Reorienting the information systems function to support increasing levels of business service

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Publication Details
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Keywords
support, function, systems, information, reorienting, service, business, levels, increasing

Disciplines
Business

Publication Details

This conference paper is available at Research Online: http://ro.uow.edu.au/buspapers/653
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Completed Research Paper

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Business scholars and practitioners are becoming increasingly aware of the opportunities that exist when service is added to traditional product offerings. However, the literature has not previously explored the question of how the IS function is responding to greater emphasis on service. In this paper, we employ a multi-case research design to investigate the role of the IS function in supporting increasing levels of service. Our study contributes to the literature by showing that differences in IS service orientation and collaborative capabilities affect the ability of firms to support service. The implications for IS and managerial practice are discussed by linking the overarching premises in service-dominant logic with the core elements of IT-enabled organizational transformation.

Keywords: IT-enabled transformation, service-dominant logic, IS function, innovation, case study
Introduction

The business literature has traditionally been dominated by value creation that is embedded in the products that firms make and sell. However, business scholars and practitioners alike are becoming increasingly aware that performance can be enhanced through service provision. This insight has forced managers to think more broadly about the importance of service and how it can be combined with product to provide greater value to customers (Davies 2004; Ray et al. 2005). However, the change from product-centric to service-centric organization is inherently difficult and has, in reality, been slow (Verhoef et al. 2010). Advances in information technology are credited with facilitating the shift towards service (Vargo and Akaka 2009).

Vargo and Lush (2004; 2008) argue quite persuasively that all organizations will increasingly compete through service, where service is defined as the application of capabilities for the benefit of another. Service dominant logic (S-D logic) is identified as an appropriate foundation for the development of service within marketing (Vargo and Lusch 2004), service operations (Coltman and Devinney 2013; Menor et al. 2002; Randall et al. 2010), and service science (IfM and IBM 2007; Vargo and Akaka 2009). Service dominant logic is grounded in a “commitment to collaborative processes with customers, partners, and employees; a logic that challenges management at all levels to be of service to all stakeholders; a perspective that recognizes the organization and its exchange partners are engaged in the co-creation of value through reciprocal service provision” (Lusch et al. 2007, p. 5).

The transition from product to service requires new values and beliefs around the centrality of the customer. The information systems (IS) function is not excluded from this change because it is a key enabler of business service. For instance, in the early 2000s Southwest Airlines redefined the notion of service around technology to achieve both low cost and high customer satisfaction. As Tallon and colleagues explain, the focus on IT-enabled service delivery has made Southwest Airlines one of the most successful US airlines with high customer satisfaction and profitability (Tallon et al. 2000).

The shift towards a service-oriented organization requires leaders to challenge deeply rooted assumptions about the role and function of IS. These assumptions, established over many years, have traditionally been oriented towards back office efficiency to impose “structure on processes, achieving predefined goals, producing metrics of progress and minimizing the need for human interaction” (Gordon and Tarafdar 2010, p. 39). Caught up in the day-to-day doing, IS managers rarely get the chance to pull back and analyze the strategic opportunities that higher levels of service might offer, or to investigate ways of designing and building skill sets around the diverse roles that service orientation requires from staff. This leads to frustration throughout the organization and creates alignment challenges for the IS function (Arvidsson et al. 2014; Pearlson and Saunders 2013). The question that provides the focus for this paper is: How is the IS function changing in response to greater emphasis on business services?

The management of IT and service is a complex, boundary-spanning activity that cannot be cast into narrow discipline specific terms. Recognition of this problem is visible in the recent MIS Quarterly call for papers that highlights the need for multidisciplinary research on IT and service innovation (Nambsan et al. 2014). In this paper we take a multidisciplinary approach. First, we draw on the service-dominant logic literature in marketing to clearly distinguish product from service (Vargo and Lusch 2004). Second, we build on seminal work in the IS literature on organizational transformation (Sauer and Yetton 1997b; Scott-Morton 1991; Weill and Ross 2004) to examine the way firms re-design and leverage the IS function to support service.1

While the IS literature has discussed the importance of IT to service provision (Gnyawali et al. 2010; Rai et al. 2010; Ross and Beath 2006), empirical research has not yet investigated the need for firms to reorient the IS function with increasing levels of service. We use four case studies to investigate the ways in which organizations re-orient the IS function around structures, processes, and individual roles and skills to appropriate new value from service. These organizational elements are well grounded in prior IS literature and offer practical benefits to IS managers charged with responsibility for supporting changing service offerings (Sauer and Yetton 1997b; Scott-Morton 1991; Weill and Ross 2004). Our study

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1 The term “service” is used in this paper to refer to “business service” rather than the notion of “IT service”.

contributes to the literature by showing that differences in service orientation and collaborative capabilities of the IS function shape and constrain the ability of firms to successfully support service.

**Theoretical Background**

It is hard to spend any time within organizations without experiencing the deeply rooted assumptions as to what is considered reasonable and effective behavior. Prahalad and Bettis (1986) propose that these assumptions are important because they encapsulate the organizations’ dominant logic – the mental models held by senior staff and managers about what is reasonable and effective behavior. In the case of IS, these models of behavior are developed through experience, and are institutionalized in a common way of thinking concerning the role and function of the IS unit (Henderson and Venkatraman 1993; Sauer and Yetton 1997a; Tallon 2007). Yet, scholars have argued that, once established, the dominant logic should be open to adjustment, ensuring the organization remains aligned with changing market conditions and opportunities (Neu and Brown 2005). Perhaps nowhere is the change in dominant logic more apparent than in the resurgence of interest in the transition from product to service. Oliva and Kallenberg (2003) and Gebauer et al. (2008) illustrate the continuum from product manufacturer to service provider (see Figure 1). At one end of the continuum is a logic centered on tangible goods, where value is inert and embedded in product. At the other end is a position where service dominates and resources dynamically act upon other resources to co-create and deliver value through use.

![Figure 1. The Tangible Goods-Services Continuum](source: Adapted from Oliva and Kallenberg (2003) and Genauer et al (2008))

The most common business example of a shift along the continuum (as illustrated in Figure 1) is IBM. For years the company’s dominant logic revolved around a set of unseen assumptions about the centrality of product development and mainframe computing systems. At IBM this thinking became so embedded in the strategy, reward, resource allocation, and promotion systems, that it failed to see the disruptive impact of the personal computer (Harreld et al. 2007). It eventually took a catastrophic crisis in share price to begin dislodging the dominant logic. Over time, it became apparent that most of IBM’s revenues were coming from service and not from product. For example, in 2001 the IBM revenues obtained from service (43%) overtook hardware and technology (42%) for the first time in the organization’s history (Gertsner 2002). Since then, the company has completely transformed and became the world leader in business-performance-transformation services, with more than 80 percent of revenues derived from high value service-related business, such as automating processes, building business analytics and optimization capabilities, and reusable assets through a combination of software, services, research and development (Evans 2005; Harreld et al. 2007).

The transition from product to service provider at IBM is not an isolated example. Others such as Boeing, EDS, Rolls-Royce, Tom Tom, General Electric, Air Liquide, John Deere and Kone have reported similar success stories of innovating around service (Howells 2004; Nemeth 1997). This led to a resurgence of
interest in the foundations of service amongst the business and academic community (Ordanini and Parasuraman 2011). Next, we turn to existing literature on the foundations of product and service.

**From Product-dominant to Service-dominant Logic**

Grounded in economic science, the product-dominant model is the dominant paradigm for business-related disciplines and is variously referred to as the *neoclassical economics research tradition* (Hunt 2000), *manufacturing logic* (Normann 2001), and *goods-dominant logic* (Vargo and Lusch 2004). Regardless of the label, the purpose of the product-oriented firm is to make or change the form, place, time and possession of (ideally tangible) products. Service management standards such as the IT infrastructure library (ITIL) provide recommendations for managing IT service delivery to support products (Whittleston 2012). However, these recommendations do not clarify how organizations should leverage IT to compete based on changing service offerings.

Vargo and Lusch (2004; 2008) argue that the business context has changed, and the centrality of product has hampered theory development because it largely ignores the role of service delivery. It also ignores the way advances in technology drive the shift towards service (Vargo and Akaka 2009). For example, under continuous pressure to leverage resources such as IT to generate options for the future (Overby et al. 2006), organizations are increasingly recognizing that new value propositions are possible when suppliers, business partners, and customers work together to co-produce value (Ordanini and Parasuraman 2011; Spohrer and Maglio 2008). This implies that there is a shift in emphasis from the exchange of tangible, inert resources based on embedded product value, to an emphasis on dynamic resources that act upon other resources to co-create value (Breidbach et al. 2013).

Vargo and Lusch (2008) propose classifying an organization’s service orientation based on a series of foundational premises (FPs). These FPs provide an overarching approach for analyzing economic exchanges based on tangible and intangible resources and competences (i.e., knowledge and skills). Specifically, they contend that the role of providers such as the IS group is to enable and facilitate customers’ value creation. Service dominant logic argues that resources do not possess value per se. Instead, value emerges when actors use resources to integrate and activate processes that co-create value. In this context, the most important resources are often the actors’ knowledge, skills and motivation. The skills and knowledge that actors (such as the IS group) apply in activities, processes, and interactions drives and directs the co-creation of value (Breidbach et al. 2013; Ordanini and Parasuraman 2011; Vargo and Akaka 2009).

Understanding the mechanisms and drivers of value creation is a necessity for successful management of service offerings. Building service offerings demands collaborative competences around interaction and dialogue, with emphasis on people and organizational relationships (Ordanini and Parasuraman 2011). This requires everyone within the IS unit to understand what it means when an organization decides to compete based on business services. This perspective is particularly useful to IS because it can be applied even to tangible products such as hardware and software. Service-dominant logic therefore, offers IS scholars and practitioners a new frame of reference for understanding exchange, in a way that is appropriate for the development of the IS discipline (Akaka and Vargo 2014; Breidbach et al. 2013; Gordon and Tarafdar 2010; Vargo and Akaka 2009).

Advances in IT are credited for driving the shift towards service-dominant logic (Akaka and Vargo 2014; Vargo and Akaka 2009). Extant literature, however, has not isolated the factors driving this shift, nor has it empirically investigated the need for firms to reorient the IS function to enable changing service offerings. The S-D logic does not explain how the IS function should be designed to exploit service opportunities or how variations in the way the IS function operates enables increasing levels of service.

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2 The FPs in Vargo and Lusch (2008) extend Vargo and Lusch (2004). The premises are FP1: Service is the fundamental basis of exchange; FP2: Indirect exchange masks the fundamental basis of exchange; FP3: Goods are distribution mechanisms for service provision; FP4: Operant resources are the fundamental source of competitive advantage; FP5: All economies are service economies; FP6: The customer is always a co-creator of value; FP7: The enterprise cannot deliver value, but only offer value propositions; FP8: A service-centered view is inherently customer oriented and relational; FP9: All economic and social actors are resource integrators; FP10: Value is always uniquely and phenomenological determined by the beneficiary.
Empirically grounded fieldwork is required to generate a deeper understanding of the service phenomenon that will benefit the development of IS theory and the advancement of management practice.

Service dominant logic does not claim to be a theory per se, but an overarching perspective that is guided by a set of foundational premises. The advantage of this is that S-D logic can leverage (instead of compete with) the various theoretical streams that scholars have developed in information systems. Next, we propose that the Management in the 1990s Research Program (Scott-Morton 1991), and follow up work on the role of IT in enabling organizational transformation (Sauer and Yetton 1997b; Weill and Ross 2004), provides a suitable starting point for integrating S-D logic with the literature on IS-based organization transformation.

**Service Value Creation**

Moving to service is not only about reactively creating value for the customer. It is also about ensuring the ability of an organization to proactively appropriate its own fair share of any newly created value (Coltman 2007). However, industry reports indicate that it can be difficult for organizations to place themselves in a position to appropriate the value from service activities (Bitner and Brown 2008). As these activities evolve, new forms of IT support are often required (Akaka and Vargo 2014). This, in turn, can affect the alignment of IT with service activities, thus further undermining the ability of organizations to realize value.

One of the most popular models of fit for thinking about the role of technology in any organizational transformation is the MIT90s framework (Scott-Morton 1991). This strategy–structure fit perspective motivated a special issue of the IBM Systems Journal on the concept of strategic IT alignment. Venkatraman’s (1991) work within the MIT90s project led to the seminal Henderson and Venkatraman’s (1993) alignment paper in that special issue. This perspective has also been used to illustrate the different paths to fit that contribute to organizational transformation (Sauer and Yetton 1997b).

The MIT90s model characterizes an organizational transformation in terms of five interacting elements: strategies, organizational structures, individuals in roles, management processes, and information technologies. These elements provide the basis for managing IT in modern organizations (Weill and Ross 2004). However, in practice, many IS units are wedded to the goods-dominant paradigm, which states that IT must support or be aligned to the established strategy (Chan 2002; Sauer and Yetton 1997b; Tallon 2008). On the surface, the alignment approach appears straightforward but the shift from product to service requires that organizations go beyond IT support to understand how to leverage IT with service offerings.

In this context, enhancing alignment depends upon the extent to which the activities of different work groups, which can have competing interests, are integrated across the whole organization. This integration requires that IT groups within the organization continue to altruistically serve the overall strategy of the organization while also supporting individual business functions. The reality though is that any structure that requires people to behave in ways that might conflict with local pressures can be problematic because IT people tend to be “captured” by local requirements or “go feral” as Sauer and Yetton (1997b, p. 39) ascribe. For instance, conflicts often arise when corporate management efforts to reduce IT costs affect the ability of business units to respond to customer demands (Fonstad and Subramani 2009).

Thus it is not clear what impact increasing levels of service will have on the IS function. Studies have shown that the transition to a service-oriented model requires managers to expand their perspectives and to find appropriate ways for changing organization structures, processes, and organizational roles (Akaka and Vargo 2014; Hipp et al. 2000). New structural designs may be required for allocating formal authority to specific service-oriented teams or for grouping people in ways that provide the agility expected of service, while at the same time delivering the efficiency and reliability expected by the business. For instance, Cognizant Technology Solutions, a global provider of business and IS outsourcing services, had

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3 As of 6 September 2014, Google Scholar figures indicate that Henderson and Venkatraman’s (1993) paper has been cited 3,116 times.
to reinvent its centralized structure in the mid 90s to cope with the company's accelerated growth. The company decided to implement a matrix structure as a way to enhance the flow of information, efficiency, and agility as it expanded into new markets. The new structure made it possible “to build IS that customers wanted” (Pearson and Saunders 2013, p. 75).

Transitioning to S-D logic requires disciplined leadership to ensure that the IS unit is positioned to support changing service offerings. The IS unit must be structurally and behaviorally positioned to leverage the collective learning from ongoing service experimentation, especially on how to integrate multiple staff roles, technologies and processes for adapting quickly to customer requirements. In order to advance our understanding of these issues, we investigated the role of the IS function in four multi-business organizations.

Research Method

The method underpinning this research is based on field studies using interviews, observations and analysis of secondary data sources (e.g., annual reports, news releases, presentations to annual general meetings) from a sample of four multi-business organizations that rely on IT to support service delivery: (1) DHL, (2) National Australia Bank, (3) SingTel Optus, and (4) KPN. The research sites are briefly described in Table 1.

Although operating in different industries, these organizations all produce both business-to-customer and business-to-business products and services. The organizations vary in terms of age and size. The research sites are at different stages of service development and provide several opportunities for comparison (Rouse and Daellenbach 1999) that are ideally suited to theory development (Strauss and Corbin 1990). The multi-organization study permits cross-site comparison allowing the researcher to identify idiosyncratic aspects of any one site in perspective. Table 2 contains case study comparative data instances for key components for service provision discussed in the section “service value creation”.

In collecting the empirical data, we used several types and sources of data to provide a rich and solid foundation for theory development. Specifically, we conducted 42 interviews with organizational members involved in the IS function to identify their perspectives on, and experiences with, the way IS adapt to support increasing levels of service. Interviewees were primarily drawn from senior managers focused on the IS function (i.e., Chief Information Officers and their direct reports, business executives, and innovation managers). Data relating to service development processes and projects were assessed and integrated across informants to ensure consensus of all factual matters. The typical interview lasted about an hour. All interviews were audio recorded and transcribed verbatim.

We conducted a thematic analysis of the evidence where the authors each read interview transcripts, observation notes and documents, looking for themes and patterns (Miles and Huberman 1994). Critical passages were highlighted and coded, and initial interpretations recorded in marginal notes. When reading and analyzing the transcripts, we generated memos refining our themes around: (1) the structural elements indicating an increase in service delivery, (2) resultant relationship changes with other parts of the organization and with customers, and (3) resultant capability changes in the IS function, particularly, changing managerial roles, projects, and evolution of technical roles in the IS function to support service.

This approach to theory construction is similar to that used by Danneels (2002) and is based on an iterative process of travelling back and forth between data, pertinent literature, and emerging theory. As the study progressed, we sorted the data into conceptual clusters or sets of closely related analytic ideas. These conceptual clusters reflect the five elements of organizational transformation discussed previously, i.e., IS strategies/orientation, organizational structures, management processes, individual roles and skills, and information technologies. These elements form the basis of the data presented in Table 2. To test the credibility of our interpretations of the data, we subjected our analysis to member checks (Hirschman 1986). In addition, we made several presentations of our findings to the participating organizations to ensure that interview insights reflected the phenomena of interest and were consistent with the organization’s state of IS support. This validation process helped to establish the reliability of the case study findings.
## Table 1. Research Sites

<table>
<thead>
<tr>
<th>Firm</th>
<th>Areas of Activity</th>
<th>Age in years</th>
<th>Annual sales in $ billion*</th>
<th>Number of interviews conducted</th>
</tr>
</thead>
<tbody>
<tr>
<td>DHL</td>
<td>Global market leader in the logistics industry with an international express, air and ocean freight, road and rail transportation network that covers more than 220 countries and territories.</td>
<td>44</td>
<td>65</td>
<td>12</td>
</tr>
<tr>
<td>SingTel</td>
<td>A major telecommunications player within the Asia-Pacific region providing telecommunications, equipment, information technology, and entertainment services.</td>
<td>21</td>
<td>27</td>
<td>6</td>
</tr>
<tr>
<td>Optus</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NAB</td>
<td>A large Australian banking and finance provider with global business operations in the United Kingdom, New Zealand, the United States, and Asia.</td>
<td>122</td>
<td>45</td>
<td>10</td>
</tr>
<tr>
<td>KPN</td>
<td>Leading telecommunications and ICT service provider in the Netherlands, offering fixed line and wireless telephony, internet and TV to consumers, and end-to-end telecommunications and ICT services to business customers</td>
<td>63</td>
<td>17</td>
<td>14</td>
</tr>
</tbody>
</table>

*Figures are approximate to protect confidentiality.*
<table>
<thead>
<tr>
<th>Key Components for Service Provision</th>
<th>Participating Firms:</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>IT/IS Service Orientation</strong></td>
<td>NAB</td>
<td>SINGTEL OPTUS</td>
<td>DHL</td>
<td>KPN</td>
</tr>
<tr>
<td>A way of organizing the IS function based on service delivery with the business units</td>
<td>A way of moving from selling pipes to delivering integrated services (co-production of content and connectivity) to internal customers</td>
<td>A service delivery model that is focused on external customers. IT creates value by delivering an assurance regarding service delivery</td>
<td>An innovation model based on the co-creation of knowledge between users and IS staff, with suppliers and external customers</td>
<td></td>
</tr>
<tr>
<td><strong>Structure</strong></td>
<td>Federal structure oriented around managing demand and supply by providing a professional service interface to the business</td>
<td>Distributed structure oriented around the co-production of IS service (supply) and solution delivery (demand). Highly integrated with business stakeholders</td>
<td>Matrix structure oriented around the importance of tender responses. Service delivery, customer know-how, and segmentation were critical</td>
<td>Matrix structure with external suppliers brought into development work, and helping to deliver IS projects. The matrix links available functions and resources</td>
</tr>
<tr>
<td><strong>Processes</strong></td>
<td>Emphasis on processes to support delivery of services in a commercial manner. Services are positioned, sold and charged on value proposition instead of cost</td>
<td>Focus on end-to-end delivery of services to build trust. Embedded IS staff in business processes to understand the business drivers</td>
<td>Focus on service reliability based on well-defined processes for exception handling. Embedded IS, continuous improvement activities, and workflow management</td>
<td>Emphasis on building processes that support innovation and its delivery</td>
</tr>
<tr>
<td><strong>Individual Roles &amp; Skills</strong></td>
<td>Capabilities around leadership and governance, business relationship, and supplier management. Deeper commercial capabilities than traditional IT shop (need financial asset management, sales, etc)</td>
<td>New appointments around leadership of service management and delivery. Education provided to middle managers with responsibility for service delivery. Intensive 3 day leadership program for middle managers</td>
<td>Capabilities around bid response teams to ensure that the service encounter is favorable. High dependence upon can do managers and customer orientation, country knowledge. Workshops run to share case study knowledge</td>
<td>Capabilities and incentives around collaboration and not just contract management. Incentives were developed to ensure that all the best people are on projects and they can't succeed without help from other suppliers</td>
</tr>
<tr>
<td><strong>Technology</strong></td>
<td>Aligned to service provision – likely to buy on service basis if possible. Seek external provision for services where price &lt; cost</td>
<td>Underpinned by bringing in new tools that allow for monitoring and management of services from an end-customer perspective</td>
<td>Emphasis on the ability to track history of activity, timeliness and accuracy. In house development to major new service innovation</td>
<td>Mature technology based on IS leveraging, the ability to outsource stable IS activities, and sizable in-house IS development for innovation</td>
</tr>
</tbody>
</table>
The IS Function and Service Provision

Our research indicates that the ability of the IS function to support increasing levels of service is contingent on decisions about how to continuously transform IS within the organization, whether this transformation requires adjustments to organizational structure, and the resulting implications to management processes, including technology, people and skills, that facilitate communication and collaboration across the organization. These elements are consistent with IT management principles that emphasize the need for organizations to continuously adjust strategy, structure, technology, and management processes as a way to create alignment, thus enhancing the potential benefits of IS (Boh and Yellin 2007; Henderson and Venkatraman 1993; Sauer and Yetton 1997b; Scott-Morton 1991; Weill and Ross 2004).

Reorienting the IS Function (Strategic Orientation)

In practice many IS units are wedded to the dominant paradigm, which states that IT must be aligned to the established strategy (Sauer and Yetton 1997b; Tallon 2008). While appropriate alignment of IT with the business strategy is widely considered to be a key predictor of IT investment profitability and overall IT effectiveness (Avison et al. 2004; Chan et al. 2006; Sabherwal and Chan 2001), researchers have argued that organizations need to consider the ways in which the business can leverage IT to realize superior value (Mithas et al. 2011; Overby et al. 2006; Sambamurthy et al. 2003).

At the National Australia Bank (NAB) the business is launching a significant IT-based business transformation to change the way it delivers IT on a day-to-day basis. The key to this transformation is to build a new IT platform that will enhance the customer experience and improve service delivery. As a NAB executive explains:

“The service model within NAB is focused on reorganizing the IS function based on service delivery process and what internal business customers understand, value and will pay for.”

By way of contrast, service at SingTel Optus is more an end-to-end proposition where the IS unit seeks to work with other parts of the business (predominantly product design and network delivery) to design, deliver, and maintain new customer services. In this context, service provision is an interactive process that involves a change in the way IS staff engages with the business. One of the big challenges is that:

“The IT, network, and product house are three groups that come together to create something to sell to the customer. So how well we work together is incredibly important for that customer experience. That work is underway now and it’s finding, as it should do, lots of overlaps and inefficiencies and greyness in the way the three groups work together.”

At DHL, service is a critically important route to retain incumbent business and to win new businesses. The IS function plays a key role in providing Total Synchronizing Solutions that coordinate distinct services and business functions to enhance time to market, thus improving the customer experience. However, the competition has also been developing similar solutions to eventually meet customers’ expectations. In this context, differentiation is dependent on the way organizations leverage IT to increase solutions’ efficiency. One of DHL executives emphasizes:

“The majority of the customers under my territory are not only requesting a simple transporting solution today, they are seeking for the most efficient total synchronized logistics solutions to help them minimize any aspects of cost, including manpower, warehousing, insurance, funding ... etc.”

At KPN the business has engaged in a radical transformation, both at the front-end in retail segments, aligning service and structure with customers, and at the back-end in network operations. Within this framework, the IS function recognized it needed to offer much better support to its business users and end customers, translating into valuable operational and strategic innovations. A central part of this
proposition was the notion of co-creation, not just between business users and the IS staff, but also with suppliers and external customers as well.

“We really do believe that innovation can only be done if we use a lot of capacity outside of the company ... from suppliers as well as customers.”

**Structure for Service Provision (Structure)**

Typically, IS units are formed around back office functions and products that are configured into a hierarchy for placement of decision-making power and levels of authority. Chesborough and Teece (1996) have argued that there is a strong relationship between organizational structure and the type of innovation sought. The ability to reorganize and bring together expertise to create customer value is an important function that can differentiate product from service innovation.

At NAB, structural change was required to make way for new skills, capabilities, and roles around *running today* and *building for tomorrow*.

“We sought to organize around and support specific sets of IT customers, focus on individual IT customer needs – by line of business, geography, division etc. This required us to organize around what the IS customer understands, values, and will pay for.”

SingTel Optus found that they were heavily siloed around individual technologies and no function was in place to deliver on the end-to-end customer experience. A combination of stable and reconfigurable structural changes was required. For example, one of the first actions was to create a Command Centre to act as the focus for service management:

“When a customer rings up and lodges a call, somehow that call eventually gets to the right people to fix it. But who actually is responsible for managing the service experience end-to-end? So we put a command centre in place. Now the network guys do this really well. ... they have a huge network management centre with big screens and with all types of people sitting there monitoring vital signs etc. No such thing typically exists in IS, we just don’t have that same focus.”

A second structural change was the separation of applications maintenance from development functions, thereby providing greater end-to-end coordination of service delivery. A key aspect of this was the creation of an express solutions group.

“As in all organizations, there’s this question of, “why does it always take so long and cost so much?” At Optus there are multiple portals, multiple technologies, multiple platforms that service online customers. What we needed was a way to generate kudos [with internal customers] by separating mainstream IT from the small, non-critical internal solutions.”

At KPN, a major structural change was required to ensure work did not become too siloed and embedded in rigid IS structures that undermine innovation. In practice KPN used a matrix structure where projects were driven by both program management and project managers, under the aegis of the head of innovation. External suppliers were treated as additional resources placed in relevant development and delivery units. According to a project manager:

“Structures need to change because the traditional ones disable operating across boundaries, when we are trying to draw on knowledge, experience and insight, from business, IT, customers and suppliers. Only limited innovation becomes possible if we remain siloed.”
Moving Away from Siloes to Enhance Collaboration (Management Processes)

All structures create silos and organizational leaders frequently lament the silo mentality where the walls prevent business stakeholders from interacting with one another. This is a significant problem because supporting increasing levels of service relies heavily on collaboration across internal boundaries to integrate distinct processes. These processes refer to the series of connected activities that move information up and down and across the organization (Kates and Galbraith 2007). This includes work processes, such as developing a new service offering and responding to an order. It also includes managerial processes, such as planning and forecasting sales, price setting, capacity management, and conflict resolution.

At NAB, the focus is on IT processes to deliver best-in-class IT solutions. Processes are established around defining, pricing, sourcing, delivery and retirement of services. At SingTel Optus the processes are oriented around collaboration with the network and product development teams, and being involved in the full product development lifecycle. A critical management process was to bring the IT people on a journey towards service, shifting their focus from IT support to an end-to-end delivery of solutions that provides the required customer experience, where:

“Everyone feels accountable for that customer experience, and the process to get to delivering a service to the customer seeks their buy in and commitment to capture their hearts and minds along the way”.

At KPN the focus was on freeing up the IS function by building processes within the matrix structure that supported innovation and its delivery. As one senior business executive told us:

“We put the designing teams from the several suppliers together in one building and in five months together they built the new IT solution. Designing, building, and testing their own parts are the responsibilities of each supplier. We [KPN] have the integration function and the architecture.”

Technology Solutions Evolution (Information Technology)

While not all business processes are digitized — many require human intervention —, the level of digitization and technology integration provides a platform for service innovation (Schrage 2000). Examples include the novel use of co-production, business agility, and inter-organizational networks (Pearlson and Saunders 2013; Ross et al. 2006).

At NAB, the focus is on technology services to support business service delivery. Example technology services include: (1) Desktop Services, (2) Application Services, (3) Platform Services, (4) Systems Solution Services, and (5) Corporate Investment Control. These services are delivered on a unit-price basis for different service levels. Each service includes the supporting technology and life-cycle management. For example, Desktop Services includes the provision and day-to-day support of the standard operating environment, help desk, data and voice network services, security services, and emerging technology assessments that might affect business services.

At SingTel Optus, new IT solutions were brought in to monitor and manage services from an end-customer perspective.

“The real value is in getting the [IT] tools, implementing them and then refining them, setting the thresholds, working with the tools to get the value, which takes a period of time.”

These IT tools enhance the ability of SingTel Optus to understand how customers are using their services across devices to co-create value. An interesting feature of service based on the co-creation of value is that the service provider cannot always predict exactly how business and IT solutions will be used and how they will affect the relationship between business and customers. The mobile phone application below is a typical example.
“We launched an iPhone application to be able to look up what your account balance is at anytime during the month, etc. So what we found out after a month of launching the application is the customers were using it for not just iPhones, but for anything that ran the iPhone operating system, so iPods can also do it. So you can use that same application meant for an iPhone on your iPod to actually get the balances of all your accounts with Optus.”

DHL has long been recognized for its aggressive exploitation of information technology (Ramani and McKinney 1994) and the company is still heavily reliant upon technology to support the business.

“IT is used to share information across products, services, and locations to increase business visibility, and to provide control. An example of this is the quality shipment monitoring system that provides real time monitoring of flight status and notification of delays within five minutes of an occurrence. This provides real time monitoring of individual shipments door-to-door.”

As a high tech company, KPN aggressively develops and deploys innovative information and communications technologies both internally, for delivering service, and for developing new external products and services. However, KPN uses a lot of innovation power from its network of suppliers and not just IT:

“We are only the facilitator. We bring together those technologies in IT and in our network and take the products to the customers. We are not the most innovative party. We have to challenge the suppliers for innovation.”

Particularly in the area of IT innovation for internal and external customer use, co-creation became the major tool at KPN to reorient the IS function towards a model where suppliers are partners in innovation efforts. Cost cutting associated with traditional outsourcing needed to be balanced with the need for innovation, meaning that a different way of operating became necessary if the innovation of teaming across business units, the internal IS function and suppliers was to succeed:

“We are looking to suppliers that can help us in transformation ... It has to be a combination of cutting costs and innovation together.”

**Intellectual Resources (Individual Roles and Skills)**

There is broad support in the literature for the argument that service innovation is rooted in the intellectual resources, as held and used by employees within the organization (Chesbrough and Teece 1996; Nambisan 2013; Nambisan et al. 2014). This reflects the importance of human resource policies for selection, staffing, training, and reward systems, established to help change mindsets. The challenge for IS units is to get the right people with the right skills and mindsets together to create customer value.

At NAB, moving to a services-oriented organization represented a significant cultural change to hide the technological complexity from the business and to allow a clearer understanding of value.

“This required strong leadership, new skills and capabilities, and re-education of both internal IT and the business [units]. The individual IT roles have changed from being oriented around individual technology assets to the delivery of an IT service to be consumed by the business in its delivery of services in a downstream process.”

The move has required deeper business capabilities than a traditional IT shop. For example, NAB now requires IT staff to learn how to dynamically manage financial and IT assets and risks to provide services to the business (not just manage the budget). In addition, stronger sales and marketing capabilities are required to define and manage the service catalogue.
At SingTel Optus, the focus has moved to working with the business as part of the product development process. This has changed the way that people engage with the business to scope the project, work with others to define the requirements, and then to deliver what had been agreed. It has also improved the selection and retention of highly skilled project managers having the tenacity to drive change in a way the business could grasp.

“Their role is to influence ... to help shape and pick-up issues up-front rather than disappointing them at the back end.”

Regardless of how well thought out the structure is, managers require leadership skills to guide and communicate the reasons for change in the levels of service delivery and the role of IT in supporting service. This is an issue for the IS function because companies generally underestimate how often they move technical people into leadership positions and the need for developing managerial skills:

“I'm an immense believer in a strong team. The caliber of the team is what will make all the difference. What typically happens is that companies provide technical staff with a finance manager's course and wish them luck ... and then scream at them when it all goes wrong.”

The role of leadership was also stressed at KPN with internal staff changing the way they operated to become more customer focused, and changes in more traditional supplier and external customer behavior. How was this achieved?

“My job is to get into supplier organizations and make sure my company has a higher percentage of their innovators and decision makers' time than other companies.”

KPN respondents stressed the role of teaming across boundaries and the need to build trust and strong relationships amongst the stakeholders.

“You build trust by spending time together. You need to have capacity within the organization to do that and build competence and business understanding. You can’t just outsource things and then think everything is going to go well. You need to invest in the relationship.”

Discussion

A growing body of research in marketing and service relates to the benefits that firms realize when they compete based on services rather than products. However, scholars have yet to consider how the increasing emphasis on service affects the IS function. Greater focus on service offerings presents challenges now and into the future for the IS function such as how to build and advance IT solutions as new external service providers and cloud applications become more prevalent. The results from the case studies reveal two drivers that affect the ability of the IS function to support business services: (1) collaborative capabilities, and (2) service orientation. By grounding these concepts in the principles of S-D logic we reveal how the core function of the IS unit is changing in order to survive and prosper as demand for service offerings increases.

Collaborative capabilities: Two dimensions of collaboration that are relevant to the IS function are collaboration with the internal business customer and the external customer. The IS units studied tend to focus primarily on one or the other. The relevant foundational premises in S-D logic are: “The customer is always a co-creator of value” (FP6), “The enterprise cannot deliver value, but only offer value propositions” (FP7), and “All social and economic actors are resource integrators” (FP9). These FPs highlight the active role that customers play in service offerings.

Our research indicates that NAB and SingTel Optus are heavily focused on collaboration with the internal business customer. In the case of NAB, they started on the journey based on a high degree of internal dissatisfaction amongst internal business customers and a need to integrate disparate products. Value at NAB is realized by delivering a standard set of IT solutions, i.e. the right product and service level, at the right price, at the right time, and right quality. A service ethos based on collaboration to support internal
consumption of IS solutions is core. At SingTel Optus, the value proposition is driven by self-reflection and the need to generate kudos and greater appreciation for the role of IS within the business. Collaboration is key to ensure that the IS function plays a more active role within the business. Specifically, the case demonstrated a strong awareness of required cultural change as the IS function builds deeper collaborative relationships with internal business customers.

The DHL case highlights the critical role of IT in enabling external customer service delivery based on delivery of an integrated suite of highly reliable services. This is reflected in DHL’s latest strategic plan (Strategy 2020 document) that emphasizes the need at DHL to focus, connect, and grow with the customer (DHL 2014). At KPN, the pressures for innovation drove IT transformation towards a service-based delivery model. The IS unit consults heavily with the customer and supplier base to develop a transsector innovation model based on co-creation, relationships, and trust. The company stressed a new service logic based on collaboration, more flexible risk-reward contracts with suppliers, long-term relationships with key customers, and greater involvement in new service developments. All four cases are consistent with S-D logic that defines a collaborative competence as the capability to bring internal or external customers into the process and use them as mechanisms to create and capture value (Lusch et al. 2007).

**Service orientation:** Two key dimensions of service orientation are: (1) service excellence, and (2) customer intimacy. These dimensions are similar to the strategic orientations of operational excellence and customer intimacy as proposed by Treacy and Wiersema (1995) but differ in the service focus. They emphasize service delivery as opposed to operational processes. The S-D logic FPs that are relevant are “Operant resources (service knowledge and knowledge renewal) are the fundamental source of competitive advantage” (FP4), along with another key premise “Service (the application of IS skills and specialized knowledge) is the fundamental unit of exchange” (FP1). These premises underscore the way value is created based on effective knowledge transfer mechanisms, an area where the IS function is particularly strong. Prior research shows that the ability of IS to gather data and information to support knowledge absorption, integration and diffusion is an important source of value (Mithas et al. 2011; Ross et al. 2006; Well and Ross 2004).

At NAB, efficient and effective delivery of IT is leading to standardized costs and improved service levels. The IT unit creates value by providing the right solution to the business (e.g., desktop service, network connection, IT platforms). At DHL, IT has infiltrated all aspects of the organization – including invoicing, tracking and tracing, communicating, monitoring, measuring, transacting, and reporting/informing. Traditionally, the industry has focused on flexible features where feedback from the customer was easily available. These features include greater choice of air or ground services, reliability of overnight or second-day delivery, and door-to-door pickup and delivery (Coltman et al. 2010). The new service value proposition at DHL is one where customers will be attracted to an assurance that services will be delivered as expected. The ability to leverage IS to ensure process reliability, delivery excellence and guaranteed solutions to the end-customer is critical to enable value creation. SingTel Optus is focused on pro-active ways to support internal business customers. Attention is paid to building trust throughout all aspects involved in defining and developing services. Lastly, at KPN the focus is on technical innovations that translate into new differentiated customer services. Organizational value is based on building internal systems that connect infrastructure with external customer services.

The theoretical dimensions discussed above shape and constrain the way the IS function operates and how it evolves to support service. The operational models that emerged from our case studies illustrate the different emphasis of DHL, NAB, SingTel Optus, and KPN on collaborative capabilities and service orientation (see Figure 2).

These models reflect the desired levels of collaborative capabilities and service orientation rather than a discrete classification of IS operational models. All four models are relevant to the way organizations leverage the IS function to support service offerings: (1) the IT/IS service delivery model at NAB, to deliver best-in-class services and embedded physical products, (2) the business co-production service model at SingTel Optus, based on the reciprocal co-production of end-to-end delivery of IS as a service across the customer lifecycle, (3) the customer business service delivery model at DHL, based on secure processes and technologies that deliver reliable end customer service, and (4) the customer co-creation service model at KPN, based on collaborative service innovation and highly integrated processes that create clear economic value for external customers and the organization.
Looking across the four cases and linking back to the research question it is clear that a number of factors influence the way the IS function changes in response to increasing levels of business service. In the first instance, the gap between aspiration and actual performance is driving the desire to improve service delivery. This perspective is consistent with the behavioral theory of the firm that argues differences between perceived and desired outcomes drive behavior (Cyert and March 1963; Gaba and Joseph 2013; Greve 2003). In NAB’s case they start with a high degree of internal dissatisfaction amongst internal customers regarding the ability of the IS function to integrate disparate products and services. Aspiration levels in the IS group are focused on getting the service ethos and delivery mechanisms in place for internal consumption. SingTel Optus is further in the evolution, bringing internal business customers more proactively into defining and developing services. DHL is even further along in its objective to deliver internally-generated IT solutions to external customers, while KPN has recognized its need to co-create value with external customers and IT suppliers to innovate differentiated services for external customers. The foundational premises of S-D logic imply that the IS function will continue to evolve as they build collaborative capabilities (both internally and externally) and expand their service orientation to meet the expressed needs of the customer in each industry (Akaka and Vargo 2014; Vargo and Akaka 2009).

Our evidence supports research elsewhere and suggests that external suppliers can be used when firms seek to improve and deliver traditional services internally. In these organizations, outsourcing contracts can support a strong internal retained capability to shape, manage and monitor, as well as to contribute to that service (Willcocks and Lacity 2009). However, higher levels of collaboration and commitment and different forms of contracting and working together are needed when external customers are being serviced. Indeed where new services are required this rises to the level of collaborative innovation, as in the KPN case.

**Concluding Remarks**

According to Drucker (1974), the greatest danger facing business managers in times of turbulence is not the turbulence. Instead, it is the propensity amongst managers to act with yesterday’s logic. Prior literature argues that yesterday’s logic is a logic based on tangible products or what Vargo and Lusch (2004; 2008) refer to as goods-dominant logic. This logic that continues to linger in organizations is focused on separating the supplier (or producer) from the customer. In the IS discipline, this separation facilitated managerial control and efficiency and was usually accomplished by standardizing the product.
and producing it away from the end user. The findings in this study indicate that organizations possess idiosyncratic characteristics that both shape and constrain the way IS supports increasing levels of service. By investigating these characteristics, this study provides a platform for future work that might seek to develop operational schemes that are amenable to quantitative verification. This paper extends prior IS literature by showing that the role of IT in enabling business services involves reorienting the IS function to effectively compete based either on business co-creation or customer-oriented value creation models.

Future research might examine the antecedent capabilities and performance outcomes amongst different IS units. For instance, this work could extend the Willcocks et al. (2006) task and capability framework to incorporate the operand and operant resources that are critical to service (Nambisan 2013; Nambisan et al. 2014). Operant resources such as knowledge-based capabilities – technology assessment, business process improvement, systems integration, business support services – that consultants usually bring to the IT innovation process (Swanson 2010) will vary considerably as IS units transition from product to service. Our understanding of the way in which managers develop the insight to support new levels of service is limited and remains obscured by high levels of technical and market uncertainty (Richard et al. 2012). A deeper understanding of the benefit and risk associated with service is important because, as IS units come under pressure to meet new service-oriented objectives, they must be careful not to lose the watchful approaches of the past that provide operational efficiency.

References


