The value dynamics of service innovation

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Abstract: This paper considers the overall dynamics of innovation that adds value for the customer of service industries. The analysis leads to two propositions, resulting from the understanding of analyzing a wide variety of case studies, including Apple and Tesco. Radical service innovation is the result of infrastructure changes accessible to all (open) but within controlled bounds (standards). Incremental innovation is the result of operational changes (continuous improvement) that are limited by the infrastructure employed. This approach leads us to identify key issues within the following areas: networks and value chains; organization and culture; service operations and technology; service marketing and customers. Practitioners, policy makers and academics should all gain from the greater insight created in this work and through a better understanding of the key challenges facing managers and policy makers in encouraging innovation management within the service sector that creates real value for the end customer.

Keywords: Innovation; services; value creation; customer

1. Value driven service innovation

We define service innovation as an activity where known products, services or processes are combined or created in a new way, to generate a positive net present value from a market. The innovation is to combine known solutions, or create new services, processes, or business models, and either sell these on a market, or employ them for internal increased value. Service innovation is, in short, a business model innovation that gives the users or customers a better experience or higher value.
There are several different kinds of service innovations:

- innovation in the service aspect of products;
- innovation in services already available;
- the creation of new services.

The first kind of service innovation regards the service aspect of a product or of a system delivering products. For example, to make the screen on the Apple iPhone easier to read, through increasing the resolution, provides the user with greater value.

A second kind of service innovation is to innovate in the services that are already there. For example, some of the 200,000 applications available on the iPhone could be improved by making them more easily available to access or use.

Finally, one can create new services that have not been on the market before. Using the iPhone as an example again, this means adding a new application that creates more value for the user. One example here is to have the phone connected to the pace maker of the phone’s user, where the phone functions as an alarm if the heart beat changes in a drastic way.

The field of innovation is developing a strong focus in services (Kao 2009, Ostrom et. al. 2010). Most value creation, as well as employment, in Western countries occurs in the service sector. However, innovations in manufacturing are more frequently documented. Hence, there is a strong need for better understanding innovation in services.

Although there has been considerable growth in developing service innovation theory in the last decade, researchers started from the absence of an agreed model of service innovation (Howells 2000), and have struggled to catch up with practical developments. The OECD (Science, Technology and Industry Outlook 2005) reported a considerable knowledge gap related to service innovation. Specifically (Sheehan 2005) states:

"Innovation policy has been slow to adapt to the needs of the service sector, which accounts for growing share of output and employment in OECD economies”

In this paper we bring the theory and practice of service innovation together in a coherent form, so that further theory and practice may be developed further. Innovation comes in degrees, from incremental to radical. Companies need to work on both kinds at the same time, to avoid structural and cultural inertia. The older and larger a company is, usually the more inertia there is (Tushman & O’Reilly 1996). Companies with such inertia typically work on incremental innovations, if at all. In fact, most incremental innovations in our global service-oriented economy are not really incremental, they are architectural, meaning that one cannot innovate with an individual service; one also has to innovate within the systems that provide that service innovation.

If one translates this to a service context, incremental innovation is about improving the core service offering through successive service or product enhancements (Vandermerwe 2003:56). This is necessary on an ongoing basis, but does not transform an industry or a company. The more radical kind of service innovation is in general terms to find new ways of doing things for and with consumers. The focus needs to be on customer experiences rather than on the products themselves.

The approach developed in this paper is to include elements from the entire range of academic and practitioner developments, but always starting from a broad approach that
is driven by the value created for the customer, where value may be defined in both
economic and social terms. By recognizing the reality of value creation in a co-operative
and conflicting environment, it is possible to bring together Zeithaml’s IHIP
characteristics of services: intangibility, heterogeneity, inseparability of production and
consumption, and perishability (Zeithaml 1981) as reflected in service operations, while
recognizing the overall impact of the Vargo & Lusch’s Service-Dominant Logic (Vargo
& Lusch 2004; Hauser, Tellis & Griffin 2006).

Hence, our approach encompasses the impact on service operations of the whole
value chain strategy, through the organizational as well as technology-based operational
innovations, to the interaction within the customer environment that is based within a
peer group of customers (segments), as well as an overall economic marketplace that may
involve competing services. This approach is summarized in the parts to follow and
emphasizes the value-driven nature of service innovation.

By including the economics of the market environment, it is possible to see why there
are major differences between various sectors. For example, in the competitive market of
grocery retailing, the products may often be similar emphasizing the need to drive
competitive advantage through innovative service operations, while in the mobile service
provider market, the product may be the key innovation device, as demonstrated by the
Apple iPhone example. On the other hand, there may not be a competitive marketplace,
for example in national health provision, but different customer segments still have very
different value-creating needs. Within each of these different sectors, the key driver of
value driven service innovation may be very different. Hence, it is necessary to test any
generic model of service innovation against a range of different service scenarios.

2. The changing dynamics of service innovation

Product innovation has gone through several changes, reflecting many of the major
changes within manufacturing and operations management. Product innovation has
moved from being preoccupied with simple linear models to focus upon more complex
innovation systems and networks.

Today most economies are service- and knowledge based, accounting for 70 percent or
more of GDP. OECD reports document a considerable knowledge gap related to service
innovation. Specifically they state, already by year 2005 that:

"Innovation policy has been slow to adapt to the needs of the service sector,
which accounts for growing share of output and employment in OECD
economies" (OECD 2005).

Another OECD report (OECD 2004) concludes that there is a significant weaker
correlation between research and development and performance within service sector
relative to manufacturing. Both reports are authored by Jerry Sheehan.
Figure 1: The traditional product perspective

Innovation has traditionally been product focused. There is, as presented in figure 1, providers of products that the customers are offered. However, many attempts to adopt product marketing to services often failed (Shostack 1977), and academics increasingly emphasized the differences between products and services (Gronroos 1990). In particular, Zeithaml (1981) recognized four main distinct characteristics of differentiation of services from products: intangibility, heterogeneity, inseparability (of production and consumption), and perishability, or IHIP as it has become known. Thus, interactions between providers and customers become a potential mix of well-defined product and more fuzzily-defined service, as illustrated below.
Figure 2: The IHIP service perspective

Vargo & Lusch (2004) argue further that goods are now dominated by the service elements. This service centered view implies that marketing is a continuous series of social and economic processes that is largely focused on operant resources with which the firm is constantly striving to create better value propositions than its competitors. This service-dominant (S-D) logic may be simply illustrated as follows.
While there are many academic papers, practitioner reports and policy proposals that discuss service innovation, the field of service innovation is still developing a solid body of knowledge as it pulls together various threads from different fields of study.

One of the main public funding bodies for research and development within this area is TEKES in Finland. TEKES is one of the first research agencies globally to address innovation in services. TEKES identifies four key areas of practice contributing to service innovation. These four research areas are briefly named (1) technology; (2) customers; (3) organizations; and (4) networks, which may be illustrated as follows.
This provides recognition of the role of technology in offering new ways of delivering existing products and services, as well as providing entirely new services, the role of customers in adopting and co-creating new services, the role of the organization in developing an innovation culture and new ways of working, and the role of networks in adding new value throughout the chain of service delivery.

From a marketing perspective, this approach may be seen as combining the IHIP thinking driven through the application of technology with the S-D logic driven through the value created at the customer interface.

3. **Towards a research agenda**

Our approach to researching the field of service innovation is to include elements from the entire range of academic and practitioner developments, but always starting from a broad marketing approach that is driven by the value created for the customer (Sweeney & Soutar 2001; Berry et. al 2006; Payne, Storbacka & Frow 2008). By recognizing the reality of value creation in a co-operative and conflicting environment, it is possible to bring together the understanding derived through IHIP reflected in service operations while recognizing the overall impact of the S-D logic within service marketing.

Hence, our approach encompasses the impact on service operations of the whole value chain strategy, through the organizational as well as technology-based operational innovations, to the interaction within the customer environment that is based within a peer group of customers (segments), as well as an overall economic marketplace that may involve competing services. This approach is summarized in Figure 5 below and
emphasizes the value-driven nature of service innovation, hence the name Value Driven Service Innovation, or VDSI.

Figure 5: The VDSI Perspective

By including the economics of the market environment, it is possible to see why there are major differences between various sectors. For example, in the competitive market of grocery retailing, the products may often be similar emphasizing the need to drive competitive advantage through innovative service operations, while in the mobile service provider market, the product may be the key innovation device, as in the example of the iPhone. On the other hand, there may not be a competitive marketplace, for example in national health provision, but different customer segments still have very different value-creating needs. Within each of these different sectors, the key driver of value driven service innovation may be very different. Hence it is necessary to test any generic model of service innovation against a range of different service scenarios.

This view coincides with perspectives from strategic management that discuss the co-creation of value (Normann & Ramirez 1985). Porter’s (1990) main thesis is that innovation in the value chain is the result of unusual effort, and that innovation usually requires pressure, necessity, and even adversity, in the sense that the fear of loss often proves more powerful than the hope of gain. Companies within their respective industries benefit from having strong rivals, aggressive suppliers and demanding customers. All together, these foster changes leading to economic growth on both the micro and macro economical level. This implies that change and innovation are inextricably tied together. Moreover, according to Christensen (Christensen et al. 2004), a new player introducing an incremental innovation will be beaten by the existing players because it is does not create a large enough value to outweigh existing customer relationships based on trust
and habit. However, a new player introducing a radical (or disruptive) innovation will beat the existing players because the value created is sufficient to override any inherent customer barriers, for example in the case of Apple.

At the MacWorld Expo in January 2001 Apple introduced the first edition of iTunes, and about nine months later Apple launched the hard-drive-based digital music player, the iPod. However, the first digital music player was introduced by Diamond Media in 1998, the Rio. The original iPod looked very much like the Rio’s dial-controlled design. Another company introduced its version of a digital music player, the Cabo 64, in 2000 (Johnson 2010: 15). Apple introduced the iTunes Store in 2003, which was 18 months after introducing the iPod. Apple’s success during this time was shown in the stock price, which went from $6 to $80 in the three years leading up to 2006.

Apple revolutionized the world by the iPod. With the iPod, Apple did more than wrap a good technology in a great design; it wrapped a good technology in a great business model. iTunes is a service component that tightly locked hardware, software, and digital music into one user-friendly package. As Mark Johnson (2010) pointed out in his book called “Seizing the white space”: The move recalled one of the great business model innovations of all time: King Gillette revolutionizing men’s shaving by choosing to give away the razor handle – a durable – in order to lock customers in to purchasing his consumable, high-margin blades. Apple reversed Gillett’s model, essentially giving away the blades – low-margin, consumable iTunes music – to lock in the purchase of the handle – the iPod – whose high margin returned high profits. The business model, substantially different from anything Apple had done before, defined value in a new way.

The success of the business model innovation transformed Apple. In just three years, the iPod/iTunes combination became a $10 billion product, accounting for nearly 50% of the company’s revenue. Apple’s market capitalization went from around $2.6 billion at the end of 2002 to $133 billion at the end of 2007. The digital platform became the basis of a newly defined Apple brand. It became a leader in the world of lifestyle media, as Apple moved into video content and convergent media.

Apple repeated this business model with the iPhone. From July 2008, Apple allowed users to download little pieces of code - apps – to their iPhones. A wide range of apps have evolved, from news to games and other entertainment programs, to more practical services such as airline flight trackers and birthday reminders. The apps create value for the users. The apps are stretching the boundaries of online content, forcing media, commerce and other businesses that make a living on the web to rethink how they reach and engage the interests of their customers (Johnson 2010). Silicon Valley financier John Doerr says (Waters 2010):

“The future will be a series of apps … each purpose-designed for a particular task, and far more intuitive to use.”

In the 20 months after the app store was opened about 200,000 apps had been created – mostly by developers outside of Apple. These apps had been downloaded over 4 billion times in just 20 months. The value of having an iPhone is the result of co-creation by Apple, developers outside of Apple, as well as users. These developers can be viewed as an external R&D department, while Apple provides the ecosystem, or infrastructure. The same logic applies to other recent innovative companies, such as Twitter.

As service innovation requires new concepts, new approaches, and new techniques that recognize the interdependencies between the customer and the service organization,
there are four research questions according to Ostrom et. al. (2010) on how best: to innovate customer-centric service experience designs, to identify hidden customer needs, to develop customer-centric innovation processes, and to promote and support service innovation as part of economic development strategies. The authors point to a knowledge gap that the underlying mechanisms that link customers and organizations are not well understood. This suggests that academics need: to define and measure the system of co-creation, to develop methods for guiding co-creation, to develop methods for integrating independent resources, and to measure the economic and non-economic benefits of co-creation.

4. The VDSI research agenda

As we have outlined above, academics have tended to focus research in the services field by portraying services as being different from physical products, and so focusing on the goods-and-services dichotomy. Ostrom (2010) and her colleagues point out that the focus needs to be on co-creation of value. This is conceptualized as collaboration in the creation of value through shared inventiveness, design, and other discretionary behaviors. Ostrom (2010:24) states that

“little is known about how to manage co-created services because the underlying mechanisms that link customers and organizations are not well understood”.

Researching such mechanisms is important for the VDSI research agenda, and we will here offer some ideas.

Innovation as a function of time can be emphasized in three areas. In the pre-launch phase there are issues pertaining to idea generation (e.g. origin of ideas, quality of ideas, number of ideas, filtering of ideas) and issues pertaining to the process of innovation. In the post-launch phase there is a continuing focus on improving and innovating to offset competition and extend the service lifecycle. While the pre-launch phase may lead to disruptive or incremental innovations the post-launch phase is a process of incremental innovations (Christensen et al. 2004).

The analysis of Christensen et al (2004) may be explained by two propositions, resulting from the understanding of analyzing a wide variety of case studies, including Apple and Tesco:

- radical service innovation is the result of infrastructure changes accessible to all (open) but within controlled bounds (standards)
- incremental innovation is the result of operational changes (continuous improvement) that are limited by the infrastructure employed

These propositions are more useful to practitioners than the analysis of Christensen et al (2004) between pre-launch ideas and pre- and post-launch processes.

Radical service innovation is the result of infrastructure changes that turn (innovative and existing) products into innovative services, as illustrated by the transformation of the iPhone by apps – or iApps - or the conversion of Tesco into the leading online UK retailer through adding a local transport infrastructure to the existing store network. Moreover, such innovations, while structured, are also accessible to the customer, in the case of iApps through the development of applications, while Tesco customers choose when orders are placed and delivered. These twin concepts of accessibility and choice
within constraints allow the customer to dictate how the service innovation is valued and therefore used (if at all!), while ensuring consistency of service. While the organizations allow choice, it is not a free-for-all. No iApp is available without passing Apple’s stringent quality requirements. Similarly, the structure and relationship of online order and delivery times are dictated by Tesco. In both cases, this aims to ensure a consistent quality of service despite the choice on offer. This also illustrates the risky nature of radical service innovation; the investment to build the infrastructure is required up front, without knowing whether customers will utilize the infrastructure once provided. Note that the infrastructure is not co-created, it is the value of utilizing the infrastructure that is co-created with the customer.

On the other hand, operational innovations are more predictable, therefore more measurable and much less risky. Value is co-created in operational service innovation.

It should be noted that these propositions imply that radical operational service innovations originate from changing the infrastructure, which may then lead to radical changes in the operations.

From these propositions, there are important implications across the range of TEKES research areas (technology, customers, organizations, and networks).

The key implication of these propositions is that the focus of the firm should be on innovation rather than successful innovation. This may seem incongruous but a firm that is only focused on successful innovation will tend to be focused on minimizing risk rather than maximizing opportunity. This then implies that a critical success factor for firms is to have an innovation process and culture whereby a wide range of innovations take place within a contained environment that minimizes any adverse impacts on the firm or individual in the long term.

These propositions also suggest that both radical and incremental innovations should be taking place at the same time, but with very different processes. The impact of incremental innovations should be forecast and held to account, as these should be comparatively straightforward to measure. Note that such key performance metrics in the world of Value Driven Service Innovation should be measured primarily in customer terms and only secondarily in resource terms. On the other hand, radical innovations should be piloted in a non-threatening way to the firm and the individual, and then the resulting customer actions (which are likely to be unpredictable) should be measured in a wide variety of ways to understand intended as well as unintended consequences.

The old school of innovation focused on the embedded output as the unit of analyses, the new school allows us to look at the infrastructure of the firm as the unit of analyses. From this we can draw that the first new issue that needs to be explored is a higher unit of analysis, i.e. innovations referring to new business ideas, concepts, or business models. Secondly, whereas the old school limited innovation to the firm’s in-house research and development function, the new school focuses a more holistic approach involving the skills and competences from a number of functions and disciplines, including customers. From this we can conclude that the second issue that needs to be explored further is to consider innovation not as a functional issue but rather as an organizational issue. Thirdly, whereas some services innovations are tangible others are intangible. The degree of intangibility in what is being innovated introduces major challenges in the innovation process pertaining to human cognitive capacities.

From this we can draw that innovation in the new school focusing on abstract intangible ideas, concepts etc. is more cognitively demanding than the old school’s focus on mere embedded outputs. Following the service dominant logic customers are heavily
involved, including in the innovative element. Customers as part of the innovation team represent the fourth issue pertaining to new school innovation. Ultimately, it is the customers that define the value of innovation.

References


