (Lubatkin, Simsek, Ling, & Veiga, 2006; Menguc & Auh, 2008; Sarkees, Hulland, & Prescott, 2010). There are three distinct pathways to achieve ambidexterity: a) through temporal separation between exploration and exploitation over time (sequential ambidexterity) b) through involvement in both exploration and exploitation at the same time (simultaneous ambidexterity) and c) through separation of exploration from exploitation over distinct domains (Benner & Tushman, 2003; Brown & Eisenhardt, 1997; Lavie & Rosenkopf, 2006; Stettner & Lavie, 2014).

Discontinuous innovations or exploration entail a higher degree of risk, require greater company effort and resource commitment. (Griffin, 1997; Heiskanen et al., 2007; Lynn, Morone, & Paulson, 1996). For a novel combination of services or service innovation, organisations have to involve themselves in search, variation and experimentation efforts (Van der Aa & Elfring, 2002; Wadhwa & Kotha, 2006). Organisational exploration is undertaken as a search for new knowledge, use of unfamiliar technologies and creation of products or services with unknown demand; all of which do not reliably and quickly produce revenue (Greve, 2007). Organisations with short term goals and scarce resources will not pursue exploration as they do not guarantee short-term wins and also require significant resources commitment (March, 1991). Whilst resources commitment is necessary for discontinuous innovation, a shift away from its existing path is also equally necessary.

Incremental innovation or exploitation is associated with minor changes and modifications to products, services, and technologies without a major departure from existing resources and capabilities (Garcia & Calantone, 2002; Ritala & Hurmelinna-Laukkanen, 2013; Tushman & Anderson, 1986). Exploitation entails a lower degree of risk, requires comparatively less effort than exploration and requires considerably fewer resources for development or support (Dewar & Dutton, 1986). A firm that pursues exploitation builds on what it already knows, and builds on what it chose to do or know in the past (Langlois, 1995). In other words, exploitation is very path dependent (Teece, 2007).

Scholars argue that the skills required in undertaking exploration and exploitation is incompatible and therefore, a firm cannot practice both at the same time (He & Wong, 2004; March, 1991, 1996). As aforementioned, firms faced with resource constraints may be motivated to pursue exploitation as they do not have to depart from existing resources and capabilities. Paradoxically, firms with slack resources are motivated to pursue exploration especially when there are abundant competitors in the market (Voss,

Sirdeshmukh, & Voss, 2008). However, firms have to maintain a balance between exploitation and exploration in order for any innovation to succeed (March, 1991, 1996; Menor et al., 2002), including service innovation. Organisations are often in a dilemma as engaging in only exploration and exploitation is unwarranted given the risks that accumulate from pursuing a single strategy; engaging in both requires distinct skills which can be incompatible whilst the suitable alternative would be to pursue both over time, a strategy known as sequential ambidexterity. Sequential ambidexterity allows firms to alleviate the tensions using temporal separations whereby they practice exploration and exploitation one after the other (Brown & Eisenhardt, 1997). Although sequential ambidexterity can offer a solution out of this vicious trap created by having to pursue one at the expense of the other, the timing is equally crucial.

Critiques and Possible Avenues for Further Research

The first part of this essay mentioned SERVQUAL which is a model that is drawn from operations management. Service quality has been a matter of study for decades with notable scholars like Deming (1986), Feigenbaum (1983), Ishikawa and Lu (1985), Crosby (1979) all contributing to the wider field in one aspect or the other. SERVQUAL model has been widely used in quality management studies and has received over 24000 citations (Parasuraman et al., 1988), yet service innovation models or theories have largely ignored this widely accepted model. Strategic management scholars also do not try to narrow down this wide gap that exists in the study of services and instead broaden it by using only established perspectives such as Schumpeterian perspective. Prajogo and Sohal (2006) in their paper explored the effects of service exploration and exploitation on financial performance through the delivery of quality services and found that both exploitative and exploratory innovation helps the quality of services which in turn yield superior financial performance. In this case, quality of services is found to have a mediating effect on exploration, exploitation, and performance. Even this paper does not introduce the SERVQUAL model and bridge it in with service innovation theories. Whilst this paper acknowledges that service innovation literature does not embrace service quality literature, it does not take into account the SERVQUAL model which is widely used in service quality literature. This is where a huge gap lies. By holistically tying in two concepts from two different fields and possibly developing a framework which can then be used by both innovators and quality managers, there could be some possible contribution to the literature.

In the second part of the essay, the concept of higher-order capabilities and lower-order capabilities were touched upon. Two differing schools of thoughts even within dynamic capabilities theory was highlighted along with a recent research paper by Wohlgemuth and Wenzel (2016) which tried to bridge the gap that existed with somewhat opposing views in the literature. As aforementioned, Wohlgemuth and Wenzel (2016) found that both higher levels of routinization and lower levels of routinization support dynamic capabilities, albeit at strategic and operational levels respectively. A possible avenue for further research is to see whether higher level capabilities lead to higher levels of routinization and lower level capabilities lead to lower levels of routinization. This will help advance dynamic

capabilities theory especially with disagreement about routinization in prior research starting with two seminal papers. Fainshmidt et al. (2016) found that higher level capabilities generate higher performance benefits directly and indirectly via lower order dynamic capabilities. Another area could be to see whether higher levels of routinization contributes directly to firm performance and indirectly through lower levels of routinization. This will enable tying up higher order capabilities with higher levels of routinization and lower order capabilities with lower levels of routinization. If this relationship can be established, it will help to tie the existing theories together holistically and remove the confusions that currently surround this field.

A third gap arises when the concept of higher order capabilities and lower order capabilities are not at all linked to the concepts of exploration and exploitation. If higher-order capabilities lead to metaphysical insights and redefine rules of the game, do they lead to service exploration? Likewise, do lower-order capabilities lead to service exploitation? Further, Fainshmidt et al. (2016) argue that higher-order capabilities lead to lower-order capabilities. If this third gap is to be explored even deeper, does it mean that service exploration will also lead to service exploitation?

The three gaps were discovered based on a wide array of literature in the area of service innovation, dynamic capabilities, and ambidexterity. This essay explored different perspectives from different authors, the contradictions in their perspectives and limitations in their research which pave the way for future research. It is through a synthesis of different concepts, academia will progress and whilst it might be too brave to claim that this essay makes a progress in that direction, it definitely serves the purpose of scholarly thought around these areas.

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