MOBILIZING INNOVATION CAPABILITY FROM SERVICE VALUE NETWORK TO PARTNERING COMPANIES: A THEORETICAL STUDY

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ABSTRACT

Business firms are increasingly becoming dependent on each other to deliver services to their customers. Due to rapid changes in market conditions such as introduction of new technologies, changing customer preferences, and increasing competitive pressures on firms, the ability to build innovative capability has become a key resource and an asset. In the context of service firms, there is a growing trend of collaboration between firms facilitating value creation. Nevertheless, it is important to understand value creation in the reverse manner i.e.; do networks facilitate value for individual firms in return, and are there linkages between capabilities of networks, and capabilities of individual partnering companies. As evident from extant literature, the nature and type of linkage between firms in a business network plays a critical role in facilitating innovation capability building of the network. However, in order to effectively learn from the network service firms need to possess sufficient learning capacity to transform that into innovation capability within their own firm. This paper addresses the development of innovative capability of a partnering firm resulting from a collaborative arrangement; with this backdrop the paper presents a theoretical framework.

**Keywords:** Innovation Capability, Service Value Network, Collaboration, Organisational Learning.
INTRODUCTION

Increased competition, technological changes and dynamic nature of the market have created opportunities for collaboration among firms which enables them to concertedly share complementary tangible and intangible assets, and skills. Dynamic capabilities are recognized as the key capabilities that help firms position themselves in changing external environments (Teece, 2009). Innovation capability is regarded as one such dynamic capability that helps firms align with the changes in the external environment. On the other hand, in a rapidly changing environment learning capacity of an organisation also has a mediating effect on the innovation capability (Murugiah, 2008). Therefore, it is imperative to establish effective mechanisms of collaboration within service value networks (SVN) to positively affect innovation capability building of individual partnering firms arming them with an ability to react in accordance to the changes in the external environment.

The commercialization of service innovation is increasingly conducted through successfully coordination between network of firms, typically classified as a SVN comprising of unique capabilities (Agarwal and Selen, 2011). Although Goes and Park (1997) found that participating in a network increases service innovation capability, on the other hand findings of Lee, Padmanabham & Whang (2009) suggest that large network also negatively affect the innovation capability of firms. In order to successfully transfer capabilities from SVN to partnering companies, partnering companies need to have the ability to learn – termed as learning capacity. As such to gain innovation capability ,it is critical for service firms to create relationship between learning capacity of firms and various higher order capabilities of network facilitated through technology, skills and collaboration.

This paper presents a theoretical model of business relationships in a SVN with an aim to demonstrate the process of ‘Innovation Capability’ building of partnering companies mediated by various higher order capabilities of the SVN. We next provide a detailed literature review covering aspects of the process of innovation capability building by individual firms and the role of networks in innovation capability building. The proposed theoretical model will be presented followed by a detail definition of the constructs and explanation of hypotheses. Finally, managerial and policy implications of the
theoretical model along with future prospects of research will be discussed. For the purpose of this paper terms ‘SVN’ and ‘networks’ are analogous.

LITERATURE REVIEW

Innovation as seen through the ‘Service Value Network (SVN)’ lens

Innovative organisations often extend their interactions beyond the organisational boundary through different types of interactions resulting from different types of ties (Powell and Grodal, 2005). Occasional interactions are identified as weak ties and frequent interactions between firms are identified as strong ties (Powell and Grodal, 2005); henceforth when creating strong ties through increased communication and information sharing across network of organisations, individual firms can mitigate the inherent uncertainty of innovation (Kraatz, 1998), facilitate lowering of total costs (Gavirneni, 2002) and improve service innovativeness (Lee et al., 2009). Gupta and Govindarajan (2000) argued that firms participating within a network can advance their competencies through learning new knowledge from interacting with each other. In the same vein and in the context of a SVN, Agarwal & Selen (2009) demonstrate the process of dynamic capability building centered on organisational relationship, facilitated through learning leading to higher order competencies resulting in innovation in services.

Empirical findings suggest that firms are more motivated to share their ideas and resources when they are closely connected (Uzzi, 1999; Tsai, 2001). Rindfleisch and Moorman (2001) argued that a network of firms can achieve synergistic benefit through sharing complementary knowledge. Agarwal and Selen (2009) suggest that innovation outcome of the SVN partners is improved due to access to a large pool of knowledge as empirically operationalised by ‘our’ and ‘your’ organizational learning. Further, Bititci ; Martinez, Albores and Parung (2004) identified that enterprises who work collaboratively to achieve mutual goals through combining their core competencies can develop innovation capability. Therefore, it is evident that networks may play a positive role in facilitating learning and innovation capability building amongst partnering companies.

Despite the positive findings about collaboration and innovative capability of firms, opposite findings
also exist such as Krackhardt (1999) who found that strong ties may not necessarily result in positive outcomes for participating firms. Additionally, Rowley (1997) argued that sharing information and knowledge between closely tied partners may not provide any new insights and also may create redundancy. Furthermore, Fombrun (1986) stated that strong ties discourages firms from challenging each other, and in fact facilitates reaching agreement between partners; only to avoid conflicts and in order to maintain long term relationships. Therefore, Agawal and Selen (2011) suggest that strong ties between partners bound partnering companies’ capability to develop new ideas and capability to innovate new services (Krackhardt, 1999). By the same token firm size of a network reduces innovative capability of partnering companies Lee et al. (2009). Therefore, with these conflicting views on how networks positively and negatively influence the partnering firm’s innovative capability, it is important to understand how the learning capacity of a partnering firm mediates the innovation capability building process of partnering companies in reverse.

**Innovation Capability Building Process**

Innovation can occur from routine application of ‘organisational memory’ (Nelson and Winter, 1982). Firms develop their knowledge base incrementally through practices, these when converted into organisational routines, create organisational memory. The organisational memory perspective has been further illustrated by several theories including Walsh and Ungson (1991) who argue that the acquisition, retrieval and storage of information are the routines themselves that support building of organisational memory. Organisation memory is henceforth defined as the stored information of organisational history which can be utilized to make decisions at present (Hargadon and Sutton, 1997). Therefore, an organisation that exploits its memory through leveraging knowledge management practices may become more innovative in practice when addressing problem solving or pursuing innovative ventures. To stretch the development of these capabilities further, Hargadon and Sutton (1997) suggest that systematic exploitation of organisational memory across organisational boundaries helps create innovation capability for the organisation.

Various perspective have emerged in analysing the cross fertilization of knowledge across organisation for the purpose of innovation through organisational learning. ‘Technology brokering’ or ‘Knowledge brokering’ (Handerson and Sutton,1997) refer to such idea which advocate converting
tacit knowledge of individuals into explicit codified knowledge; therefore, they emphasise on nurturing knowledge sharing culture across the organisation in order to develop innovation capability through organisational learning. As organisational knowledge is stored in both tacit and explicit forms, if the degree of tacit form of knowledge is higher, it makes the codification of organisational knowledge difficult (Alavi and Tiwana, 2002). Therefore, the authors argue that effective transaction memory system enhances the team members’ capability to contribute knowledge and improve task performance through organisational learning (Alavi and Tiwana, 2002). As mentioned earlier, learning happens on both sides of the partnership as typified by Agarwal & Selen (2009).

As innovation is an outcome of organisational learning, researchers have attempted to investigate the recursive relationship of innovation and organisational absorptive capability. Empirical studies suggest that absorptive capability increases the speed, rate and scale of innovations. At the same time, the innovative outcomes themselves contribute to the knowledge base and in turn elevate the absorptive capability of the organisation (Helfat, 1997). Absorption capability facilitates incremental innovation because firms draw upon such innovation from their existing knowledge base (Anderson & Tushman 1990). Hurry, Miller and Bowman (1992) found that, if a firm innovates more in a certain aspect of technology, it increases the absorptive capability of the firm due to increased knowledge in that particular area. On the other hand, radical innovation involves a new combination of knowhow and existing technologies (Kogut & Zander 1992; Van den Bosch, Volberda & De Boer (1999). In this way, Van den Bosch et al. (1999) show that absorptive capability, based on a range of loosely connected knowledge domains, can support both incremental and radical innovation.

Robinson et al (2003) argued that in telemedicine service, learning capacity of an organisation influences significantly their capability to adopt new service delivery methods while participating in a network of health service organisations, henceforth, learning capacity of an organisation plays an important role in innovation diffusion in a collaborative environment. Hertog, Van der Aa and Jong, (2010) mentions that learning and ability to adapt are key dynamic service capabilities that firms require when introducing new service offerings to the customers. They further mentioned that learning from both failed and successful projects, is a meta-capability that can inform service innovation management processes. Murugiah (2008) identifies how organisational learning capacity
can be managed in a fast paced external environment that can lead to innovation capability which requires further investigation. Hertog (2010) mentioned that further research and close examination are needed to investigate the process of organisational learning and adaptation into successful service innovation processes and it is this gap that we are trying to investigate in here.

**Role of Information, ICT and management**

Spohrer, Maglio, Bailey & Gruhl (2007) demonstrate that service has become a significant force in many national economies and growing trend of service dominance has created tremendous scope of research in service science. They identify that technology, ICT in particular has important role in designing service system. Spohrer and Maglio (2008) mentioned technology as a critical resource for service system design and information sharing is another key aspect of service system in order to achieve service innovation. Moreover, Agarwal et al (2011) identify information system architecture and managerial role in a SVN facilitates service innovation through incorporating service oriented architecture driven information systems. Cepeda and Vera (2007) illustrate in detail how information system and communication infrastructure of an organisation create the bridge between the dynamic capabilities and operational capabilities facilitated by knowledge management architecture. Spohrer and Maglio (2008) highlighted the importance of further research on the role of information system in service system design considering the interconnectedness between various systems; organisations to achieve robust service system architecture that can deliver service innovation resulting increased productivity, growth and stakeholder satisfaction.

**THEORETICAL MODEL**

The theoretical model illustrated in this paper in underpinned by five key constructs which include Collaborative Organisational Infrastructure (COI), Collaborative Architecture Management (CAM), Collaborative Innovation Capacity (CIC), Organisational Learning Capacity (OLC), and Organisational Innovation Capability (OIC). The theoretical model illustrates the moderating role of both COI and CAM between CIC and OLC, added with the mediating role of OLC in the relationship between CIC and OIC. We have already discussed briefly about various aspect of innovation capability building processes within organisational boundary, and also highlighted the role of collaboration in building innovation capability within partnering firms. The underlying hypotheses of
the theoretical model will underpin the moderating role of Information Technology Infrastructure and Governance over the innovation capability building processes of the partnering companies in a SVN.

**Transferring innovation capability from SVN to individual organisation**

In this section we present our arguments, define constructs and discuss the hypotheses in coming up with the theoretical framework as shown in Figure 1.

![Figure 1: The Theoretical Model of Organisational Innovation capability building](image)

**DEFINING CONSTRUCTS**

**Collaborative Organisational Infrastructure (COI) and Collaborative Architecture Management (CAM)**

Agarwal et al (2011) stated that deployment of IT infrastructure, integration of systems and processes across organisational boundaries can deliver organisational benefit significantly. Agarwal and Selen (2008) defined the COI construct that aims at fostering knowledge and information sharing through integrating processes and systems across organisational boundaries of service value network. Agarwal et al (2011 p.2) define COI as:

"COI is identified as a construct that allows for information and knowledge sharing through the integration of systems and processes both within and across organizational boundaries of SVN."

Agarwal and Selen (2008 p. 39) defined CAM as an organisational driver of successful innovation that refers to organisational ability to align and coordinate resources across inter and intra organisational boundaries:
“an ability to coordinate and align resources, activities and routines that span across inter- and intra-organizations, with mutually agreed cost, revenue and risk sharing performance measures that are to the benefit all parties of SVN”.

Agarwal and Selen (2008) emphasise the role of ICT as a critical catalyst to enhance the capability to work collaboratively with increased flexibility and speed.

**Collaborative Innovative Capacity (CIC)**

Collaboration with a broad range of stakeholders such as suppliers, customers and partners increase the scope of idea creation (Oke, 2007). Agarwal and Selen (2009) advocate for utilising stored ideas for the future review according to innovation cycles. Bessant, Lamming, Noke and Phillips (2005) defines collaborative innovative capacity as capability to equip partnering companies to perform cross fertilisation of ideas, allow application of ideas across the industrial boundary and promote lateral thinking. Agarwal and Selen (2009: p.238) define CIC as

“a dynamic skill that is developed when collaborating with partners and consists of an ability that evolves within individuals or groups; it is an ability to come up with innovative ideas, which gives partnering organizations the capacity to introduce new services, new or modified processes, new or modified operating structures, new ways to market products or services, or ideas through the integration of capabilities and resources in an urge to incite innovation.”

Agarwal and Selen (2009) further argue that CIC facilitates managerial capability to apply new ideas across the organisational and industrial boundary.

**Organisational Learning Capacity (OLC)**

Spicer & Sadler-Smith (2006: p.135) define organisational learning as:

“Organizational learning may be defined as the development or acquisition of new knowledge or skills in response to internal or external stimuli that leads to a more or less permanent change in collective behaviour and that enhances organizational efficiency and/or effectiveness.”

McEvily and Chakravarthy (2002) identify ‘know-how’ as highly complex, specialised and tacit in nature, therefore can generate more durable advantage for firms than any other resources.
Organisational learning therefore can be defined as actively leveraging on the know-how and individual expertise that reside on individual minds (Scarborough, 2003). Daghfous (2004) mentions various types of programs that encourages learning among employees such as training or brain storming sessions increase the learning or absorptive capacity of an organisation resulting increased capacity of innovation. Hock-Hai et al (2006 p.264) define ‘Organisational Learning Capacity’ as :

‘as an organization’s shared assumptions and mechanisms (in terms of processes or culture) that contribute to its capabilities to sustain and improve performance unfettered.’

Organisational Innovative Capability (OIC)

Lawson and Samson (2001) defined ‘Innovation capability’ as an ability to continuously convert knowledge and ideas into new systems, processes or products that benefit the firms and the stakeholders. Fusch, Mifflin, Miller, and Whitney (2000) and Lawson and Samson (2001) further argued that innovation is a higher order capability that allows firms to integrate and manage multiple capabilities. Daghfous (2004) argues that organisational innovation is an evolutionary process to adapt with the ever changing business environment. According to Daghfous (2004) organisational innovations rely on the firms’ ability to acquire; assimilate and utilize knowledge intensive practices, therefore firms need to equipped with tools that can facilitate the exploitation process. Lawson and Samson (2001: p.384) define ‘Innovation Capability’ as:

“An innovation capability is therefore defined as the ability to continuously transform knowledge and ideas into new products, processes and systems for the benefit of the firm and its stakeholders. Innovation capability is not just an ability to be successful at running a business new stream, or to manage mainstream capabilities. Innovation capability is about synthesizing these two operating paradigms.”

In the next section we will discuss the hypotheses that are derived from the theoretical model incorporating the above constructs.

HYPOTHESES

Hypothesis 1: COI has a moderating effect on the relationship between CIC and OIC via OLC.

ICT (COI) as an enabler of the innovation process
Vargo and Lusch (2010) stated that virtual collaboration has become an increasing phenomenon throughout the SVN where communication and sharing of knowledge between several parties are facilitated through internet. Information system and technology (ICT) can facilitate process innovation through process redesign, innovation diffusion and organisational assimilation of IT (Serrano and den Hangst, 2005). In case of process automation or improving process control, IT plays a vital role of enabler (Tarafdar and Gordon, 2007). Armstrong and Sambamurthy (1999) found that IT infrastructure sophistication has an impact on IT assimilation in an organisation and their findings suggests that sophisticated IT infrastructure provide a foundation for integrating business strategies and value chain of an organisation. Several researchers suggest that radical innovation involve new combination of know-how and existing technologies (Kogut & Zander, 1992; Van den Bosch et al., 1999). Sambamurthy and Bharadwaj (2003) found that investment in IT deliver digital options to the firms that enable firms to achieve competitive advantage through providing various digital options. The research findings on firm performance and process innovation shows mixed outcome, however empirical study shows that increased investment in IT positively affect firm performance through process innovation and redesign.

**CIC affects OIC facilitated by COI mediated via OLC**

Fagerberg and Mowery (2006: p.151) stated ‘innovation relies on collaboration and interactive learning, involving other enterprises, organisations and science and technology infrastructure’. Critical antecedents of process innovation are infrastructure flexibility and capability, collaboration, process analysis and necessary resources such as skilled personals and system. Daft (1986) argued that collaboration can engage core employees in the process of innovation and can be an implementation strategy of innovation.

Soto-Acosta (2008) based on an empirical study found that collaborative technologies have positive influence on the collaborative innovation environment to enable partnering companies capability to deliver innovative outcome. Chen and Fuyuan (2011) found that through collaborating with a network individual companies can achieve effective knowledge management capability and design capability to synchronize and assimilate various internal and external sources of innovation into successful innovation.
The process of organisational learning, inter organisational learning and innovation are tightly linked with each other (Oliver, 2001). Drucker (1998) stated that in order to creatively response to different business opportunities in real time corporate entrepreneurs should consciously and purposefully engage in network and further argued engagement as the discipline of innovation. Absorptive capability explains the fact that organisation needs to adapt external knowledge in order to remain competitive in the market, (Kogut & Zander, 1992; 1994; Van den Bosch et al., 1999). Cohen and Levinthal (1990) emphasise on diversification knowledge domain in order to deliver innovation through interactive learning. Ziemer & Long (2009) found that collaborative network act as a critical pre-condition to build innovation capability to the incumbent firms through providing wider access to various essential technological resources and skills that entrepreneurs of incumbent firms can leverage in performing innovation activities. Therefore, we emphasise that COI acts as a moderating factor to facilitate inter-organisational communication processes through formal and informal communication channels that affect the organisational innovation capability mediated by learning capacity of an organisation.

Based on the above discussion we can reinforce our hypothesis that ‘Collaborative Organisational Infrastructure (COI)’ moderates the relationship between Collaborative Innovation Capacity (CIC) and Organisational Innovation Capability (OIC) mediated by Organisational Learning Capacity (OLC).

**Hypothesis 2: CAM has a moderating effect on the relationship between CIC and OIC via OLC.**

**Relationship between Organisational Structure (CAM) and OIC**

Static characteristics such as type of knowledge and organisational structure have relationship with organisational learning and innovation. Several studies found that type of knowledge and organisational structures have direct relationship with inter organisational learning and innovation and indirect relationship with organisational learning (Ahuja & Katila, 2001). Mehrabani & Shajari (2012) identify that knowledge management practices of an organisation has impact on the innovation capacity of the organisation. They further argue that in order to outperform competitors it is critical for managers to create a learning environment in the organisation that can lead various innovation processes through encouraging sharing of information, ideas and knowledge across the organisational
boundaries. Organisational structure plays significant role in shaping organisational knowledge management processes through defining information and knowledge sharing, disseminating and acquiring strategy and processes (Winter & Szulanski, 2001).

**Role of leadership (CAM) in building innovation capability from SVN**

Organisational leaders can influence the innovation capability of firms (Daft, 1978). Top management leadership plays a critical role in sustaining dynamic capabilities (Teece, 2009). Sambamurthy and Zmud (1999) empirically found that IT governance, IT decision rights and rules have significant impact on the capability of firm to direct and coordinate their IT capability. According to Daft (1978) top management of an organisation act as a bridge between technical environment and organisation, therefore, the degree of exposure into technological environment, rank and status of the top management administrators of an organisation enable them to initiate change in the organisation. Moreover, Daft (1978) argued that organisational leaders can initiate innovation through establishing goals priorities and encouraging innovation from lower level managers. Murugiah (2008) found that top management leadership has clear influence on the learning outcome of the organisation, innovation diffusion and organisational capability to adopt new technology to improve delivery of telemedicine services.

Chen and Fuyuan (2011) found that through engaging in a collaborative innovative environment firms learn one of the critical capability to manage their own innovation which is ‘adaptive governance mechanism’. They clarified adaptive governance mechanism as the internal governance of an organisation which has the capability to align and adapt with the change processes that the innovation processes requires. Owen et al (2008) mentioned that vertical alignment contemplate innovation objective of a business strategy into organizational strategy through developing roadmap and horizontal alignment refer to as the re organizing business processes and organisational resources to carry out the strategic priority. On the other hand, Owen et al (2008) highlighted the role of leadership in fostering organisational learning in a collaborative innovative environment through nurturing positive culture and eliminating the barriers of effective collaborative innovation. Hock-Hai et al (2006) identify that organisational learning capacity has significant impact on the adoption of knowledge intensive technological innovation; however, Chen, Hung and Chien-Ming (2010)
mentioned that in a collaborative environment transparency, commitment and motivational factors in collaborative relationships determine the learning outcome of partners. Therefore, we identify the mediating role of OLC on OIC and moderating affect of CAM on OIC via OLC.

From the above discussion we argue that ‘Collaborative Organisational Infrastructure (CAM)’ moderates the relationship between Collaborative Innovation Capacity (CIC) and Organisational Innovation Capability (OIC) mediated by Organisational Learning Capacity (OLC).

**MANAGERIAL IMPLICATION AND FUTURE RESEARCH**

Teece (2009) suggests orchestration of tangible and intangible assets and corporate renewal through redesigning routines. Enterprise that achieves reconfiguring capability may be able to adjust their products or service offering through adjusting their complementary value offerins, systems and organisational structures. Enterprises should consider alignment, realignment, co alignment and redeployment of tangible and intangible assets and skills across organisational boundary. Hetforg (2010) mentions dynamic capability view as highly suitable in the service industry as service organisation possess less tangible resources and carry highly interrelated capabilities across organisational processes and routines. Agarwal and Selen (2009) also empirically demonstrated the fitness of dynamic capability view in the service industry in the context of a service value network and demonstrated the process on how the partnering companies can engage in collaboration through sharing complementary skills and assets leading to innovation in services.

Innovation capability is a key dynamic capability (Teece, 2007, 2009) and organisational learning has also been identified as an important dynamic capability (Zollo and Winter, 2003), therefore it is important to investigate how these two higher order dynamic capability can deliver the intended outcome facilitated by higher order capabilities of a network.

This model carries considerable managerial implications as service tends to be a dominant logic in business enterprises (Vargo and Lusch, 2004; 2010) and collaboration is a prominent phenomenon in service industry to build dynamic capability (Agarwal and Selen, 2009). If we consider the telecommunication industry we can observe high collaboration between various firms enable delivery of final service offerings to the customers. Moreover, health, tourism, education or financial service
industries also rely on each other to operate in the market. Therefore, in order to co-evolve in a fast changing environment it is imperative to build the higher order dynamic capabilities that are discussed in this paper.

On the other hand, absorptive capacity view (Cohen and Lavinthal, 1990) forecasts that managers may tend to invest in assets that are ‘close in’ to the existing assets; therefore, managers may miss the potential scope of radical innovation. Moreover, in establishing problem solving practices managers may try to frame their decision making and business model in accordance with their existing knowledge and skill base, as a result cognitive limitations and framing bias that arise from existing resource can create constraints to address potential radical innovation opportunities. Therefore, it is imperative to understand the linkage between inter and intra organisational infrastructure, network management, learning capacity and innovation capability in order to develop dynamic capability.

This theoretical model presents significant importance to the service industries. Enterprises are shifting towards service orientation (Vargo and Lusch, 2004) and the collaboration between various enterprises to deliver services has resulted significant elevation in the service outcome as customer experience (Agarwal and Selen, 2009). Among others collaboration has increased in the health services significantly. Spohrer and Maglio (2008) appreciated the underlying complexity of service system and recognize the critical role of service systems that are connected across organizational boundary. In the health service sector SVN is gaining growing importance to deliver improved services to the customer through collaborative innovations (Tomek et al, 2012). Tomek et al (2012) found that in a health service organisation consortium has able to deliver significant improvement in health care value creation in terms of various key indicators across the service delivery procedures and organisational processes through increasing quality and reducing cost based on a collaborative effort. Swinglehurst (2010) identified that ICT can facilitate the collaborative work routines and can have a potential to improve the service outcome of General Practitioners through providing various stringent tools such as automated safety features that elevate the service offerings.

In order to validate the hypotheses of this paper it is important to conduct empirical study through appropriate research methodology. This paper is a path way to a wider research intention and therefore expects potential feedback to navigate in the right direction.
CONCLUSION

Innovation is a crucial area of research for organisations and management studies in order to assist organisations to meet the challenges of the marketplace more effectively. Successful innovation requires the effective interaction between organisational processes and organisational human resources. It also requires the support of top management. The leadership capability of top management will affect the innovation capability and also push the frontier of learning capacity of each of the partnering organisations. In an era of collaboration it is important to build effective mechanism of business relationship that can translate the capabilities of network effectively to the partnering companies. This paper highlights this important issue of establishing functional relationship between networks and partnering companies with an expectation to carry out further research to validate the hypotheses presented in this paper.
REFERENCES


INTRODUCTION
In an increasingly competitive and dynamic market, firms are facing challenges that they are finding difficult to overcome on their own as single entities. Present market conditions - rapid technological changes, high competitive pressure, and increasing demand for improved service - have put tremendous pressure on service firms to increase their innovation capability. But these very conditions have also created a dynamic market, and opened up opportunities for collaboration among firms enabling them to share complementary skills, and both tangible and intangible assets. In this context, Service Value Networks (SVNs) offer customers the choice of technology, knowledge, and processes across the network through aligning relationships between firms.

Agarwal and Selen (2005) identified the Service Value Network (SVN) as a network that creates and reinvents value by mobilising resources and combining the core competencies of various stakeholders. A SVN, through seamless integration of Information and Communication Technology (ICT) systems, allows firms to improve business ties and information sharing and, as a result, enrich both their cognitive and information capabilities across inter- and intra-organisational boundaries. SVN, with dynamic capabilities, also enable the commercialisation of service innovation, which is increasingly conducted through successful coordination between a network of firms (Agarwal & Selen, 2005; 2011). For this to be effective, mechanisms of collaboration within SVN need to be established to aid the innovation capability-building of individual partnering firms, and arm them with the capability to deal with changes in the external environment.

Dynamic capabilities are recognised as the key capabilities that help firms position themselves in relation to changing external environments (Teece, 2009). In order to successfully transfer capabilities from SVN to partnering companies, these partnering companies need to have the ability to learn, that is, have a learning capacity (Agarwal & Selen, 2011). It is therefore important for service firms to develop a learning capacity, and other higher-order capabilities that are facilitated through ICT emerging from SVN collaboration. Innovation capability is one such dynamic capability that helps service firms align, and adapt, to the changes in the external environment. On the other hand, in a rapidly changing environment, there are however, some counter arguments, for example
where the learning capacity of an organisation can also have a mediating effect on innovation capability (Murugiah, 2008). In short, the learning capacity of a partnering firm is pivotal to its ability to learn from others.

This paper explores these issues through using a theoretical model that shows the process of transferring innovation capability from the associated SVN to the focal partnering companies, mediated by various higher-order capabilities of the SVN, in particular learning capacity. It highlights the role of information and communication technologies, and effective intra-firm managerial capability, in transferring innovation capability to the partnering companies. A detailed literature review covers aspects of the process of innovation capability-building by individual firms, and the role of networks in innovation capability-building. The proposed theoretical model will be presented followed by a detailed definition of the constructs, and an explanation of the hypotheses. Finally, the managerial and policy implications of the theoretical model, along with future prospects of research, will be addressed. For the purpose of this paper the terms ‘SVN’ and ‘networks’ are analogous.

LITERATURE REVIEW

Background to SVNs

Basole and Rouse (2008) argue that, in a SVN, value is generated through a complex web of relationships—business to business, business to consumers, and consumers to consumers—through illustrating empirical examples from the retail, health, telecom, aircraft and automobile industries. Kraemer et al. (2010) define SVNs as:

Service Value Networks are Smart Business Networks that provide business value by performing automated on demand composition of complex services from a steady but open pool of complementary as well as substitutive standardised service modules through a universally accessible network orchestration platform. (Kraemer et al., 2010, p8)

Basole and Rouse (2008) add that a SVN contains five types of actors. These are: service providers, tier 1 and tier 2 enablers, auxiliary enablers, and consumers. The complex dynamics of these actors provides a challenge for SVNs when initiating and maintaining service innovations through applying dynamic capabilities. Agarwal and Selen (2011) point out that the complex nature of strategic
decision making influences the learning and innovation capability of the partnering companies within a SVN through a process of co-evolutionary adaption. The process of introducing new services, in other words, performing innovation in the context of a SVN, requires further research to uncover the process of building innovation capability through partnering with a SVN.

**Innovation capability and organisation learning: key dynamic capabilities**

Innovation capability is a key dynamic capability (Teece, 2007, 2009), and organisational learning is an important dynamic capability (Zollo & Winter, 2003), especially in dynamic and volatile conditions. It is important, therefore, to investigate how these two higher order dynamic capabilities can deliver the intended outcome, facilitated by the higher order capabilities of a network. Teece (2009) suggests the orchestration of tangible and intangible assets, and corporate renewal through redesigning routines, as two ways. Enterprises that develop a reconfiguring capability may be able to adjust their products or service offerings through adjusting their complementary value offerings, systems and organisational structures. Higher order capabilities can also be achieved by enterprises aligning, realigning, co-aligning, and redeploying tangible and intangible assets and skills across organisational boundaries (Teece, 2009). Hetfarg (2010) argues that the dynamic capability view is highly suited to the service industry as service organisations possess less tangible resources and carry highly interrelated capabilities spanning organisational processes and routines. Agarwal and Selen (2009) also empirically demonstrated the fitness of the dynamic capability view in the service industry in the context of a service value network. They looked at how partnering companies can engage in collaboration through sharing complementary skills and assets leading to innovation in services.

**Innovation through the ‘Service Value Network (SVN)’ lens**

Fusch, Mifflin, Miller and Whitney (2000), and Lawson and Samson (2001), argue that innovation is a higher order capability that allows firms to integrate and manage multiple capabilities. Innovative organisations often extend their interactions beyond the organisational boundary through different types of interactions resulting from different types of ties (Powell & Grodal, 2005). Occasional interactions are identified as weak ties, and frequent interactions between firms are identified as strong ties (Powell & Grodal, 2005). Hence, when creating strong ties through increased
communication and information-sharing across a network of organisations, individual firms can mitigate the inherent uncertainty of innovation (Kraatz, 1998), facilitate a lowering of total costs (Gavirneni, 2002), and improve service innovativeness (Lee et al., 2009). Gupta and Govindarajan (2000) argue that firms participating within a network can advance their competencies through learning new knowledge from interacting with each other. In the same vein, and in the context of a SVN, Agarwal and Selen (2009) demonstrate that the process of dynamic capability-building centred on organisational relationships facilitated, through learning, the development of higher-order competencies resulting in innovation in services.

Participating in a network has both positive and negative effects on the innovation capability of a partnering firm. Collaboration with a broad range of stakeholders such as suppliers, customers and partners, increases the scope of idea creation (Oke, 2007). Empirical findings suggest that firms are more motivated to share their ideas and resources when they are closely connected (Uzzi, 1999; Tsai, 2001). Goes and Park (1997) found that participating in a network increases service innovation capability, and Rindfleisch and Moorman (2001) show that a network of firms can achieve synergistic benefit through sharing complementary knowledge. Likewise, as Bititci, Martinez, Albores and Parung (2004) identify, enterprises can develop innovation capability through working collaboratively to achieve mutual goals through combining their core competencies.

Despite the positive findings about the collaboration and innovative capability of firms, opposite findings also exist, such as Krackhardt (1999) who found that strong ties may not necessarily result in positive outcomes for participating firms. Agarwal and Selen (2011) also suggest that strong ties between partners was not a driver for developing new ideas and capability to innovate new services. In addition, evidence shows the size of firms in a network can also reduce the innovative capability of partnering companies (Lee, Padmanabham & Whang, 2009). Rowley (1997) argues that sharing information and knowledge between closely-tied partners may not provide any new insights, and may even create redundancy. Further, Fombrun (1986) found that strong ties can discourage firms from challenging each other and, in fact, can encourage partners to reach agreement to avoid conflict and to maintain long-term relationships. With these conflicting views on how networks positively and negatively influence the partnering firm’s innovative capability in mind, it is important to understand
how the learning capacity of a partnering firm mediates the innovation capability-building process of partnering companies, in reverse.

**Innovation capability and organisation learning in the network environment**

Innovation can occur from the routine application of ‘organisational memory’ (Nelson & Winter, 1982). Organisation memory is defined as the stored information of organisational history which can be utilised to make decisions in the present (Hargadon & Sutton, 1997). Firms develop their knowledge base incrementally through practices which, when converted into organisational routines, create organisational memory. The organisational memory perspective is further defined by Walsh and Ungson (1991) who specify the acquisition, retrieval and storage of information as the routines that support the building of organisational memory. Hargadon and Sutton (1997) also suggest that the systematic exploitation of organisational memory across organisational boundaries helps create innovation capability for the organisation. Agarwal and Selen (2009) consider it could be beneficial to utilise stored ideas for future review in different innovation cycles. Consequently, an organisation that exploits its memory through leveraging knowledge-management practices may become more innovative, in practice, when addressing problem solving, or pursuing innovative ventures.

Various perspectives have emerged to describe the cross-fertilization of knowledge across organisations for the purpose of innovation through organisational learning. ‘Technology brokering’ or ‘knowledge brokering’ (Handerson & Sutton, 1997) refer to the converting of the tacit knowledge of individuals into explicit codified knowledge. This emphasises the nurturing of a knowledge-sharing culture across the organisation in order to develop innovation capability through organisational learning. As organisational knowledge is stored in both tacit and explicit forms, if the degree of tacit knowledge is higher than explicit knowledge, then the codification of organisational knowledge will necessarily be more difficult (Alavi & Tiwana, 2002). Alavi and Tiwana (2002) argue that an effective transaction-memory system enhances team members’ capability to contribute knowledge and improve task performance through organisational learning, while Agarwal and Selen (2009) suggest the innovation outcome of SVN partners is improved if there is access to a large pool of knowledge. This pool of knowledge is empirically operationalised by ‘our’ and ‘your’ organisational learning where learning happens on both sides of the partnership (Agarwal & Selen, 2009).
As innovation is an outcome of organisational learning, researchers have attempted to investigate the recursive relationship of between innovation and organisational absorptive capability. Empirical studies suggest that absorptive capability increases the speed, rate and scale of innovations. At the same time, the innovative outcomes themselves contribute to the knowledge base and, in turn, elevate the absorptive capability of the organisation (Helfat, 1997). Absorption capability facilitates incremental innovation because firms draw upon such innovation from their existing knowledge base (Anderson & Tushman 1990). Hurry, Miller and Bowman (1992) found that, if a firm innovates more in a certain aspect of technology, it increases the absorptive capability of the firm due to increased knowledge in that particular area. On the other hand, radical innovation involves a new combination of knowhow and existing technologies (Kogut & Zander 1992; Van den Bosch, Volberda & De Boer, 1999). In this way, Van den Bosch et al. (1999) show that absorptive capability, based on a range of loosely connected knowledge domains, can support both incremental and radical innovation. Daghfous (2004) mentions various types of programs that encourage learning among employees, such as training or brainstorming sessions, which increase the learning or absorptive capacity of an organisation, resulting in increased capacity of innovation.

Despite the research cited, there are gaps warranting further investigation. Murugiah (2008) identifies how organisational learning capacity can be managed in a fast-paced external environment, one that can lead to innovation capability. This is an area requiring further study. Spohrer, Maglio, Bailey and Gruhl (2007) note that services have become a significant force in many national economies, and that the growing trend of service dominance has created tremendous scope for research in service science. Hertog (2010), meanwhile, advocates further research into, and close examination of, the process of organisational learning and adaptation into successful service innovation processes. This is the specific gap investigated in here.

**Role of information, ICT, and management of SVNs**

Agarwal et al. (2011) state that deployment of IT infrastructure, integration of systems and processes across organisational boundaries can deliver significant organisational benefit. Spohrer et al. (2007) identify that technology, ICT in particular, has an important role in designing service systems, while Agarwal and Selen (2008) emphasise the role of ICT as a critical catalyst in enhancing the capability
of working collaboratively with increased flexibility and speed. Spohrer and Maglio (2008) state that technology is a critical resource for service system design, and information sharing is a key aspect of service systems in order to achieve service innovation. Virtual collaboration has become an increasing phenomenon throughout the SVN where communication, and sharing of knowledge between several parties, is facilitated through the internet (Vargo & Lusch, 2010). Cepeda and Vera (2007) also provide a detailed illustration of how the information system and communication infrastructure of an organisation creates a bridge between dynamic capabilities, and operational capabilities, and how these are facilitated by knowledge-management architecture. Spohrer and Maglio (2008) emphasise the importance of further research on the role of information systems in service-system design considering the interconnectedness between various systems. This is especially crucial so that organisations can create a robust service system architecture that can deliver service innovation resulting in increased productivity, growth and stakeholder satisfaction.

In the next section we will present our theoretical model, followed by the definition of the constructs, and then the presentation and explanation of the hypotheses.

THEORETICAL MODEL

The theoretical model illustrated in this paper in underpinned by five key constructs: Collaborative Organisational Infrastructure (COI); Collaborative Architecture Management (CAM); Collaborative Innovation Capacity (CIC); Organisational Learning Capacity (OLC), and Organisational Innovation Capability (OIC). The theoretical model illustrates the moderating role of both COI and CAM between CIC and OLC, added to the mediating role of OLC in the relationship between CIC and OIC. We have already briefly discussed various aspects of innovation capability-building processes within organisational boundaries, and also highlighted the role of organisational learning capacity, and technological and governance mechanisms of collaboration in building innovation-capability within partnering firms. The underlying hypotheses of the theoretical model will underpin the moderating role of information technology infrastructure and governance over the innovation capability-building processes of the partnering companies in a SVN.

Transferring innovation capability from SVN to individual organisations
In this section we present our arguments, define constructs, and discuss the hypotheses within the theoretical framework as shown in Figure 1:

**Figure 1: The theoretical model of organisational innovation capability building**

**DEFINING CONSTRUCTS**

**Collaborative Organisational Infrastructure (COI) and Collaborative Architecture Management (CAM)**

Agarwal and Selen (2008) define the COI as a construct that aims to foster knowledge and information sharing through integrating processes and systems across the organisational boundaries of a service value network. Agarwal et al. (2011, p.2) define COI as: ‘A construct that allows for information and knowledge sharing through the integration of systems and processes both within and across organisational boundaries of SVN’.

Agarwal and Selen (2008) define CAM as an organisational driver of successful innovation that refers to the organisational ability to align and coordinate resources across inter- and intra-organisational boundaries. They term CAM: ‘An ability to coordinate and align resources, activities and routines that span across inter- and intra-organisations, with mutually agreed cost, revenue and risk sharing performance measures that are to the benefit all parties of SVN’ (Agarwal & Selen, 2008, p. 39).

**Collaborative Innovative Capacity (CIC)**
Bessant, Lamming, Noke and Phillips (2005) define collaborative innovative capacity as the capability to equip partnering companies to perform a cross fertilisation of ideas, allow the application of ideas across the industrial boundary, and to promote lateral thinking. Agarwal and Selen (2009) define CIC as:

A dynamic skill that is developed when collaborating with partners and consists of an ability that evolves within individuals or groups; it is an ability to come up with innovative ideas, which gives partnering organisations the capacity to introduce new services, new or modified processes, new or modified operating structures, new ways to market products or services, or ideas through the integration of capabilities and resources in an urge to incite innovation.

(Agarwal & Selen, 2009, p.238)

Organisational Learning Capacity (OLC)

Spicer and Sadler-Smith (2006) define organisational learning as:

Organisational learning may be defined as the development or acquisition of new knowledge or skills in response to internal or external stimuli that leads to a more or less permanent change in collective behaviour and that enhances organisational efficiency and/or effectiveness.

(Spicer & Sadler-Smith, 2006, p.135)

Organisational learning can be defined as actively leveraging the know-how and individual expertise that reside in individual minds (Scarborough, 2003). We use the definition of Hock-Hai et al. (2006 p.264) who define organisational learning capacity as: ‘An organisation’s shared assumptions and mechanisms (in terms of processes or culture) that contribute to its capabilities to sustain and improve performance unfettered’.

Organisational Innovative Capability (OIC)

Lawson and Samson (2001) define ‘innovation capability’ as an ability to continuously convert knowledge and ideas into new systems, processes or products that benefit the firms and the stakeholders. Lawson and Samson (2001) define ‘innovation capability’ as:

An innovation capability is therefore defined as the ability to continuously transform knowledge and ideas into new products, processes and systems for the benefit of the firm and its stakeholders. Innovation capability is not just an ability to be successful at running a business new stream, or to
manage mainstream capabilities. Innovation capability is about synthesising these two operating paradigms. (Lawson & Samson, 2001, p.384)

In the next section we will discuss the hypotheses that are derived from the theoretical model incorporating the above constructs.

**HYPOTHESES**

**ICT (COI) as an enabler of the innovation process**

Information and communication technology (ICT) can facilitate process innovation through process redesign, innovation diffusion and organisational assimilation of IT (Serrano & den Hangst, 2005). In the case of process automation or improving process control, IT plays a vital role as an enabler (Tarafdar & Gordon, 2007). Armstrong and Sambamurthy (1999) found that IT infrastructure sophistication has an impact on IT assimilation in an organisation, and their findings suggests that sophisticated IT infrastructure provides a foundation for integrating business strategies and the value chain of an organisation. Several researchers suggest that radical innovation involves new combinations of know-how and existing technologies (Kogut & Zander, 1992; Van den Bosch et al., 1999). Sambamurthy and Bharadwaj (2003) found that investment in IT delivers digital options to a firm that enables the firm to achieve competitive advantage and deliver value to the customers.

**CIC affects OIC facilitated by COI and mediated via OLC**

While the research findings on firm performance and process innovation show mixed outcomes, empirical study demonstrates that increased investment in IT positively affects firm performance through process innovation and redesign. Fagerberg and Mowery (2006, p.151) state ‘innovation relies on collaboration and interactive learning, involving other enterprises, organisations and science and technology infrastructure’. Critical antecedents of process innovation are: infrastructure flexibility and capability, collaboration, process analysis, and necessary resources such as skilled personnel and systems. Daft (1986) argues that collaboration can engage core employees in the process of innovation and can be an implementation strategy of innovation.

Soto-Acosta (2008), through an empirical study, found that collaborative technologies have a positive influence on the collaborative innovation environment and this gives partnering companies
the capability to deliver innovative outcomes. Chen and Fuyuan (2011) found that, through collaborating with a network, individual companies can achieve effective knowledge-management and design capabilities to synchronise and assimilate various internal and external sources of innovation into successful innovations. Hertog, Van der Aa and Jong (2010) maintain that learning and the ability to adapt are key dynamic service capabilities that firms require when introducing new service offerings to their customers. They further state that learning from both failed and successful projects, is a meta-capability that can inform service innovation management processes. Daghfous (2004) argues that organisational innovation is an evolutionary process to adapt to the ever-changing business environment and that organisational innovations rely on the firms’ ability to acquire; assimilate and utilise knowledge-intensive practices. In this way, firms need to equipped with tools that can facilitate the exploitation process (Daghfous, 2004). Agarwal et al. (2011) further identify information system architecture, and managerial roles, within a SVN as facilitating service innovation through incorporating service-oriented architecture driven information systems.

The process of organisational learning, inter-organisational learning, and innovation are tightly linked with each other (Oliver, 2001). Agarwal and Selen (2009) argue that innovation capability facilitates managerial ability to apply new ideas across the organisational and industrial boundary. Drucker (1998) states that, in order to creatively respond to different business opportunities in real time, corporate entrepreneurs should consciously and purposefully engage in networks. Absorptive capability contains the idea that an organisation needs to adapt external knowledge in order to remain competitive in the market (Kogut & Zander, 1992; 1994; Van den Bosch et al., 1999). Cohen and Levinthal (1990) emphasise the need for a diversification of knowledge domains in order to deliver innovation through interactive learning. Ziemer & Long (2009) found that collaborative networks act as a critical pre-condition for building innovation capability through providing wider access to various essential technological resources and skills that entrepreneurs of incumbent firms can leverage in performing innovation activities. Therefore, we propose that COI acts as a moderating factor facilitating inter-organisational communication processes through formal and informal communication channels that affect the organisational innovation capability, mediated by the learning capacity of an organisation.
Based on the above discussion, we can proffer our hypothesis that Collaborative Organisational Infrastructure (COI) moderates the relationship between Collaborative Innovation Capacity (CIC) and Organisational Innovation Capability (OIC) mediated by Organisational Learning Capacity (OLC). This is expressed in the following hypothesis:

**Hypothesis 1: COI has a moderating effect on the relationship between CIC and OIC via OLC.**

### Relationship between organisational structure management (CAM) and OIC

Static characteristics such as type of knowledge and organisational structure have a relationship with organisational learning and innovation. McEvily and Chakravarthy (2002) identify ‘know-how’ as highly complex, specialised and tacit in nature, which can generate a more durable advantage for firms than any other resource. Several studies found that type of knowledge and organisational structures have a direct relationship with inter-organisational learning and innovation, and an indirect relationship with organisational learning (Ahuja & Katila, 2001). Mehrabani and Shajari (2012) show that knowledge-management practices of an organisation have an impact on the innovation capacity of the organisation. They further argue that, in order to outperform competitors, it is critical for managers to create a learning environment within the organisation that can lead to various innovation processes through encouraging the sharing of information, ideas and knowledge across the organisational boundaries. Organisational structure therefore, plays a significant role in shaping organisational knowledge-management processes through defining information and knowledge-sharing, disseminating information, and developing strategies and processes (Winter & Szulanski, 2001).

### Role of leadership (CAM) in building innovation capability from SVN

Organisational leaders can influence the innovation capability of firms (Daft, 1978) and top management leadership plays a critical role in sustaining dynamic capabilities (Teece, 2009). Sambamurthy and Zmud (1999) empirically found that IT governance, IT decisions, rights and rules, has a significant impact on the capability of a firm to direct and coordinate their IT capability. According to Daft (1978) the top management of an organisation acts as a bridge between the technical environment and the organisation. The degree of exposure to technological environments,
and the rank and status of the top management administrators of an organisation, has a critical impact on the ability to initiate change in the organisation. Daft (1978) further argues that organisational leaders can initiate innovation through establishing goals and priorities, and encouraging innovation from lower-level managers.

Chen and Fuyuan (2011) found that, through engaging in a collaborative innovative environment, firms learn the critical capability to manage their own innovation of ‘adaptive governance mechanism’. Chen and Fuyuan (2011) define adaptive governance mechanism as the internal governance of an organisation that has the capability to align and adapt with the change processes that the innovation processes require. Owen et al. (2008) state that vertical alignment refers to converting the innovation objectives of a business strategy into an organisational strategy through developing a roadmap, and that horizontal alignment refers to the re-organising of business processes and organisational resources to carry out strategic priorities. Owen et al. (2008) also highlight the role of leadership in fostering organisational learning in a collaborative innovative environment by nurturing positive culture, and eliminating the barriers to effective collaborative innovation. Hock-Hai et al. (2006) see organisational learning capacity as having a significant impact on the adoption of knowledge-intensive technological innovation, while Chen, Hung and Chien-Ming (2010) view transparency, commitment and motivation as vital factors in collaborative relationships in determining the learning outcome of partners. From the above, we identify the mediating role of OLC on OIC, and the moderating affect of CAM on OIC via OLC.

As a result, we argue that ‘Collaborative Organisational Infrastructure (CAM)’ moderates the relationship between Collaborative Innovation Capacity (CIC) and Organisational Innovation Capability (OIC), mediated by Organisational Learning Capacity (OLC), and propose the following hypothesis:

Hypothesis 2: CAM has a moderating effect on the relationship between CIC and OIC via OLC.

MANAGERIAL IMPLICATION AND FUTURE RESEARCH

This model carries considerable managerial implications as service tends to be a dominant logic in business enterprises (Vargo & Lusch, 2004; 2010), and collaboration is a prominent phenomenon in
the service industry’s ability to build dynamic capability (Agarwal & Selen, 2009). In the telecommunication industry, we can observe high collaboration between various firms enabling the delivery of final service offerings to customers (Agarwal & Selen, 2009). Robinson et al. (2003) argue that in telemedicine services, the learning capacity of an organisation significantly influences its capability to adopt new service delivery methods while participating in a network of health service organisations. In this way, the learning capacity of an organisation plays an important role in innovation diffusion in a collaborative environment. Murugiah (2008) looks at the role of top management leadership pointing out it has a clear influence on the learning outcome of the organisation, as well as on innovation diffusion and the organisational capability to adopt new technology to improve delivery of telemedicine services. This can be extended to the health, tourism, education and financial service industries that also rely on each other to operate in the market. For firms in these industries, in order to co-evolve in a fast changing environment, it is imperative to build the higher order dynamic capabilities discussed in this paper.

This theoretical model has significant importance to service industries. Enterprises are shifting towards service orientation (Vargo & Lusch, 2004), and the collaboration between various enterprises to deliver services has resulted in a significant elevation in service outcomes as experienced by the customer (Agarwal & Selen, 2009). Health service is one such area where collaboration has increased significantly. In this area there is an underlying complexity of service systems leading to a critical need to connect systems across organisational boundaries, as Spohrer and Maglio (2008) suggest. As a result, SVNs are gaining growing importance in the health service sector enabling it to deliver improved services to customers through collaborative innovations (Tomek et al., 2012). Tomek et al. (2012) found that a health service organisation consortium, through collaborative effort, was able to deliver significantly improved healthcare value creation in terms of various key indicators across service delivery procedures and organisational processes, through increasing quality and reducing costs. Swinglehurst (2010) shows that ICT can facilitate collaborative work routines, and can have a potential to improve the service outcome of general practitioners, through providing various tools, such as automated safety features, that elevate the service offerings. Agarwal and Selen (2009) demonstrate the significant role of SVN in delivering telecom services, where the learning
and innovation capability building of partners is a crucial part of the dynamic capability building process.

In order to validate the hypotheses of this paper, future empirical studies would need to be conducted using appropriate research methodology. This conceptual paper is a pathway to wider research intentions, and potential feedback will be utilised in determining future directions.

**CONCLUSION**

Innovation is a crucial area of research for organisations, and management studies, in order to assist organisations to meet the challenges of the marketplace more effectively. Successful innovation requires the effective interaction between organisational processes and organisational human resources. Innovation enables firms to outperform their competitors and is regarded as one of the key ingredients of sustainable competitive advantage.

In an era of increasing collaboration, it is important to build effective mechanisms of business relationships that can translate the capabilities of networks effectively to partnering companies. In this way, effective mechanisms and processes that guarantee successful innovation capability-building in the context of value networks, warrants intensive investigation. As the models discussed demonstrate, firms’ innovation capacities are transformed through the use of networks. The example of telemedicine networks demonstrates that the use of organisational memory across firms significantly supports both incremental and radical innovation, and that the learning capacities of firms are deepened from both successful and failed experiences. This paper highlights the important issue of establishing functional relationships between networks, and partnering companies, with an expectation that further research will be carried out to validate the theoretical hypotheses presented.
REFERENCES


INTRODUCTION
In an increasingly competitive and dynamic market, firms are facing challenges that they are finding difficult to overcome on their own as single entities. Present market conditions - rapid technological changes, high competitive pressure, and increasing demand for improved service - have put tremendous pressure on service firms to increase their innovation capability. But these very conditions have also created a dynamic market, and opened up opportunities for collaboration among firms enabling them to share complementary skills, and both tangible and intangible assets. In this context, Service Value Networks (SVNs) offer customers the choice of technology, knowledge, and processes across the network through aligning relationships between firms.

Agarwal and Selen (2005) identified the Service Value Network (SVN) as a network that creates and reinvents value by mobilising resources and combining the core competencies of various stakeholders. A SVN, through seamless integration of Information and Communication Technology (ICT) systems, allows firms to improve business ties and information sharing and, as a result, enrich both their cognitive and information capabilities across inter- and intra-organisational boundaries. SVNs, with dynamic capabilities, also enable the commercialisation of service innovation, which is increasingly conducted through successful coordination between a network of firms (Agarwal & Selen, 2005; 2011). For this to be effective, mechanisms of collaboration within SVNs need to be established to aid the innovation capability-building of individual partnering firms, and arm them with the capability to deal with changes in the external environment.

Dynamic capabilities are recognised as the key capabilities that help firms position themselves in relation to changing external environments (Teece, 2009). In order to successfully transfer capabilities from SVNs to partnering companies, these partnering companies need to have the ability to learn, that is, have a learning capacity (Agarwal & Selen, 2011). It is therefore important for service firms to develop a learning capacity, and other higher-order capabilities that are facilitated through ICT emerging from SVN collaboration. Innovation capability is one such dynamic capability that helps service firms align, and adapt, to the changes in the external environment. On the other hand, in a rapidly changing environment, there are however, some counter arguments, for example
where the learning capacity of an organisation can also have a mediating effect on innovation capability (Murugiah, 2008). In short, the learning capacity of a partnering firm is pivotal to its ability to learn from others.

This paper explores these issues through using a theoretical model that shows the process of transferring innovation capability from the associated SVN to the focal partnering companies, mediated by various higher-order capabilities of the SVN, in particular learning capacity. It highlights the role of information and communication technologies, and effective intra-firm managerial capability, in transferring innovation capability to the partnering companies. A detailed literature review covers aspects of the process of innovation capability-building by individual firms, and the role of networks in innovation capability-building. The proposed theoretical model will be presented followed by a detailed definition of the constructs, and an explanation of the hypotheses. Finally, the managerial and policy implications of the theoretical model, along with future prospects of research, will be addressed. For the purpose of this paper the terms ‘SVN’ and ‘networks’ are analogous.

LITERATURE REVIEW

Background to SVNs

Basole and Rouse (2008) argue that, in a SVN, value is generated through a complex web of relationships—business to business, business to consumers, and consumers to consumers—through illustrating empirical examples from the retail, health, telecom, aircraft and automobile industries. Kraemer et al. (2010) define SVNs as:

Service Value Networks are Smart Business Networks that provide business value by performing automated on demand composition of complex services from a steady but open pool of complementary as well as substitutive standardised service modules through a universally accessible network orchestration platform. (Kraemer et al., 2010, p8)

Basole and Rouse (2008) add that a SVN contains five types of actors. These are: service providers, tier 1 and tier 2 enablers, auxiliary enablers, and consumers. The complex dynamics of these actors provides a challenge for SVNs when initiating and maintaining service innovations through applying dynamic capabilities. Agarwal and Selen (2011) point out that the complex nature of strategic
decision making influences the learning and innovation capability of the partnering companies within a SVN through a process of co-evolutionary adaption. The process of introducing new services, in other words, performing innovation in the context of a SVN, requires further research to uncover the process of building innovation capability through partnering with a SVN.

**Innovation capability and organisation learning: key dynamic capabilities**

Innovation capability is a key dynamic capability (Teece, 2007, 2009), and organisational learning is an important dynamic capability (Zollo & Winter, 2003), especially in dynamic and volatile conditions. It is important, therefore, to investigate how these two higher order dynamic capabilities can deliver the intended outcome, facilitated by the higher order capabilities of a network. Teece (2009) suggests the orchestration of tangible and intangible assets, and corporate renewal through redesigning routines, as two ways. Enterprises that develop a reconfiguring capability may be able to adjust their products or service offerings through adjusting their complementary value offerings, systems and organisational structures. Higher order capabilities can also be achieved by enterprises aligning, realigning, co-aligning, and redeploying tangible and intangible assets and skills across organisational boundaries (Teece, 2009). Hetfogl (2010) argues that the dynamic capability view is highly suited to the service industry as service organisations possess less tangible resources and carry highly interrelated capabilities spanning organisational processes and routines. Agarwal and Selen (2009) also empirically demonstrated the fitness of the dynamic capability view in the service industry in the context of a service value network. They looked at how partnering companies can engage in collaboration through sharing complementary skills and assets leading to innovation in services.

**Innovation through the ‘Service Value Network (SVN)’ lens**

Fusch, Mifflin, Miller and Whitney (2000), and Lawson and Samson (2001), argue that innovation is a higher order capability that allows firms to integrate and manage multiple capabilities. Innovative organisations often extend their interactions beyond the organisational boundary through different types of interactions resulting from different types of ties (Powell & Grodal, 2005). Occasional interactions are identified as weak ties, and frequent interactions between firms are identified as strong ties (Powell & Grodal, 2005). Hence, when creating strong ties through increased
communication and information-sharing across a network of organisations, individual firms can mitigate the inherent uncertainty of innovation (Kraatz, 1998), facilitate a lowering of total costs (Gavirneni, 2002), and improve service innovativeness (Lee et al., 2009). Gupta and Govindarajan (2000) argue that firms participating within a network can advance their competencies through learning new knowledge from interacting with each other. In the same vein, and in the context of a SVN, Agarwal and Selen (2009) demonstrate that the process of dynamic capability-building centred on organisational relationships facilitated, through learning, the development of higher-order competencies resulting in innovation in services.

Participating in a network has both positive and negative effects on the innovation capability of a partnering firm. Collaboration with a broad range of stakeholders such as suppliers, customers and partners, increases the scope of idea creation (Oke, 2007). Empirical findings suggest that firms are more motivated to share their ideas and resources when they are closely connected (Uzzi, 1999; Tsai, 2001). Goes and Park (1997) found that participating in a network increases service innovation capability, and Rindfleisch and Moorman (2001) show that a network of firms can achieve synergistic benefit through sharing complementary knowledge. Likewise, as Bititci, Martinez, Albores and Parung (2004) identify, enterprises can develop innovation capability through working collaboratively to achieve mutual goals through combining their core competencies.

Despite the positive findings about the collaboration and innovative capability of firms, opposite findings also exist, such as Krackhardt (1999) who found that strong ties may not necessarily result in positive outcomes for participating firms. Agarwal and Selen (2011) also suggest that strong ties between partners was not a driver for developing new ideas and capability to innovate new services. In addition, evidence shows the size of firms in a network can also reduce the innovative capability of partnering companies (Lee, Padmanabham & Whang, 2009). Rowley (1997) argues that sharing information and knowledge between closely-tied partners may not provide any new insights, and may even create redundancy. Further, Fombrun (1986) found that strong ties can discourage firms from challenging each other and, in fact, can encourage partners to reach agreement to avoid conflict and to maintain long-term relationships. With these conflicting views on how networks positively and negatively influence the partnering firm’s innovative capability in mind, it is important to understand
how the learning capacity of a partnering firm mediates the innovation capability-building process of partnering companies, in reverse.

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Innovation can occur from the routine application of ‘organisational memory’ (Nelson & Winter, 1982). Organisation memory is defined as the stored information of organisational history which can be utilised to make decisions in the present (Hargadon & Sutton, 1997). Firms develop their knowledge base incrementally through practices which, when converted into organisational routines, create organisational memory. The organisational memory perspective is further defined by Walsh and Ungson (1991) who specify the acquisition, retrieval and storage of information as the routines that support the building of organisational memory. Hargadon and Sutton (1997) also suggest that the systematic exploitation of organisational memory across organisational boundaries helps create innovation capability for the organisation. Agarwal and Selen (2009) consider it could be beneficial to utilise stored ideas for future review in different innovation cycles. Consequently, an organisation that exploits its memory through leveraging knowledge-management practices may become more innovative, in practice, when addressing problem solving, or pursuing innovative ventures.

Various perspectives have emerged to describe the cross-fertilization of knowledge across organisations for the purpose of innovation through organisational learning. ‘Technology brokering’ or ‘knowledge brokering’ (Handerson & Sutton, 1997) refer to the converting of the tacit knowledge of individuals into explicit codified knowledge. This emphasises the nurturing of a knowledge-sharing culture across the organisation in order to develop innovation capability through organisational learning. As organisational knowledge is stored in both tacit and explicit forms, if the degree of tacit knowledge is higher than explicit knowledge, then the codification of organisational knowledge will necessarily be more difficult (Alavi & Tiwana, 2002). Alavi and Tiwana (2002) argue that an effective transaction-memory system enhances team members’ capability to contribute knowledge and improve task performance through organisational learning, while Agarwal and Selen (2009) suggest the innovation outcome of SVN partners is improved if there is access to a large pool of knowledge. This pool of knowledge is empirically operationalised by ‘our’ and ‘your’ organisational learning where learning happens on both sides of the partnership (Agarwal & Selen, 2009).
As innovation is an outcome of organisational learning, researchers have attempted to investigate the recursive relationship of between innovation and organisational absorptive capability. Empirical studies suggest that absorptive capability increases the speed, rate and scale of innovations. At the same time, the innovative outcomes themselves contribute to the knowledge base and, in turn, elevate the absorptive capability of the organisation (Helfat, 1997). Absorption capability facilitates incremental innovation because firms draw upon such innovation from their existing knowledge base (Anderson & Tushman 1990). Hurry, Miller and Bowman (1992) found that, if a firm innovates more in a certain aspect of technology, it increases the absorptive capability of the firm due to increased knowledge in that particular area. On the other hand, radical innovation involves a new combination of knowhow and existing technologies (Kogut & Zander 1992; Van den Bosch, Volberda & De Boer, 1999). In this way, Van den Bosch et al. (1999) show that absorptive capability, based on a range of loosely connected knowledge domains, can support both incremental and radical innovation. Daghfous (2004) mentions various types of programs that encourage learning among employees, such as training or brainstorming sessions, which increase the learning or absorptive capacity of an organisation, resulting in increased capacity of innovation.

Despite the research cited, there are gaps warranting further investigation. Murugiah (2008) identifies how organisational learning capacity can be managed in a fast-paced external environment, one that can lead to innovation capability. This is an area requiring further study. Spohrer, Maglio, Bailey and Gruhl (2007) note that services have become a significant force in many national economies, and that the growing trend of service dominance has created tremendous scope for research in service science. Hertog (2010), meanwhile, advocates further research into, and close examination of, the process of organisational learning and adaptation into successful service innovation processes. This is the specific gap investigated in here.

**Role of information, ICT, and management of SVN**

Agarwal et al. (2011) state that deployment of IT infrastructure, integration of systems and processes across organisational boundaries can deliver significant organisational benefit. Spohrer et al. (2007) identify that technology, ICT in particular, has an important role in designing service systems, while Agarwal and Selen (2008) emphasise the role of ICT as a critical catalyst in enhancing the capability
of working collaboratively with increased flexibility and speed. Spohrer and Maglio (2008) state that technology is a critical resource for service system design, and information sharing is a key aspect of service systems in order to achieve service innovation. Virtual collaboration has become an increasing phenomenon throughout the SVN where communication, and sharing of knowledge between several parties, is facilitated through the internet (Vargo & Lusch, 2010). Cepeda and Vera (2007) also provide a detailed illustration of how the information system and communication infrastructure of an organisation creates a bridge between dynamic capabilities, and operational capabilities, and how these are facilitated by knowledge-management architecture. Spohrer and Maglio (2008) emphasise the importance of further research on the role of information systems in service-system design considering the interconnectedness between various systems. This is especially crucial so that organisations can create a robust service system architecture that can deliver service innovation resulting in increased productivity, growth and stakeholder satisfaction.

In the next section we will present our theoretical model, followed by the definition of the constructs, and then the presentation and explanation of the hypotheses.

THEORETICAL MODEL

The theoretical model illustrated in this paper in underpinned by five key constructs: Collaborative Organisational Infrastructure (COI); Collaborative Architecture Management (CAM); Collaborative Innovation Capacity (CIC); Organisational Learning Capacity (OLC), and Organisational Innovation Capability (OIC). The theoretical model illustrates the moderating role of both COI and CAM between CIC and OLC, added to the mediating role of OLC in the relationship between CIC and OIC. We have already briefly discussed various aspects of innovation capability-building processes within organisational boundaries, and also highlighted the role of organisational learning capacity, and technological and governance mechanisms of collaboration in building innovation-capability within partnering firms. The underlying hypotheses of the theoretical model will underpin the moderating role of information technology infrastructure and governance over the innovation capability-building processes of the partnering companies in a SVN.

Transferring innovation capability from SVN to individual organisations
In this section we present our arguments, define constructs, and discuss the hypotheses within the theoretical framework as shown in Figure 1:

**Figure 1: The theoretical model of organisational innovation capability building**

### DEFINING CONSTRUCTS

**Collaborative Organisational Infrastructure (COI) and Collaborative Architecture Management (CAM)**

Agarwal and Selen (2008) define the COI as a construct that aims to foster knowledge and information sharing through integrating processes and systems across the organisational boundaries of a service value network. Agarwal et al. (2011, p.2) define COI as: ‘A construct that allows for information and knowledge sharing through the integration of systems and processes both within and across organisational boundaries of SVN’.

Agarwal and Selen (2008) define CAM as an organisational driver of successful innovation that refers to the organisational ability to align and coordinate resources across inter- and intra-organisational boundaries. They term CAM: ‘An ability to coordinate and align resources, activities and routines that span across inter- and intra-organisations, with mutually agreed cost, revenue and risk sharing performance measures that are to the benefit all parties of SVN’ (Agarwal & Selen, 2008, p. 39).

**Collaborative Innovative Capacity (CIC)**
Bessant, Lamming, Noke and Phillips (2005) define collaborative innovative capacity as the capability to equip partnering companies to perform a cross fertilisation of ideas, allow the application of ideas across the industrial boundary, and to promote lateral thinking. Agarwal and Selen (2009) define CIC as:

A dynamic skill that is developed when collaborating with partners and consists of an ability that evolves within individuals or groups; it is an ability to come up with innovative ideas, which gives partnering organisations the capacity to introduce new services, new or modified processes, new or modified operating structures, new ways to market products or services, or ideas through the integration of capabilities and resources in an urge to incite innovation.

(Agarwal & Selen, 2009, p.238)

Organisational Learning Capacity (OLC)

Spicer and Sadler-Smith (2006) define organisational learning as:

Organisational learning may be defined as the development or acquisition of new knowledge or skills in response to internal or external stimuli that leads to a more or less permanent change in collective behaviour and that enhances organisational efficiency and/or effectiveness.

(Spicer & Sadler-Smith, 2006, p.135)

Organisational learning can be defined as actively leveraging the know-how and individual expertise that reside in individual minds (Scarborough, 2003). We use the definition of Hock-Hai et al. (2006 p.264) who define organisational learning capacity as: ‘An organisation’s shared assumptions and mechanisms (in terms of processes or culture) that contribute to its capabilities to sustain and improve performance unfettered’.

Organisational Innovative Capability (OIC)

Lawson and Samson (2001) define ‘innovation capability’ as an ability to continuously convert knowledge and ideas into new systems, processes or products that benefit the firms and the stakeholders. Lawson and Samson (2001) define ‘innovation capability’ as:

An innovation capability is therefore defined as the ability to continuously transform knowledge and ideas into new products, processes and systems for the benefit of the firm and its stakeholders. Innovation capability is not just an ability to be successful at running a business new stream, or to
manage mainstream capabilities. Innovation capability is about synthesising these two operating paradigms. (Lawson & Samson, 2001, p.384)

In the next section we will discuss the hypotheses that are derived from the theoretical model incorporating the above constructs.

**HYPOTHESES**

**ICT (COI) as an enabler of the innovation process**

Information and communication technology (ICT) can facilitate process innovation through process redesign, innovation diffusion and organisational assimilation of IT (Serrano & den Hangst, 2005). In the case of process automation or improving process control, IT plays a vital role as an enabler (Tarafdar & Gordon, 2007). Armstrong and Sambamurthy (1999) found that IT infrastructure sophistication has an impact on IT assimilation in an organisation, and their findings suggest that sophisticated IT infrastructure provides a foundation for integrating business strategies and the value chain of an organisation. Several researchers suggest that radical innovation involves new combinations of know-how and existing technologies (Kogut & Zander, 1992; Van den Bosch et al., 1999). Sambamurthy and Bharadwaj (2003) found that investment in IT delivers digital options to a firm that enables the firm to achieve competitive advantage and deliver value to the customers.

**CIC affects OIC facilitated by COI and mediated via OLC**

While the research findings on firm performance and process innovation show mixed outcomes, empirical study demonstrates that increased investment in IT positively affects firm performance through process innovation and redesign. Fagerberg and Mowery (2006, p.151) state ‘innovation relies on collaboration and interactive learning, involving other enterprises, organisations and science and technology infrastructure’. Critical antecedents of process innovation are: infrastructure flexibility and capability, collaboration, process analysis, and necessary resources such as skilled personnel and systems. Daft (1986) argues that collaboration can engage core employees in the process of innovation and can be an implementation strategy of innovation.

Soto-Acosta (2008), through an empirical study, found that collaborative technologies have a positive influence on the collaborative innovation environment and this gives partnering companies...
the capability to deliver innovative outcomes. Chen and Fuyuan (2011) found that, through collaborating with a network, individual companies can achieve effective knowledge-management and design capabilities to synchronise and assimilate various internal and external sources of innovation into successful innovations. Hertog, Van der Aa and Jong (2010) maintain that learning and the ability to adapt are key dynamic service capabilities that firms require when introducing new service offerings to their customers. They further state that learning from both failed and successful projects, is a meta-capability that can inform service innovation management processes. Daghfous (2004) argues that organisational innovation is an evolutionary process to adapt to the ever-changing business environment and that organisational innovations rely on the firms’ ability to acquire; assimilate and utilise knowledge-intensive practices. In this way, firms need to equipped with tools that can facilitate the exploitation process (Daghfous, 2004). Agarwal et al. (2011) further identify information system architecture, and managerial roles, within a SVN as facilitating service innovation through incorporating service-oriented architecture driven information systems.

The process of organisational learning, inter-organisational learning, and innovation are tightly linked with each other (Oliver, 2001). Agarwal and Selen (2009) argue that innovation capability facilitates managerial ability to apply new ideas across the organisational and industrial boundary. Drucker (1998) states that, in order to creatively respond to different business opportunities in real time, corporate entrepreneurs should consciously and purposefully engage in networks. Absorptive capability contains the idea that an organisation needs to adapt external knowledge in order to remain competitive in the market (Kogut & Zander, 1992; 1994; Van den Bosch et al., 1999). Cohen and Levinthal (1990) emphasise the need for a diversification of knowledge domains in order to deliver innovation through interactive learning. Zieme & Long (2009) found that collaborative networks act as a critical pre-condition for building innovation capability through providing wider access to various essential technological resources and skills that entrepreneurs of incumbent firms can leverage in performing innovation activities. Therefore, we propose that COI acts as a moderating factor facilitating inter-organisational communication processes through formal and informal communication channels that affect the organisational innovation capability, mediated by the learning capacity of an organisation.
Based on the above discussion, we can proffer our hypothesis that Collaborative Organisational Infrastructure (COI) moderates the relationship between Collaborative Innovation Capacity (CIC) and Organisational Innovation Capability (OIC) mediated by Organisational Learning Capacity (OLC). This is expressed in the following hypothesis:

**Hypothesis 1: COI has a moderating effect on the relationship between CIC and OIC via OLC.**

*Relationship between organisational structure management (CAM) and OIC*

Static characteristics such as type of knowledge and organisational structure have a relationship with organisational learning and innovation. McEvily and Chakravarthy (2002) identify ‘know-how’ as highly complex, specialised and tacit in nature, which can generate a more durable advantage for firms than any other resource. Several studies found that type of knowledge and organisational structures have a direct relationship with inter-organisational learning and innovation, and an indirect relationship with organisational learning (Ahuja & Katila, 2001). Mehrabani and Shajari (2012) show that knowledge-management practices of an organisation have an impact on the innovation capacity of the organisation. They further argue that, in order to outperform competitors, it is critical for managers to create a learning environment within the organisation that can lead to various innovation processes through encouraging the sharing of information, ideas and knowledge across the organisational boundaries. Organisational structure therefore, plays a significant role in shaping organisational knowledge-management processes through defining information and knowledge-sharing, disseminating information, and developing strategies and processes (Winter & Szulanski, 2001).

*Role of leadership (CAM) in building innovation capability from SVN*

Organisational leaders can influence the innovation capability of firms (Daft, 1978) and top management leadership plays a critical role in sustaining dynamic capabilities (Teece, 2009). Sambamurthy and Zmud (1999) empirically found that IT governance, IT decisions, rights and rules, has a significant impact on the capability of a firm to direct and coordinate their IT capability. According to Daft (1978) the top management of an organisation acts as a bridge between the technical environment and the organisation. The degree of exposure to technological environments,
and the rank and status of the top management administrators of an organisation, has a critical impact on the ability to initiate change in the organisation. Daft (1978) further argues that organisational leaders can initiate innovation through establishing goals and priorities, and encouraging innovation from lower-level managers.

Chen and Fuyuan (2011) found that, through engaging in a collaborative innovative environment, firms learn the critical capability to manage their own innovation of ‘adaptive governance mechanism’. Chen and Fuyuan (2011) define adaptive governance mechanism as the internal governance of an organisation that has the capability to align and adapt with the change processes that the innovation processes require. Owen et al. (2008) state that vertical alignment refers to converting the innovation objectives of a business strategy into an organisational strategy through developing a roadmap, and that horizontal alignment refers to the re-organising of business processes and organisational resources to carry out strategic priorities. Owen et al. (2008) also highlight the role of leadership in fostering organisational learning in a collaborative innovative environment by nurturing positive culture, and eliminating the barriers to effective collaborative innovation. Hock-Hai et al. (2006) see organisational learning capacity as having a significant impact on the adoption of knowledge-intensive technological innovation, while Chen, Hung and Chien-Ming (2010) view transparency, commitment and motivation as vital factors in collaborative relationships in determining the learning outcome of partners. From the above, we identify the mediating role of OLC on OIC, and the moderating affect of CAM on OIC via OLC.

As a result, we argue that ‘Collaborative Organisational Infrastructure (CAM)’ moderates the relationship between Collaborative Innovation Capacity (CIC) and Organisational Innovation Capability (OIC), mediated by Organisational Learning Capacity (OLC), and propose the following hypothesis:

**Hypothesis 2: CAM has a moderating effect on the relationship between CIC and OIC via OLC.**

**MANAGERIAL IMPLICATION AND FUTURE RESEARCH**

This model carries considerable managerial implications as service tends to be a dominant logic in business enterprises (Vargo & Lusch, 2004; 2010), and collaboration is a prominent phenomenon in
the service industry’s ability to build dynamic capability (Agarwal & Selen, 2009). In the
telecommunication industry, we can observe high collaboration between various firms enabling the
delivery of final service offerings to customers (Agarwal & Selen, 2009). Robinson et al. (2003) argue
that in telemedicine services, the learning capacity of an organisation significantly influences its
capability to adopt new service delivery methods while participating in a network of health service
organisations. In this way, the learning capacity of an organisation plays an important role in
innovation diffusion in a collaborative environment. Murugiah (2008) looks at the role of top
management leadership pointing out it has a clear influence on the learning outcome of the
organisation, as well as on innovation diffusion and the organisational capability to adopt new
technology to improve delivery of telemedicine services. This can be extended to the health, tourism,
education and financial service industries that also rely on each other to operate in the market. For
firms in these industries, in order to co-evolve in a fast changing environment, it is imperative to build
the higher order dynamic capabilities discussed in this paper.

This theoretical model has significant importance to service industries. Enterprises are
shifting towards service orientation (Vargo & Lusch, 2004), and the collaboration between various
enterprises to deliver services has resulted in a significant elevation in service outcomes as
experienced by the customer (Agarwal & Selen, 2009). Health service is one such area where
collaboration has increased significantly. In this area there is an underlying complexity of service
systems leading to a critical need to connect systems across organisational boundaries, as Spohrer and
Maglio (2008) suggest. As a result, SVN’s are gaining growing importance in the health service sector
enabling it to deliver improved services to customers through collaborative innovations (Tomek et al.,
2012). Tomek et al. (2012) found that a health service organisation consortium, through collaborative
effort, was able to deliver significantly improved healthcare value creation in terms of various key
indicators across service delivery procedures and organisational processes, through increasing quality
and reducing costs. Swinglehurst (2010) shows that ICT can facilitate collaborative work routines,
and can have a potential to improve the service outcome of general practitioners, through providing
various tools, such as automated safety features, that elevate the service offerings. Agarwal and Selen
(2009) demonstrate the significant role of SVN’s in delivering telecom services, where the learning
and innovation capability building of partners is a crucial part of the dynamic capability building process.

In order to validate the hypotheses of this paper, future empirical studies would need to be conducted using appropriate research methodology. This conceptual paper is a pathway to wider research intentions, and potential feedback will be utilised in determining future directions.

**CONCLUSION**

Innovation is a crucial area of research for organisations, and management studies, in order to assist organisations to meet the challenges of the marketplace more effectively. Successful innovation requires the effective interaction between organisational processes and organisational human resources. Innovation enables firms to outperform their competitors and is regarded as one of the key ingredients of sustainable competitive advantage.

In an era of increasing collaboration, it is important to build effective mechanisms of business relationships that can translate the capabilities of networks effectively to partnering companies. In this way, effective mechanisms and processes that guarantee successful innovation capability-building in the context of value networks, warrants intensive investigation. As the models discussed demonstrate, firms’ innovation capacities are transformed through the use of networks. The example of telemedicine networks demonstrates that the use of organisational memory across firms significantly supports both incremental and radical innovation, and that the learning capacities of firms are deepened from both successful and failed experiences. This paper highlights the important issue of establishing functional relationships between networks, and partnering companies, with an expectation that further research will be carried out to validate the theoretical hypotheses presented.
REFERENCES


