Innovation Strategy in the Indian IT Service Industry: Current Management Thinking

Markus Holzweber¹, Doren Chadee², Revti Raman³, Jan Mattsson¹

¹Roskilde University, Denmark, ²University of Southern Queensland, Australia, ³Victoria University of Wellington, New Zealand

This study examines key issues and effects of innovation management on a fast-growing area of knowledge-intensive global business services – IT outsourcing and offshoring. An exploratory study of Indian companies providing complex process oriented offshore IT services to their global customers was carried out. The analysis of the data related to the service provider side shows that innovation management is strongly driven by the management and top-clients and results in development and innovation of business processes and in establishing a strategic partnership with the client organization. Key findings are that strategic management play a significant role and that continues improvement of relationship management practices, especially building up specific firm capabilities, accomplishes firm performance.

1. Background: Growth of Global IT outsourcing

The adoption of innovation has been a prime topic in the Outsourcing Management Research, especially in global Information and Technology Outsourcing (ITO) and Business Process Outsourcing (BPO), and in Information Systems (IS) research for several decades. This has been dominated by a technical focus, where the primary determinants of success and failure gravitated significantly towards the implementation of technological infrastructure, equipment and artifacts. Over the past few years technology cost declined, technical knowledge and literacy expanded, and availability of technology increased, also on a global scale. In addition, this shift has emerged in inter-organizational systems, where socio-political and socio-cultural factors gain much influence and effect. More than ever in the last decade, the IT and ITO/BPO industries have seen substantial offshoring particularly from firms in advanced industrialized countries to service providers in developing countries. According to the OECD (2004), the global IT services offshoring market in 2001 was estimated at approximately $260 billion comprising of $227 billion for domestic outsourcing and $32 billion for offshoring. Clearly, the international outsourcing of IT services has grown rapidly and is predicted to continue its growth trajectory in the future.

The global market for services offshoring consists of two sets of main players: IT spenders (demand side) and IT service providers (supply side). On the demand side, USA (37%), Western Europe (35%), and Japan (14%) are the main IT spenders (EITO 2006). Other major demand side players include Canada, and selected countries from Latin America, Eastern Europe and Asia Pacific region. On the supply side India, China, Malaysia and the Philippines are the main players. Other services offshoring destinations include Israel, Ireland and Russia. Table 1 provides a brief comparative view of the main IT service provider destinations. The information from table
1 shows that Ireland is the largest offshore IT service provider both in terms of export values and market share. However, the overall attractiveness of Ireland has declined rapidly over recent years to become the least attractive OSP among the main global players. By contrast, a number of developing countries have emerged as preferred locations for offshoring of IT services.

### Table 1: Key Offshore IT Service Providers

<table>
<thead>
<tr>
<th>Country</th>
<th>Financial Structure(^{1,a})</th>
<th>People &amp; Skills Availability(^{1,b})</th>
<th>Business environment attractiveness(^{1,b})</th>
<th>Overall attractiveness(^{1,c})</th>
<th>Exports value ($US mil, 2003)</th>
<th>World market share (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>India</td>
<td>3.47</td>
<td>2.14</td>
<td>1.26</td>
<td>6.87</td>
<td>11366</td>
<td>15.89</td>
</tr>
<tr>
<td>China</td>
<td>3.21</td>
<td>1.76</td>
<td>1.17</td>
<td>6.14</td>
<td>1102</td>
<td>1.54</td>
</tr>
<tr>
<td>Malaysia</td>
<td>2.95</td>
<td>1.12</td>
<td>2.00</td>
<td>6.07</td>
<td>216</td>
<td>0.30</td>
</tr>
<tr>
<td>Philippines</td>
<td>3.58</td>
<td>1.16</td>
<td>1.05</td>
<td>5.78</td>
<td>28</td>
<td>0.04</td>
</tr>
<tr>
<td>Russia</td>
<td>2.83</td>
<td>1.31</td>
<td>0.85</td>
<td>4.99</td>
<td>175</td>
<td>0.24</td>
</tr>
<tr>
<td>Israel</td>
<td>1.96</td>
<td>1.22</td>
<td>1.67</td>
<td>4.75</td>
<td>3657</td>
<td>5.11</td>
</tr>
<tr>
<td>Ireland</td>
<td>0.42</td>
<td>1.41</td>
<td>2.25</td>
<td>4.07</td>
<td>14272</td>
<td>20.09</td>
</tr>
</tbody>
</table>

Source: \(^{1}\)Kearney (2006); \(^{2}\)UNCTAD (2006).

Notes: \(^{a}\) measured on 4 point scale with 1 = not attractive... 4 = very attractive; \(^{b}\) measured on a 3 point scale where 1 = low... 3 = high; \(^{c}\) measured on a 10 point scale where 1 = not attractive... 10 = most attractive.

### 1.1. Emergence of India as a key player

Although India has been the leading offshore destination during the last 20 years, the IT offshoring sector grew rapidly during the last 10 years as a result of the developments and wide diffusion of affordable advanced information and communication technologies. India accounts for almost two thirds of the global industry in offshore IT and about half of the global BPO industry (NASSCOM-McKinsey-Report 2005; UNCTAD 2009). The worldwide offshoring market continues to grow, as the proven advantages and benefits of offshoring (other terms for offshoring are: global sourcing or global delivery) bring more and more companies to accept these practices and providers develop the capabilities to supply even more sophisticated clients.

Credit for India’s rapid growth in the ITO/BPO domain requires the availability of a robust infrastructure in telecom, power and logistics in the home country, especially where the IT industry is regionally located. Relevant telecom facilities are an important prerequisite for the success of the IT industry, and the Indian government has taken steps to guarantee that telecom remains a main concern area. Dependable and uninterrupted power, a most important requirement for running IT-software and services businesses, has been receiving substantial governmental attention. Recent customizing steps in distributing power and energy bring in greater efficiencies, and more customer focus in the market helps to strengthen the IT/BPO industries’ strategic advantage. Furthermore, a tremendous growth in “Technology Parks”, that are geared to satisfy all of the requirements of the knowledge intensive industry, supports India’s innovative stage to be a leading destination in the IT industry (Datamonitor 2010). Leading competitive IT-markets like Chennai, which is India’s second largest exporter of software, information technology and information-technology-enabled services, Bangalore, which is known as the Silicon Valley of India because of its position as the nation’s leading IT exporter, and Gurgaon, which is an industrial and financial center, are most highly competitive and innovative business parks which offer Silicon-Valley-type-infrastructure in India. Commonly, India is ranked by the OECD
as a developing country, but seen from an IT perspective it is an emerging market. Particularly, the past decade was marked by steady advances in the ubiquity of the Internet and e-commerce throughout the industrialized world. Besides the fact that the ability to access the Internet in developing countries is a prerequisite for the development of Internet-based business-to-business (B2B) activity, the number of Internet users does not necessarily indicate the volume of Internet-based business-to-business (B2B) activity expansion and their productivity. However, Indian BPO enterprises are ready to put their talented professionals, innovative technology, business ideas and proven best practices to work for their customers on a global scale. The ITO market continues to grow at seven to ten per cent per annum, though the economic slowdown in 2008 and 2009. The IT managed services market in India grows at a compound annual growth rate of more than 22 per cent in 2010, and it is expected to more than 26 per cent in 2013 (Deblina 2010; IDFC 2010; Shukla 2010).

1.2. Aim of the paper

In this study we focus the necessary learning through the lens of the core retained capabilities needed to keep control of a firm’s strategic management when focusing on innovation (Brentani 1989; Davila, Epstein et al. 2006; Bowonder, Dambal et al. 2010). We show how these capabilities provide risk mitigation and flexibility in outsourcing arrangements and form the basis for maturing a firm’s ability to lead in outsourcing. Furthermore it aims to investigate factors effecting the utilization and performance of strategic capabilities in B2B innovation in India. A fundamental question has guided our study: What can be learned from a study of strategic management thinking in IT business relations from India?

2. Theory and Conceptual Model

2.1. Innovation in IT service

The importance of the service sector is still growing in the major world economies. In the service operations management, studies were undertaken to investigate key operations issues including innovation management, design, capabilities management, strategy formulation and flexibility in service operations (Sullivan 1982; Harvey 1990; Haynes and Thies 1991; Voss, Tsikriktsis et al. 2005; Oke 2007). Innovations in services have led to the greatest level of growth and dynamism in terms of economic activity (de Brentani 2001; Dahlander and Gann 2010; Prahalad and Mashelkar 2010).

Swanson (1994) commits that “…innovation has been the very business of IS in organizations, even though it has not always been recognized as such, since IS’s inception as a functional unit in the 1950s. The early computerization of routine accounting produced substantial organizational changes in this well-entrenched administrative task…” (Swanson 1994, 1070) The technological dimension of innovation in services emerged relatively lately with the diffusion of ICTs, mostly in the business services (Gallouj and Savona 2008). Robey (1986; Robey and Sales 1994) distinguishes among new products or services, administrative innovation, and technical innovation. He posits that administrative innovation takes care of improving internal control, coordination, and structure. Technical innovation is defined as changes to technology or work processes. According to Robey’s understanding innovation is a particular type of change. Change refers to alteration in structure, process, inputs, or outputs of a firm. Innovation refers to changes that are new and unique to the adopt-
ing firm. Achieving this understanding is important, because all innovation is change, but not all change is innovative. Trott (2005) explains the need to view innovation in an organizational context. He argues that the innovation process holds creative individuals, firms operating functions and activities, and firm architecture and outside linkages. Following his arguments a number of different disciplines contribute to the understanding of the innovation process (like Marketing, Human Resource and People Management, Operations Management, Leadership Management, and others). Today’s innovations are associated with groups of people or companies. Innovation is on a regular basis a group plays, where strategic management thinking will lead innovation processes to maximize benefits to support a firm’s survival in future.

Studies, done by Prahalad and Hamel (1990) and Christensen (2003), suggest that listening to a firm’s customer may actually slow down technological innovation and be harmful to long-term business success. Sometimes, to be successful in certain industries characterized by technological change, organizations may be required to continue innovations that are not demanded by their current customers or future clients.

The situation under which technology innovation, here the question of outsourcing or out-tasking does not matter, enhances or hurts performance is a vital question for the strategy manager, and the answer may rely on the source of valuable capabilities and the talent to integrate and supply them. However, the RBV indicates that outsourcing, when other firms are the source of valuable capabilities and outsourcing, provides a firm with access to these capabilities (Lavie 2006). Consequently, technology innovation outsourcing can supply organizations with opportunities to strengthen their capability base and performance in the market further than that possible through internal efforts without help (Govindarajan and Trimble 2010).

Bowonder et al (2010) see a number of strategy frameworks (business model innovation, co-creation, disruptive innovation, value chain analysis, blue ocean strategy, life cycle approach, open Innovation, bottom of the pyramid) that successful companies have used to create innovative business models, products and services. The authors say that out of many strategies for innovation three strategies help companies most: “Providing new offerings or experiences that excite the customer, (2) Staying ahead of the competition in the market-place, and (3) Entering into new market segments or creating new businesses.” (Bowonder, Dambal et al. 2010, 33)

A strategic management thinking example seen from a European perspective is the advice of the CEO at BOSCH Corporation: The most vital motivation for the company’s innovative performance is that an innovation mindset has to begin at the top. The CEO must proactively champion innovation, and the senior management must demonstrate innovation values in everyday business practice. These values must be communicated again and again. Then an innovation culture filters through the entire company if these values produce first-class results (Berger, Dutta et al. 2009).

2.2. Strategy in IT: Strategic management in services

In general, practice and theory in the service sector has been multifunctional in many services, because of the nature of service creation. The very idea of a service encounter, comprising one or more moments of truth, is multifunctional in character, requiring comprehensive analysis and the creation of new forms of organization, selection, training, and compensation. This is also true for strategy management and innovation management in IT services.
For managers, strategic management involves a greater scope than that of operational management (Welge and AL- Laha 2008). The very basic understanding of strategy will help to be clear when developing, executing and improving strategic management. A firm’s strategy can be defined as the actions that managers take to attain the firm’s goals (Prahalad and Hamel 1985; Porter 1998; Kristensson, Matthing et al. 2008). For most firms, the paramount goal is to maximize long-term profitability. A firm might operate with the goal of maximizing its profitability by picking a position on the market that is viable in the sense that there is an adequate amount of demand to support that choice, configure its internal operations – such as manufacturing, marketing, logistics, information systems, human resources to support that position, and install the right organization structure to execute its strategy (Porter and Millar 1985).

A complementally support activity is the firm infrastructure, which includes the organizational structure, control systems, and culture of a firm. The culture of a firm, especially a creative and supportive business environment, determinates the degree of innovativeness (Barney 1986; Desouza, Dombrowski et al. 2007; Kristensson, Matthing et al. 2008). It can blossom or terminate any business idea for a change. The power of cultural issues in business-oriented firms may be under-estimated in leading organizations, indifferently of its size.

The characteristics of strategic decisions are typically associated with the long-term direction of an organization, the scope of an organization’s activities, the advantage for the organization over competition, the strategic fit with the business environment, the organization’s resources and competences, and the values and expectations of actors in and around the organization. “Strategy is the direction and scope of an organization over the long term, which achieves advantage in a changing environment through its configuration of resources and competencies with the aim of fulfilling stakeholder expectations” (Johnson, Scholes et al. 2008, 3) However, operational decisions are linked to strategy. If the operational aspects of the organization are not in line with the strategy, then strategy will not succeed.

Strategies do not happen just by themselves. Any strategy involves people, especially strategy managers at the top-level of a company, who decide and implement strategy throughout the company (Teece 2010; Wirtz, Schilke et al. 2010). At the operating-end, operational managers are required to deal with problems of operational control, such as the efficient delivery of services, the management of the sales force, the monitoring of the financial performance, or the design of systems that will improve the level of customer service, just to name a few out of many. Operational control is vital to the success of strategy, but it is not the same as strategic management. Strategic management is concerned with complexity arising out of uncertain and non-routine situations with company-wide rather than operation-specific implications (Johnson, Scholes et al. 2008). This is a key challenge for strategy managers who are used to managing on a day-to-day foundation the resources they control. Strategic management is characterized by its complexity. Strategic management is having three elements within it: Understanding the strategic position of an organization, making strategic choices for the future, and managing strategy in action. Following Johnson, Scholes et al (2008) the strategic position includes the environment, capability, purpose, and culture, and it is concerned with identifying the impact on strategy of the outside environment, an organization’s capability and influence of stakeholders.

The terminology of resources, competences, and capabilities has not been standardized to date (Wernerfelt 1984; Eisenhardt and Martin 2000; Winter 2003; Teece 2010). We think that the strategic capability of an organization, which is made up of
resources and competences, is very significant to succeed on a specific market for the present moment and in the future as well. The objective is to form a view of the internal influences and constraints on strategic choices. In this paper we follow the definitions on resources, competences, and capabilities made by Teece (2010) and Johnson, Scholes et al (2008):

“Resources are firm-specific assets that are difficult, or impossible, to imitate. Competences are a particular kind of organizational resource… Organizational competences enable economic tasks to be performed that require collective effort… Capabilities are the firm’s capacities to integrate, build, and reconfigure internal and external resources/competences to address and shape rapidly changing business environments.” (Teece 2010, 2-3)

The authors Johnson, Scholes et al (2008) define strategic capabilities “…as the resources and competencies of an organization needed for it to survive and prosper…” (Johnson, Scholes et al. 2008, p. 97). The authors distinguish strategic capabilities into threshold capabilities and capabilities for competitive advantage. Threshold capabilities include threshold resources and threshold competencies, whereas capabilities for competitive advantage include unique resources and core competencies. The authors introduce a most basic concept of resources: Tangible resources are physical assets of a firm such as buildings, people and finance. Intangible assets are non-physical assets such as information, knowledge and reputation. To summarize: An organization’s resources can be considered by four wide categories: physical resources, financial resources, human resources, and intellectual capital.

Still another way of thinking about the strategic capability of an organization is to consider its strengths and weaknesses (Katkalo, Pitelis et al. 2010). Nevertheless, in our study we do not follow this stream of literature.

Kanter (2006) makes a note to strategy managers that not every idea for being innovative has to be a blockbuster idea. Sufficient numbers of small or incremental innovations can lead to large profits. Transformative ideas can come from any firm-function - for instance, marketing, production, finance, or distribution - it has not to be new service product or service development. The strategic lesson for any firm is not creating two classes of corporate citizen, supplying the innovators with more prestige and privileges, those in the existing business will make every effort to bring down the innovation. Kanter suggests: “The more dramatic approach is to create a unit apart from the mainstream business, which must still serve its embedded base… Innovation involves ideas that create the future.” (Kanter 2006, 77)

Literature suggests that companies with prescribed strategies perform better than companies without strategies (O’Regan, Ghobadian et al. 2005; Berger, Dutta et al. 2009). What are the principles of strategic management thinking in innovation management, which are fueled by formal strategies and strategic choices? Strategic choices include issues about the business level, corporate level, internationalization, evaluation, and innovation (Teece, Pisano et al. 1997). It involves the options for strategy in terms of direction in which strategy may move and the methods by which strategy may be tracked down. Most authors agree that innovation is one of the most fundamental drivers in today’s economy (Talke, Salomo et al. 2010; Teece 2010). Creating innovation is very hardly ever done alone. Like Robey and Sales (1994) the authors Govindarajan and Trimble (2010) put forward different stages of the innovation process. In the basic form the innovation process may include three stages –
recognition of need, initiation and implementation. Having this structure in mind, the recognition of need has to be done by the strategy manager at the top level of a firm, followed by the initiation process. After successfully completion of those stages the innovation initiative can take place and progress into the implementation stage. We point at the issue that an innovation process is not a single person’s business. It takes the entire management to initiate and the entire staff to execute and implement innovative ideas at a specific business level to achieve performance on the market.

“The reality is that an innovation initiative must be executed by a partnership that somehow bridges the hostilities — a partnership between a dedicated team and what we call the performance engine, the unit responsible for sustaining excellence in ongoing operations.” (Govindarajan and Trimble 2010, 77)

Most authors see innovation typically done through relationships. Relationships come in various forms – between organizations and their clients, between well established organizations and start-ups, between business and non-business organizations (Cannon and Perreault 1999; Ulaga and Eggert 2005; Ojasalo 2008). However, innovation is more complex than just invention (Sundbo 1997; Tidd, Bessant et al. 2001; Miles 2005; Zhang and Li 2010), and therefore relationships may have several needs, which management should consider when establishing and maintaining business relations due to changes. Invention involves the conversion of new knowledge into a new product or service. Innovation adds the critical additional step of putting this new product or service into use, or in other words to bring it to a specific market and commercialize it (Magnusson, Matthing et al. 2003; Rogers 2003; Trott 2005; Teece 2010). When bringing up the discussion of commercialization of innovative business ideas in general, there is a fundamental issue in the discussion of strategic management thinking and innovating a firm’s business model whether to focus on technological innovation rather than extending innovation to a firm’s whole business model. Innovations do not rely simply upon new science or technology, but the reorganization of all elements of business into new combinations. These new and sometimes very unique combinations have to be incorporated into a firm’s business model, which describes the structure of a product or service and information flows and the role of participating members (Dong-HoonYang, Kim et al. 2007; Teece 2010). Companies following their business model and executing their strategies on a high level performance are more likely to be successful in maximizing benefits compared to companies neglecting incorporated business models (Welge and AL-Laha 2008).

Almost two decades ago, management advisors in the computer industry were aware of a need of changing and innovating business models: “To meet the new market conditions, a radical restructuring of everything from attitudes to break-even margins is required. Such fundamental change demands adopting a new business model, changing not only the product/service range but the basic profit/revenue model, the culture, the company structure, as well as logistics, marketing, product conception and sales.” (Forge 1993, 937)

McGrath (2010) argues for bringing in the customer into the business model when pointing at two core components of what constitutes a business model: “The first is the basic ‘unit of business’, which is the building block of any strategy, because it refers to what customers pay for. The second are process or operational advantages, which yield performance benefits when more adroit deployment of resources leads a firm to enjoy superior efficiency or effectiveness on the key variables that influence its profitability.” (McGrath 2010, 249)
The economic value of a technology remains latent until it is commercialized in some way by a business model (Chesbrough 2010). Chesbrough states that companies commercialize new ideas and technologies through their business model. Some companies may have extensive investments and processes for exploring new ideas and technologies, but they often have little ability to innovate their business model. And some firms will face barriers to innovate their business model. The author points at a linkage between business model and a firm’s decision process: “…cognitive barrier to business model experimentation … arguing that the success of established business models strongly influence the information that subsequently gets routed into or filtered out of corporate decision processes.” (Chesbrough 2010, 358) Furthermore, he suggests to managers to overcome these cognitive barriers and experiment with alternative business models by constructing maps of business models to clarify the underlying processes. This modeling approach allows strategy managers to experiment with an alternative business model, by allowing firms to simulate a variety of possibilities before committing to particular investments in reality.

2.3. Disrupting business models and market performance as outcome

In emerging markets, new market structures arising from digitalization, deregulation, globalization, and open-standards, are shifting the balance of economic power from the sellers to the buyers. Indian companies have used Western technologies but created business models that have completely altered an industry’s economics. For illustration, IT-based software and service providers such as Wipro, Infosys, TCS, and HCL use off-the-shelf hardware, but they deploy new talent-based business models to be globally competitive. Those enterprises have crafted methodologies for partitioning work so that much of it can be done off-site, which allows them to benefit from the lower costs of talented engineers, programmers, and managers in India. Outsourcers worldwide account for very little of the global software business, but they have changed the industry’s dynamics (NASSCOM-McKinsey-Report 2005; Chadee and Raman 2007). Indian outsourcers have also added new capabilities over the years - first offering lower costs, then creating better-quality processes, and now they are trying to provide end-to-end business solutions. Thinking about the characteristics and the distinction of Indian business innovation and the art and ability how Indian managers handle their state of affairs, managing their multi million business when dealing with western customers and cultural caused difficulties, two issues punched our curiosity: Indian cultural values influencing the management thinking in general and the Indian term “jugaad”. Prahalad and Mashelkar (2010, 134) explain the “jugaad” phenomenon as “…developing alternatives, improvisations, and make-dos to overcome a lack of resources and solve seemingly insoluble problems. However, the term “jugaad” has the connotation of compromising on quality. We prefer “Gandhian innovation,” because at the core of this type of innovation lie two of the Mahatma’s tenets: “I would prize every invention of science made for the benefit of all,” and “Earth provides enough to satisfy every man’s need, but not every man’s greed.” Affordability and sustainability were Gandhi’s touchstones six decades ago, and Indian companies have recently discovered their power.”

Most authors agree that any business venture employs a business model the value creation and delivery process, which is most of the times formal but sometimes informal. “The essence of a business model is in defining the manner by which the enterprise delivers value to customers, entices customers to pay for value, and converts
those payments to profit... A business model articulates the logic and provides data and other evidence that demonstrates how a business creates and delivers value to customers.” (Teece 2010, 173) Following Teece (2010) an excellent business model yields value propositions that are persuasive to customers, achieves beneficial cost and risk structures, and enables value capture by the business that generates and delivers products and services. We conclude that resources and capabilities are essential parts of any business model. Superior technology, products or services, excellent people, and first-class governance and superior leadership are likely to produce sustainable profitability to any enterprise. Magreta (2002, 86) states in her HBR article “Why Business models matter” that business model is a concept with various user dependent definitions and contents and “...a good business model remains essential to every successful organization”. Timmers (1998), and Davila and Epstein et al (2006) define business model as description of a planned or existing business including the elements of value proposition, configuration of value creation and revenue model. Value proposition describes how products and services generate value for the customer or stakeholders (Amit and Zott 2000; Amit and Zott 2001).

2.4. The impact of strategic management thinking in innovation management on business performance

Authors in the literature on innovation see various definitions highlighting different dimensions of innovation performance. Most authors commonly detain the concept of innovation performance to the newness and novelty of products or processes which has been adopted in several studies (Kleinschmidt and Cooper 1991; Hollenstein 2003; Kanter 2006).

Prahalad and Mashelkar (2010, 133) strongly request more motives when they say that “Most innovation programs are built on the assumptions of affluence and abundance... Affordability and sustainability, not premium pricing and abundance, should drive innovation today."

We see and define firm- or market performance in our study as company growth, market share, customer loyalty, percentage of repeated business, and profitability. We also reflect on what we mean by performance as we precursor to understand performance differences. We follow the distinction between design and development issues and between product and process focused issues (Oliver 2002). The design-service or product focus represents the zone into which many strategic management decisions and exercises clearly fall. The design-process focus emphasis less on the service or product itself than more on the process of planning and creation, and this zone represents more the operational zone of an organization. Therefore we see - besides the lifecycle of the service or product - the dimension of speed of innovation critical for the success of the innovation process for a specific market and the overall business performance. The dimension of speed of innovation, new product or service development, has been adopted in several studies (Cohen, Eliashberg et al. 1996; Ittner and Larcker 1997). Speed is allied with how early a firm adopts changes in its business model or new technology emerging to the industries. This definition is based on the five categories of innovators developed by Rogers (2003) - namely innovators, early adopters, early majority, late adopters and laggards.

Following Collis (1994), who note that organizational capability is an outcome of knowledge and resource integration within and across firms, capabilities are the ultimate resources for sustainable competitive advantage and firm performance. We
think that at least two important capabilities related to strategic management thinking and innovation management within service firms and outsourcing relationships in the IT industry are information exchange and interfirm coordination.

We define a capability as a distinctive set of human based skills, attitudes, behaviors, motivations, and orientations that can transform resources into business skills. Therefore, collections of capabilities create high level strategic competencies that positively influence business performance. The RBV, which is based on the importance of such capabilities, argues that firm performance depends on the organization’s ability to acquire, deploy and maintain a set of assets or resources (Cullen, Seddon et al. 2005). We among others base our understanding on the phrase “core IS capabilities”, which was formed to our understand by Feeny and Willcocks (1998), referring to the human rather than IT assets that characterize the management and staffing of a high performance IT related function. We think that the skills supporting a capability are a mix of interpersonal, technical and business skills. Focusing the IT function, distinctive core IS capabilities are needed to manage, change, and innovate strategically the demand side of information and communication technologies. Information exchange is the sharing of knowledge with business partners to serve downstream customer. This would include changes in the business environment, such as market and customer preferences. The multiple dimensions of information exchange are accuracy, completeness, credibility of information, and timeliness (Mohr and Sohi 1995). Interfirm coordination refers to transaction-related activities between partner firms. This includes the collection of product and service related information, the identification and articulation of customer needs, the search of new customers or buyers, coordination across business partners and internal business units (Clemons and Rows 1992). Most responding organizations acquired smaller firms, supplying business partners or competitors or still being in the process of buying competitors or businesses, which some of them have been their clients for many years.

3. Problem formulation

The design of an effective service delivery process specifies how operating and delivery systems link together to create the promised service. Service redesign revitalizes processes that have become outdated. Changes in technology, customer needs, added service features or new offerings may have made existing processes ready for change. From a strategic point of view an important management capability is the ability to manage an overall portfolio of products and services. This is the skill of a strategy manager to who will pick winning projects and decide on what projects and services to support, given scarce resources. We think that an organizational design should be linked directly with strategic plans, because those designs are means for executing strategy. With a view to improving customer relations a management team in general, but innovation management in specific, should be focused of the innovation process. Extending our overall question “What can be learned from a study of strategic management in IT business relations from India?” we would like to address especially the top-level manager’s perspective on strategic management in innovation management of global businesses in the IT industry. Our research question reads: Which practicalities and innovation management practices are key issues for ensuring the effectiveness of offshore outsourcing setup at the strategic level?
4. Methodology
4.1. Empirical data

The empirical data used in this study was collected using a semi-structured interview guide (Yin 2009) in which business managers in the IT industry were questioned about their work on strategic levels as well as on an operational level. This includes areas like innovation management, strategic management, human resources perspectives, and leadership. The material was collected in the year 2007 in India, with 11 respondents completing the interviews, ranging between 1 and 2 hours. The representatives are from leading companies from the IT industry in India. The semi-structured interview guide consisted of questions in numerous issues as they are: competitiveness in the IT industry, facilitators for business growth, collaboration and communication with business competitors, questions related to human resource management and recruitment of staff, questions about service quality and drivers of business success, value creation and maximization of benefits, general management and innovation management, relationship and partnership management, and how IT managers see their future. When analyzing all the available interview transcriptions we especially looked for the expressed interest of each manager about innovation and strategy. Excerpts in the transcribed material were marked with assigned colors, facilitating data categorization according corresponding themes – we categorized according to resources, capabilities and performance.

We selected the companies as they are likely to have had some experience in using innovative IT technology. Information about these companies included their early years, when companies started their business, but we also focused their recent development in business strategy and management. Ideally, informants needed to have some knowledge of IS innovation, strategic management, and some degree of system and activity integration with their business partner on a global scale. Therefore, qualified respondents in our sample are managers, IS managers, or leadership/innovation managers. The following table characterizes respondents (*) used in the study:

<table>
<thead>
<tr>
<th>Company</th>
<th>Founded</th>
<th>Total Revenue</th>
<th>Total Assets</th>
<th>Business Focus (% revenue from)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>USD Millions</td>
<td>USD Millions</td>
<td>US</td>
</tr>
<tr>
<td>TCS</td>
<td>1968</td>
<td>6300</td>
<td>6069</td>
<td>53</td>
</tr>
<tr>
<td>WIPRO</td>
<td>1945</td>
<td>5880</td>
<td>7309</td>
<td>44</td>
</tr>
<tr>
<td>INFOSYS</td>
<td>1981</td>
<td>4804</td>
<td>6148</td>
<td>66</td>
</tr>
<tr>
<td>HCL Tech</td>
<td>1976</td>
<td>2324</td>
<td>2605</td>
<td>59</td>
</tr>
<tr>
<td>Mphasis</td>
<td>2000</td>
<td>945</td>
<td>512</td>
<td>67</td>
</tr>
<tr>
<td>PATNI</td>
<td>1978</td>
<td>656</td>
<td>901</td>
<td>79</td>
</tr>
<tr>
<td>IFLEX</td>
<td>1992</td>
<td>618</td>
<td>926</td>
<td>27</td>
</tr>
<tr>
<td>L&amp;T Infotech</td>
<td>1997</td>
<td>424</td>
<td>333</td>
<td>65</td>
</tr>
<tr>
<td>IGATE</td>
<td>1986</td>
<td>226</td>
<td>228</td>
<td>79</td>
</tr>
<tr>
<td>NIIT Tech</td>
<td>2002</td>
<td>202</td>
<td>176</td>
<td>33</td>
</tr>
<tr>
<td>EXL</td>
<td>1999</td>
<td>191</td>
<td>250</td>
<td>64</td>
</tr>
</tbody>
</table>

Table 1: A brief rundown of interviewed companies

(*) Notes:
1. The data is sourced from the respective company websites and their annual reports
2. iFlex has changed its name to Oracle Financials Services Software Limited
3. Exchange rate as on 31.03.2010 1$ = 45.14 assessed from IMF web-link
4.2. Data analysis

We used content analysis of data collected using the interview guide described above. Content analysis is the process of organizing written, audio, or visual information into categories and themes related to the central questions of the study according to a set of rigorous rules (Weber 1990). In order to understand what drives firm or market performance, we classified interview responses into the objects to innovate resources and capabilities to impact on firm and market performance. Our focus centered the question: What is the context relative to which the data are analyzed? Therefore we linked strategic management and innovation management and marketing as well. The empirical data was analyzed by first mapping all the answers according to the themes in our interview guide. Some relevant themes for this study were innovation (including innovation management), strategy (including strategic management, strategic management thinking), and performance and future growth. We have found that those themes link strongly to the RBV approach, which say that a combination of resources and capabilities impact on firm performance. Having the RBV approach in mind, we secondly identified higher level categories. The higher level categories were technology innovation, administrative innovation, information exchange, and inter-firm coordination. Further, our findings were elaborated by the underlying level categories in order to identify and place the strategic management thinking in innovation management within the RBV approach. The data analysis was done by one author by analyzing and coding the data according to our categories (resources, capabilities, firm performance). In addition, the qualitative data analysis software Atlas.ti was used to systematically analyze the data from the interviews.

4.3. Model

We organized a propositional model cascading the broad aspects of the RBV. We put forward that resources, such as technological innovations and administrative innovations, may increase internal capabilities, which in turn influence firm/market performance (Barney 1991). We were looking for strategic management thinking in innovation management that is predominant in leading Indian IT companies, which their practices is associated with the pursuit of innovation and their relationship with firm performance. Based on our first mapping of the data we have formed a propositional model which is based on the RBV approach. Our model focuses on innovation issues which we propose to have an impact on firm and market performance. Furthermore, we propose a link to strategic management when using advanced design and development tools to form and create a competitive and leading organizational structure to profile global business models in the IT industry. This leads us to our propositions and related model:

**Proposition 1:** The greater the degree of technological innovations supported by an organization, the greater the organization’s performance.

**Proposition 2:** The greater the degree of administrative innovations supported by an organization, the greater the organization’s performance.
5. Results

The focus is set on the understanding and enlarging the scope on strategic management thinking in innovation management. Due to the issue of high-lightning resources and capabilities, the impact on firm and business performance might fuel enterprises which operate globally, but in particular the Indian business market and the Western business markets. In a first step we present general findings from the data relating to the overall perspective of our model, and later, we present findings to our propositional model - resources, capabilities and firm and business performance. The data is discussed in such a way that the individual participating firms are not identified. This is because of the confidential nature of the survey instrument.

General findings: Overall all 11 respondents emphasised that innovation culture must start at the top if a company wants to be innovative. This could be a self-aggrandizing emphasis. They also highlight that technology doesn’t make a difference over competitors. What really matters is product engineering services, engineering services, product development, combining business process and R&D services, listening to and understanding customers, and clearly and sustainable relationships.

With India having the largest pool of English speaking IT manpower in the world, the Government of India supports this strategic advantage for increasing IT services exports. At the same time, special incentives may be given for increasing the language advantage in exports by promoting IT manpower to cultivate other languages like European languages, Russian, Japanese and Chinese languages. For internal spread of IT culture, the knowledge and experience gained in language computerization will be adequately extended to all the Indian languages during the next decade (Interviews P1, P3, P5, P9, P10, and P11). We found that all of our respondents were presenting the advantage of English speaking IT manpower as their resource of business success. However, it takes a lot of efforts to turn young IT and business graduates into competitive business staff (Interview P6, P7). Firms invest time and financial assets to further educate graduates to make them business ready. As a manager from P1 illustrates job requirements within the IT services sector may be extremely challenging: “We interview 100 [graduates] and end up hiring 5 to 10 people.”

One of the factors attributed to the IT services exporting success of Indian enterprises is the mathematical and logic expertise in the background of the Indian mathematical culture and the enthusiastic young students at many universities throughout the country, especially at the international IT hot spots such as Bangalore, Mumbai and New Delhi. The Indian government encourages migration of talents into mathemati-
cally oriented software development through scholarships as well as promotional re-
training programs (Interviews P1, P2, P4, P6, P8, and P11). Employee attrition in the
industry is high and that also leads to knowledge leakage. A manager from P7 ac-
cepts the inevitable knowledge loss and the significance of potential strategy to min-
imise it: “I think is unavoidable having a leakage when employees leave... that’s un-
avoidable... the trick is to keep everybody in.”

The Indian government has been playing a critical, blossoming and prospering role in
enabling the success of IT service enterprises when creating and designing the suit-
able environment for business ventures many decades ago. As a manager from P5
said: “It has been very progressive I would say there were visionaries in the Govern-
ment to make sure the IT industry get the required catalyst action on the Government
side... Infrastructure is still a problem ...and that is where I think... the Government
puts a lot of efforts on this issue... the Government has played a accelerating... cata-
lytic role in enabling the industry to grow.”

Offshore software development in India, through high speed satellite and fibre optic
links, enjoys open Indian economy for enabling the creation of such linkages dedi-
cated to software and related services export from India. Our results indicate that one
of the most significant benefits has been the more intensive information exchange,
and the increased cooperation and commitment between the seller and the client or
customer. Both issues have led to a stronger business performance in the inter-
viewed organizations. Table 2 depicts our observations in our interviews.

<table>
<thead>
<tr>
<th>Impact of strategic management thinking in innovation management on firm and business performance</th>
<th>No impact</th>
<th>Weak impact</th>
<th>Strong impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company A</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Company B</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Company C</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Company D</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Company E</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Company F</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Company G</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Company H</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Company I</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Company J</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Company K</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2: Results from the interviews

Findings related to Resources: A manager from P1 explains his firm’s strategic
management thinking when building up internal and external resources. First the
firm’s internal resources adopt new structures and processes and then the process
re-engineers work on innovating client’s resources. He explained the starting stage
by questioning himself “How do we make the processes more efficient, how do we
improve the processes, how do we do a better job than what the client was doing and
how do we continually do that?” Another manager from P3 explained that the firm is a
“... product company, if we won’t be innovative we will be dead... the whole aim of the
company itself is flexible.”

A manager from P2 stated that “…all these 30 years, especially the last eight years
...we have been restructured and reorienting ourselves tremendously and some of
the philosophies that have been driving and facilitating the transformation” helped the
internal innovation processes to build up a new, strong and powerful business unit to
compete strong firms like Accenture and IBM on a global stage. The same manager elucidates that strategic management thinking in innovation management comes out of flexible, creative, self-motivated and highly competitive employees. He said that the success of his firm is based on the ability of “...creating a very strong quality multi-lingual and multi-cultural workforce ...21 different nationalities are working for us ...in total 41,000 people.”

A manager from P1 elucidates the administrative innovation process of changing and innovating client’s business processes: “The idea is how to processes. I think that’s where the differentiator comes in, that whether you are just meeting or whether you are exceeding, setting a higher benchmark for yourself, which makes your question it again and say can we do a better job than what we are doing, can we do it differently, the process is going from beginning to end, there are 20 steps in-between. Can I eliminate a few of those steps and make the process more efficient?” Further, he gives an example of a technological based innovation at a client’s side: “...there are a lot of clients where it may make sense to make the process more efficient, to invest in technology, so there is an investment to make the technology more efficient, because if the agent is for example toggling through 10-20 different screens, he’s wasting time.” Another example is the following: “we have a product called xxxx (not actual brand name), it is an in-house grown application which gives access and more control to the client, it is a web based application so clients can log in every day at any given point of time and look at the performance of their processes... on real time basis... it’s not merely a dashboard, it helps the client to do data analysis.”

**Findings related to Capabilities:** A manager from P1 stated that email-technology itself may not be enough and labour arbitrage is probably just a starting point to create and build capability, but as he said “... we need to build up capability if to grow up the value chain...” and also to expand business, maximize benefits and delivery value to existing clients. He continued that his company first recognized a need to change and in a second step the firm’s management board agreed on administrative innovation by adopting new structures and processes. The same manager summarized the firm’s initiation process to innovate their strategic management thinking and explained how the firm quickly adopted new capability: “...we acquired the capability and the expertise of managing complex business processes” ... by hiring new employees who were able to bring all the required skills and knowledge into the firm. At P2 internal coordination is extremely important to build and enhance employees’ capability to provide the right environment to be innovative. A manager at P2 explained that “...shifting attitudes towards work life issues ...provides employees with this kind of unique environment to come together... our employees can drive idea generation themselves so if somebody has a great idea there are tools wherein they can articulate that and we keep on polling and good ones are taken into the system, they are implemented and employees are rewarded ...360 degree feedback in terms of driving an inverted organisation structure. 360 degree feedback happens everywhere ...feedback is transparent ...right up to the president of our company ...his 360 degree feedback is visible to everybody.” Furthermore, the communication strategy at P2 is widely open and direct. It is focused on thinking in various directions and engages every employee within the firm. In addition “...feedback on [the single employee] ... will actually be visible on the intranet for anybody in the company to take a look at... and there are direct communication systems, processes for direct communication with senior employees within the company including the CEO and president ... as a company, we support employee engagement initiatives.”
Strategic management, re-engineering and building capability: A manager of P4 said that “...labour arbitrage [is at the moment important and fuels our business in the way] whenever you go and sell our services, the first thing you tell customer is cost reduction of 30-40%, that itself is very attractive for customer... [and] we as an organisation do not feel that labour arbitrage will last for long because there is a huge erosion and the only reason is that an international company pays you more... and if the wage or the salary levels go high there is no labour arbitrage anymore.

A manager of P1 elucidates the importance of re-engineering: “... often what happens is that we work off of client systems. If the client has a certain application, or a suite of applications we access that application and we rework it.”

A manager of P4 highlights the significance of relative competition: “...word flexibility and adaptation is very relative. I think all companies are flexible and adaptive ... Infosys or IBM or IGATE are adaptive ... but I think the small companies are more flexible because of the size, the decision making process, and the management contribution on a day to day basis.”

Findings related to Performance: Respondents were asked how they see their firm’s future in the IT services sector and their answers included admiration towards the dominant position of a couple of big IT services players, but also their constant and increasingly fight against smaller companies, which operate only at a local and regional level. A manager at P2 explains that his company will keep bidding against “...IBM and Accenture ...[but] they are trying to slash down costs whereas we are in an equilibrium state of going up... it is absolutely necessary to ensure that we stay connected to business... we have to be realistic of what we can do and what we cannot do... we compete with IBM but we also collaborate with IBM.”

A manager from P2 explains that “...labour arbitrage is not sustainable, so we have to ...deliver value to customers... These initiatives started in top line and that is significant ...now these initiatives and models are starting to make our customers more competitive in the marketplace.” A manager from P3 said that his firm serves customers “...on a global perspective in more than 120 countries ... we are not really saying that we are US or Europe focused.”

Another question focused future growth and what issues could help to ensure company performance. A manager from P2 answered that “...Asia Pacific and the Asian market are going to be significant for us moving forward and the European markets will significantly increase... [whereas]...the US market will increase on dollar value.”

A manager from P5 said that “…98% of our business is repeat business.” The same managers explained that the performance of service delivery is critical for success “…to deliver on what you have promised your client ... how do I justify that from our bench marks ... about 60% of the products get delivered on time by our global competitors, as we do 92 to 94% on time.”

When managers were asked whether they had any advice for other managers to invest and improve innovative performance, one from P1 said that he would be more “…proactive in building capability in [core business] areas... I think it is important to continue to invest in infrastructure.” Managers from P2, P5, P8, and P11 said that questioning themselves like “Am I really doing the job, am I really driving value, moving the company forward?” will strengthen their strategic management thinking to innovate the firm’s business model to better meet client’s expectations.
6. Conclusions and implications: What can we learn from this?

Managers are under increasing pressure to make strategic decisions quickly and effectively. They will need more flexible models that allow them to identify and access management and innovation theories and practices that are most appropriate for their market offerings.

The resource-based diversification differs from diversification based on a traditional market approach. To our understanding the RBV emphasizes the aim for growth as a driving factor of the division of labor between organizations, and centers the role of management in configuring the competitive position of an organization (Wernerfelt 1984; 1995). Organizations differentiate themselves by developing unique capabilities for the use of resources, and a higher level of performance may result of the combination of both by the organization’s management. This perspective makes management the decisive force that differentiates an organization and affects its growth and performance as well (Ehret and Wirtz 2010). Grant (1991) characterizes resources as inputs to a production process, but only some resources are inputs to a productive process. Grant concluded that resources have to be coordinated in order to be effectively productive. Grant’s extension to the RBV puts focus on capabilities as the source of any sustainable competitive advantage a company achieves in its market. Successful companies coordinate resources into capabilities to perform tasks or activities (Cant and Machado 2008). Research in marketing and strategic management indicates that the product or service life-cycle do have a significant impact on product or service strategy. Researchers have conceptually related different business strategies with successful product performance for each stage of the product or service life-cycle (Day 1981; Davenport, Leibold et al. 2006).

Like previous research findings (Jenster and Hussey 2003; Kim, Cavusgil et al. 2006; Atesci, Bhagwatwar et al. 2010), this study found that strategic management thinking do have a strong positive influence in the utilization of IT technology and a strong positive influence on business process re-engineering. Based on our analysis, all in all 9 out of 11 managers (see table 2) said that their firm’s performance is positive influenced by their top managers’ decision, which are executed on the operational level, therefore many different offices and markets are involved, we conclude that the most important driver in positioning a firm in a highly competitive market is a clearly defined competence-based strategy, which is fully understood by all participating managers and employees. The competence perspective focuses manager’s attention on identifying and developing new approaches to service product creation and realization, in other words the manager’s ability of strategic management-thinking, which can meet the challenge of combining cost leadership and service product differentiation. However, Porter (1998) recommends to companies not to try to pursue a mix of generic strategies. Especially a mix of cost leadership and differentiation has been criticized, because high-priced but inadequately differentiated services that offer too little value to clients. The competence perspective, which focuses on firm’s capabilities, takes a view of competitive strategies that is different in one respect from the three generic strategies advanced by Porter. It holds that to be successful in service markets, companies have to offer well differentiated service products at competitive prices. Competence-based strategic management postulate that the challenge strategy managers face is developing an firm’s ability to create well-differentiated service products and bringing those to market profitably while selling at competitive prices.
(Sanchez and Heene 2004). As found in our data, Indian IT firms still have a highly competitive cost leadership advantage. On the other hand we found that Indian managers are aware of the short lasting advantage, because regional Indian competitors, Chinese competitors, and other Asian based firms will enter the IT market in short time.

**Implications for strategic management:** Designing a process that minimizes the risk of failure, eliminates steps that add no value for customers, avoids undesired time loops, and maintains a comfortable environment that may help to reduce factors that generate client frustration. Our data analysis showed that managers recognize the need of managing individual performance on the top management level as well as on the operational level. They aim for innovating a firm’s resources to increase long-term competitive advantages. We conclude that the managerial implication should look like that the main strategic focus of a firm should not be on standardized service products or different service product offerings, but on how the firm can create maximum value for its clients based on its resources. By adapting a resource-based approach, the main role of the client’s interface should not be to promote specific service products to business clients. Instead, the sales function should highly match the needs of the clients and the resources of the own enterprise. In order to apply currently management and practices such as mass customization, business-to-business marketing, and client-driven companies, a resource-based approach is essential, to build up quickly required capabilities (Teece, Pisano et al. 1997; Teece 2010; Wirtz, Schilke et al. 2010; Zott and Amit 2010). Without the continuous development and innovation of resources, we characterize development as a design process where strategic management thinking plays a major part, in terms of knowledge and company capabilities, the resources of firms will become obsolete. When service product life-cycle times continue to decrease, costly efforts to protect resources (by copyright, patents etc.) become less striking (Cullen, Seddon et al. 2005; Seuring and Weimer 2007). Resource-based strategic management focuses on developing hindrances to imitation of resources instead of protecting service products (Day 1981; Nilsson-Witell and Fundin 2005). In order to imitate the best in the Indian IT industry, companies are instructed to initially analyze the possibility of imitating the market strategy. If this requires new processes, the following step would be to try to imitate these processes. If the processes need new resources or capabilities, firms would have to evaluate the possibility of acquiring similar resources. The really difficult decision is what needs to be retained and developed in the areas of leadership, management, and staffing. And getting this wrong can have highly damaging consequences for any outsourcing arrangement in this particularly business segment. Our work finds that high performing back offices are managed by groups of highly capable, demand led and strategy focused entrepreneurial employees. We strongly believe that it is vital for any businesses to have a structure for describing and discussing the substance of such a group and what happens when it is, and if it is not, in place.

This study had set out to investigate how and why Indian IT firms utilize strategic management-thinking in innovation management for inter-organizational collaboration and productivity in the global process outsourcing industry. To that end, it applied the strategic management and innovation theory as a performance lens to examine this phenomenon which is characterized by an uptake in technology, processes and infrastructure, but a lack of substantial change in outsourcing relationship management.
Acknowledgement:
We would like to thank Education New Zealand for financial support for the field research. We are thankful to the interviewees for their valuable inputs; however, the authors assume full responsibility for the content of the paper. The corresponding author thanks Aalto University in Helsinki, Finland, for supporting his visiting program where he wrote most of the manuscript at the School of Economics.

Literature:


Author(s):
Markus, Holzweber, PhD fellow
Roskilde University
Communication, Business and Information Technologies (CBIT)
DK-4000 Roskilde
Denmark
Email: marhol@ruc.dk

Doren, Chadee, PhD, Professor
University of Southern Queensland
Australia
Email: Doren.Chadee@usq.edu.au

Revti, Raman, PhD, Lecturer
Victoria University of Wellington
New Zealand
Email: Revti.Raman@vuw.ac.nz

Jan, Mattsson, PhD, Professor
Communication, Business and Information Technologies (CBIT)
DK-4000 Roskilde
Denmark
Email: mattsson@ruc.dk

I agree that the submitted paper is published as working paper.