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Connecting Work Design and Business Ecosystems: Fostering Innovation in Information Technology Firms

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Abstract

The extant literature focusing on innovation capacity highlights the role of human capital formation and work design choices. Although this stream of literature is well developed, an emerging stream of literature has argued for the role of external business networks and the institutional ecosystems in fostering an organisation's innovative capacity. Central to this latter approach is the diffusion and integration of new learning and information sharing from an organisation's network partners to its ecosystem. Using qualitative case study evidence from four information technology (IT) enabled organisations in India, this study found that innovation capacity depends not only on human capital formation and work design choices but also on a firm's capabilities to acquire, develop, integrate, and exploit new knowledge and information. To this end, the study employs an integrated approach highlighting the strategic choices some firms make in developing their human resource and organisational capabilities to improve their innovative capacity. Implications for theory and practice are also discussed.

Keywords

organisational learning, human resources management, capacity building, innovation

Cover Page Footnote

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Introduction

The extant literature on innovation capacity highlights the importance of human capital formation and work design choices (Smith et al., 2012). Although this stream of literature is well developed, an emerging stream of literature on business ecosystems and client networks has argued for the role of a firm's external networks (including its clients) and the broader institutional environment in affecting a firm's growth and innovative capacity. This stream of literature tends to focus on the regional differences in the institutional and competitive environment of firms (Arora & Bagde, 2010; Boon et al., 2009; Pauwee & Boselie, 2003; Shastri, 2012). For example, Arora and Bagde (2010) found that, due to the significant regional differences in the levels of engineering baccalaureate capacity, relative to other regions, some regions in India were able to attract and develop a cluster and network of information technology (IT) firms more effectively than others. Employing a human capital perspective, Shastri (2012) also revealed significant regional differences in the learning of IT skills and, consequently, noted increases in wages due to the regional differences in the lower cost of learning English, relative to other linguistic predispositions. More recently, the emergence of new forms of hub-and-spoke relationships have been a noted source of sustained growth and innovations in India's IT and business process outsourcing (BPO) industry (KPMG-NASSCOM, 2012). Central to the above approaches is the role of competitive and institutional factors in the diffusion and integration of new learning and information from a firm's network partners to its business and technology ecosystem. Although much of the research has tended to focus on developed countries and manufacturing industries, little is known of how firms in high-technology sectors from developing countries integrate learning from their network partners into their organisational routines and decision rules. The offshore IT outsourcing industry is one such industry that relies on its network of clients and partners for service innovations.

Revenues of the global offshore IT and related outsourcing services industry are estimated at \$1 trillion per year (NASSCOM, 2010). This is also reflected in the spectacular growth of India's IT industry (Malik & Blumenfeld, 2012; Malik et al., 2012; NASSCOM, 2010). What is of interest here is that, out of the overall revenue of US\$71 billion in the Indian IT industry, only about 20% is from software product development and research and development activity. Despite the large scale imitative entry of global IT multinational companies (MNCs) in the late 1990s in India's IT ecosystem, the dynamics and scale of product and innovation activity of the MNCs' subsidiaries and other third-party outsourcing service providers has remained low. This anomaly can be attributed to various factors such as differences in the organisational capabilities of service providers

in India (Athreye, 2005; Ethiraj et al., 2005; Malik et al., 2012), the degree of client influence and availability of high-end skills (Malik, 2009; Malik & Nilakant, 2011; Narayanan & Neethi, 2005), weak local innovation systems (Krishnan 2007; Tschang, 2005; Vang & Chaminade, 2006; Vijayabaskar & Krishnaswami, 2003) and the need to protect proprietary product knowledge and resources (Barney, 1991).

Despite an emerging body of literature on the above themes, little attention has been paid to the barriers and opportunities that exist at regional and global networks in this global-born, interdependent, and business-to-business oriented industry. Central to most studies of innovation in firms is a process of learning and change (Fagerberg, 2006). Further, as firms are embedded in societies and markets, their capacity to learn from their external environment and network partners, or *absorptive capacity* as Cohen and Levinthal (1990) term it, lies in their ability to extend the existing technical and business knowledge skills bases.

This paper takes the view that a firm's innovative capacity can be greatly enhanced by the active role of human agency, for example, by investing in certain strategic market sensing, operations, and human resource management (HRM) capabilities. To this end, the integrated approach presented here highlights the importance of the strategic choices firms make in developing certain human resource and organisational capabilities to improve innovative capacity. This paper is part of a broader research program of the Indian IT industry focusing on human capital formation and organisational capabilities. Using case study evidence from India's IT industry, this paper highlights the problems and opportunities in developing innovative capacity. More specifically, this paper contributes to the emerging body of literature on building innovative capacity and the role of regional and institutional factors in shaping innovation in a number of ways (Asheim & Gertler, 2006; Prajogo & Ahmed, 2006; Smith et al., 2012; Tidd et al., 2005). First, by studying a high-growth industry in a developing country context which, by its very design, is reliant on an integrated and networked regional and global hub-and-spoke relationship, the paper identifies the opportunities and challenges faced by firms in this sector. Second, similar to Schumpeter's entrepreneurial and organisational level decisions for innovation (Fagerberg, 2006), and following Child's (1972) notion of strategic choice exercised by a firm's dominant coalition of decision-makers, the paper discusses the dynamics of *leeway* and *choice* in organisational investment decisions. Third, the paper highlights the interplay between organisational capabilities and client specifications in enhancing or deterring innovative capacity. Finally, the paper argues that, depending on the choices that firms exercise, their ability to infuse new learning will vary. The rest of the paper is organised as follows. First, a brief

review of the relevant literature is offered. Second, an overview of the methodology employed and a brief description of the research setting provides the context. Third, the findings and analyses are presented. This is followed by a conclusion with implications for theory and practice.

Review of the Literature

This section begins by providing a contextual background of the research setting and the wider institutional environment in which the dominant coalition of stakeholders exercise strategic choices (Child, 1972). Next, a review of the role of a firm's strategic and business orientation (Boxall 2003; Porter 1985) is offered to understand how strategic choices are made in an institutional environment and how these choices affect the development of certain people management and organisational capabilities. This is followed by a brief discussion of the role of HRM practices and certain market sensing and operational organisational capabilities that are critical in developing innovative capacity, as well as how these capabilities interact with the regional and institutional factors that affect innovative capacity (See Figure 1 below) of firms (Asheim & Gertler, 2006; Foss & Larsen, 2003; Gupta & Singhal, 1993; Jiménez-Jiménez & Sanz-Valle, 2008; Malik et al., 2012; Prajogo & Ahmed, 2006; Schuler & Jackson, 1987; Sinkula et al., 1997; Smith et al., 2012; Tidd et al., 2005).

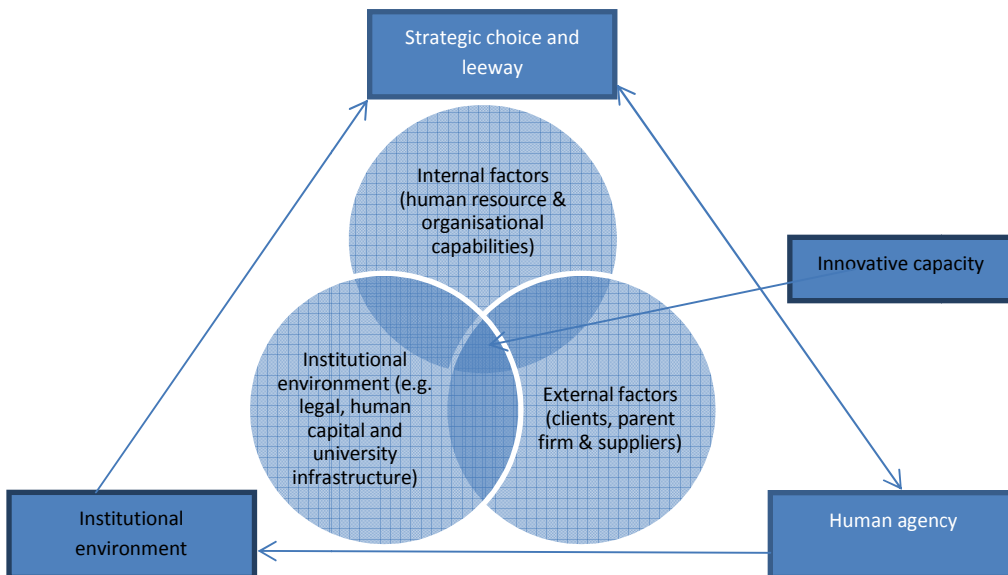


Figure 1: Internal and external influences on innovative capacity

There has been strong support noted in the literature for the relationship between strong market orientation, organisational learning and quality management capabilities, and innovation (Alegrea & Chiva, 2008; Han et al., 1998; Pekovic & Galia, 2009; Perdomo-Ortiz et al., 2006; Prajogo & Sohal, 2001; Stata, 1989). To this end, this paper analyses the strength of an organisation's capabilities and how these affect the development of innovative capacity.

The Indian IT Industry

The Indian IT industry is characterised by an uneven profile, wherein less than 1% of the firms account for a disproportionate share (up to 60%) of the revenues and employment (Ethiraj et al., 2005; NASSCOM, 2010). The above statistic would suggest that there are significant regional and firm-level differences in the performance and capabilities of IT firms. While Ethiraj et al. (2005) have highlighted the role of project management and client-specific capabilities in the success of firms in India's IT sector, findings from a recent research paper on offshore IT-enabled business process outsourcing firms in India (Malik et al., 2012) found that, for firms operating in offshore business-to-business outsourcing contexts, the strength of each firm's quality management capabilities (QMC) and market-based organisational learning capabilities is critical to service delivery and achieving and sustaining high performance. Others have argued for the role of strong technological, people management and quality management capabilities to improve market signalling and firm performance (Asundi & Arora, 2002).

Strategic Choices, Institutional Dynamics, and Systems of Innovation

The impact of the macro institutional environment cannot be ignored in understanding the growth and evolution of the Indian IT industry. Nilakant (2005) argued that the presence of a favourable institutional environment and interventions by certain actors from India's social and political system changed the dominant institutional logic to being supportive of the development of the Indian IT industry. Despite the favourable environment, only a few firms were able to exploit opportunities and report extraordinary levels of growth (Ethiraj et al., 2005; NASSCOM, 2010). This would suggest the exercising of certain strategic choices by firms.

Strategic choices are typically exercised by key stakeholders or what Child (1972, p. 14) refers to as a 'dominant coalition' of senior managers. Such choices often involve pursuing one or more business and generic competitive strategies (cost leadership versus differentiation). Porter (1985), for example, has long argued that delivering quality products and services is a primary basis for following a

differentiation strategy. Focusing on the competitive dynamics in service sector firms, Boxall (2003) offers a classification of three types of markets that service sector firms normally compete in: mass service, slightly differentiated, and highly differentiated services. Boxall (2003) suggested that the opportunities for investing in key organisational capabilities and people management practices are limited by the extent of strategic choice a firm's institutional environment allows. Further, if the institutional environment is too restrictive the firms have limited strategic choice and, as a result, limited leeway to offer strategic differentiation (Kochan et al., 1984). Nevertheless, Boon et al. (2009) argue that there is some further leeway available to firms through an active and developmental role played by human agency. Either through active development or resistance, firms can expand their degree of leeway and strategic choice. In the context of the Indian IT industry, although the institutional environment in the early years of its evolution was restrictive, the last three decades has seen a positive role played by certain actors (human agency) in the government and in business to create an expansive institutional environment, thus improving the degree of leeway and strategic choice for the IT industry. Creation of differentiated and favourable labour legislation for the industry, development of tax-free export processing zones in Mumbai and the National Capital Region (New Delhi and Gurgaon among others) with high-speed satellite communications, and strong private and public investment in educational infrastructure provided the external stimulus for growth in this sector.

Choices are context-dependent and can significantly affect the outcomes. Lundvall (1985) and Nelson (1993) have used the term 'national systems of innovation', from which Cooke et al. (1997) derived the original concept of regional innovation systems because, under each national system, the spatial divisions of social and political influence variously impact on a national innovation ecosystem. Regional differences in the growth of the Indian IT-business process outsourcing (IT-BPO) sector are also evident in a number of studies (Arora & Bagde, 2010; KPMG-NASSCOM, 2012; Shastri, 2012). These influences can potentially facilitate or weaken the innovative capacity and thus the innovation outcomes. Therefore, it is critical to look at both the 'actors' and the 'enabling structures' in such ecosystems. Following the resource theorists (e.g. Barney, 1991), investment in certain people management and organisational capabilities can help firms realise a sustained competitive advantage. Organisational innovations rely extensively on the design and implementation of work practices to leverage from the potential advantages that an ecosystem offers. In line with the latter stream of literature, there is a growing consensus that firms do not operate in isolation. Their ability to innovate is contingent on the quality of their interactions with their environment. Therefore, contemporary studies of

innovation in firms, clusters and networks have tended to focus on “national” and “regional” systems of innovation (Brazyk et al., 1998; Lundvall, 2010; Nelson, 1993). The significance of networks and clusters and their impact on innovation is well established in the extant literature. Since the role of networks and clusters is not the focus of this study, the paper directs interested readers to an excellent review surveying the vast body of literature on networks and clusters (Hamdouch, 2010).

Schumpeter argued that one critical innovation can open up the field for numerous related and successful innovations, which may ultimately outgrow the original innovators (Schumpeter, 1939). Related to this is the shifting bases of foreign direct investment from developed to developing nations (Narula & Zanfei, 2006). A lot depends on the micro foundations of the contextually grounded choices firms make in the nature of the work design, learning processes, organisational capabilities and other people management practices. These choices are critical as they affect the nature and scope of resource allocation decisions as well as the ability of service providers to deliver. The nature of contracts in the Indian IT industry are mainly based on a ‘time-and-material’ approach, wherein clients pay the service provider based on costs of time and materials. Although the nature of contracts is now increasingly moving to competitive outcome-based and fixed-priced contracts, ‘time-and-material’ projects still typify the bulk of the contracting activity. The above would suggest that there was some *leeway* available to human agency to exercise strategic choices. Additionally, the favourable labour laws and financial incentives available to the IT industry provided room to industry leaders to exercise greater leeway in their strategic choices regarding developing certain organisational capabilities. These strategic choices and the subsequent decisions of senior management to invest in certain HRM practices and organisational capabilities led to dynamic improvisations in Indian IT firms’ business models (Athreya, 2005). Thus, the following section reviews the role of HRM and organisational capabilities in developing a firm’s innovative capacity.

Human Resource Management Practices

Advancing the *innovation stimulus–innovation capacity–innovation performance* links, Prajogo and Ahmed (2006) found that both human and technological factors are critical in developing innovative capacity among firms. They found that for firms to deliver high innovation performance they must address the behavioural and cultural issues in an organisation. This view is well established in the literature on strategic HRM (Kanter, 1985; Lado & Wilson, 1994; Mumford, 2000). For example, Schuler and Jackson (1987) have long argued for the need to

develop appropriate behaviours and specific human resource practices that support an organisation's strategic choice of pursuing either a cost leadership or innovation/differentiation competitive strategy. Schuler and Jackson further suggest that empowerment-and-trust-based *job designs*, such as flexible work hours and teleworking are conducive to the development of new ideas. Similarly, they found that broader job descriptions and discretion to organise one's work tasks is helpful for firms wanting to differentiate and follow an innovation strategy. Others have highlighted the role of training and a learning culture (Mark & Akhtar, 2003; Foss & Larsen, 2003), performance management and reward systems (Mark & Akhtar, 2003; Schuler & Jackson, 1987), skills (Gupta & Shinghal, 1993), and staffing (Gupta & Singhal, 1993; Schuler & Jackson, 1987; Storey et al., 2002) as stimuli for developing a firm's innovative capacity.

Subsequent studies have suggested that the bundling of certain human resource practices and capabilities positively affects innovation outcomes. Foss and Larsen (2003) found complementarities between the implementation of new HRM practices and innovation performance. Using the dataset of 1900 Danish business firms, the authors found support for two types of HRM systems that are conducive to innovation performance. In the first HRM system of the nine HRM practices studied, seven practices were equally conducive to innovation in manufacturing firms. In the second HRM system, the researchers found strong support for two sets of training practices—provision of internal and external training—as most important in improving service sector firms' ability to innovate. Applying structural equation modelling to 173 Spanish firms, similar support was found for the relationship between a bundle of HRM practices and innovation (Jiménez-Jiménez & Sanz-Valle, 2008). The extant literature has found strong support for the two most common HRM practices in developing human capital and innovative capacity: a strong learning capability and flexible job design (Beugelsdijk, 2008; Canan, 2013; Jain et al., 2012; Shipton et al., 2006).

Although support exists for the impacts of several HRM practices on innovative capacity, there is limited research undertaken on how firms' HRM practices and internal capability development choices interact with the macro and external systems of regional, national and global innovation networks. Learning from the external environment is critical to continuous innovations and survival, even more so for smaller firms that have greater resource constraints (Narula & Zanfei, 2006; Romer, 1990). Hence, cultivating the capacity to innovate (Cohen & Levinthal, 1990) is critical for improving firms' innovation performance. Nevertheless, firms often find it extremely difficult to transfer this new knowledge back into their organisation due to the barriers that exist at an individual and organisational level. Inattention to these barriers often results in

“organisational rigidities” or “competence traps” (Tushman & Anderson, 1986). How much to learn, from where, how soon, and at what point learning becomes excessive or redundant are critical questions for the effective management and utilisation of resources. This requires an understanding of how firms sense and disseminate information to and from their internal and external environments to foster innovative capacity. To this end, the following section focuses on an organisation’s market-sensing capabilities.

Market-Based Organisational Learning and Quality Management Capabilities

As noted earlier, the extant research supports the positive influence of market orientation, organisational learning (or learning orientation) and quality management capabilities on innovation (Malik et al., 2012; Sinkula, 1994). Exploring and exploiting learning from internal and external sources often requires the presence of certain values and cultural factors. Quality management and organisational learning are posited as values that drive market-oriented behaviours and facilitate the development of innovative capacity and sustained competitive advantage (Kohli et al., 1993; Malik & Blumenfeld, 2012; Malik et al., 2012).

Sinkula et al. (1997) were the first to test the interrelationships between organisational learning, a *values*-based construct that formally connects organisational values (Argyris & Schon, 1978) to an organisation’s market information processing (MIP) *behaviours* (Kohli et al., 1993), and organisational *actions*. Sinkula et al.’s (1997) framework is premised on the assumption that *values* drive *behaviour*, such that the process of organisational learning is facilitated by three elements: organisational values that promote learning, or learning orientation (LO), an organisation’s MIP behaviours, and consequently, organisational actions. The two main constructs—LO and MIP—are briefly explained.

LO has been defined in different contexts, but, in general, it involves three sets of organisational values associated with an organisation’s tendency to learn. These values are labelled as *commitment to learning*, *open-mindedness*, and the development of a *shared vision* to influence a firm’s ability to create and use knowledge (Argyris & Schon, 1978). *Commitment to learning* is a learning culture that requires an organisation to invest in the training and development of its employees and allocate resources for employee development. *Open-mindedness* requires an organisation to challenge its current theory in use and any new information it processes from internal and external sources. *Shared vision*

encompasses its ability to communicate and disseminate its theory in use and any new knowledge and competencies that it has developed throughout the organisation. These values can be implemented partly by direct investment in training and partly by fostering a culture of supporting and sharing new learning and skills development at all levels.

MIP is the process by which external market information is transformed into knowledge (Sinkula, 1994). MIP is developed from a key marketing construct, market orientation (MO) (Kohli et al., 1993) and involves three elements: (i) *sensing* information from the external markets, customers, and competitors and then (ii) *disseminating* it across the organisation (iii) to frame an appropriate *response*. Of more importance is information *sensing* or *generation* because it requires capturing precise and critical information about a customer's needs and the external competitive environment. While new knowledge is procured through an organisation's MO abilities, it can be refined, redefined, and challenged through its LO, depending on the extent to which its LO and MO are developed. Despite the above claims, there is limited understanding of how MO behaviour and LO values can be developed. Day (1994) made a strong case for utilising the tools available under the umbrella of total quality management (TQM) for implementing strong MO change programmes. Recent studies have examined the impact of a firm's quality management capabilities (QMC) in developing its organisational learning and market-based organisational learning capabilities (Malik & Blumenfeld, 2012; Malik et al., 2012). The paper follows the quality management approach adopted by Malik et al. (2012) and includes three elements: an organisation's commitment to *investment in quality*, its focus on *continuous improvement*, and *team working*.

Based on the above review the paper focuses on answering the following questions: 1) what are the key factors that affect a firm's innovative capacity? and, 2) how do service providers in the Indian IT industry manage learning from their external business and technology ecosystems? What are the key barriers and opportunities?

Research Methodology

An under-developed state of theory, a relatively new industry and developing country context, and the complex and broad nature of organisational decision-making makes qualitative methodology an appropriate approach (Eisenhardt, 1989). Given the above rationale and the study's research questions, a qualitative embedded multi-case study design is appropriate (Yin, 2003). Use of *a priori* constructs and theoretical underpinning helps in shaping the focus of the study

and enhancing the construct validity (Eisenhardt 1989; Miles & Huberman 1994; Yin, 2003). Following Yin (2003), a multi-case site selection should aim at either a literal replication (one that predicts similar results) or a theoretical replication (one that predicts rival results but for understandable and predicted reasons). Given the focus of this paper, the paper aims for both theoretical and literal replication within and across these case organisations.

A maximum variation purposive sampling was followed to observe the phenomenon in a diverse group of cases (Eisenhardt, 1989; Miles & Huberman, 1994; Yin, 2003). The case selection criteria were developed using extant literature on the structure of the Indian IT industry (Banerjee, 2004; Ethiraj et al., 2005; Heeks, 1996) and by using available details from NASSCOM’s directory of IT software services (ITSS) providers. The following selection criteria were employed: enterprise size, expressed in terms of employee headcount, that is, small (less than 150), medium (151–1000), large (1001–3000) and very large (more than 3000) organisations; ownership, that is, MNC, Indian, and MNC joint venture; business model, that is, wholly owned captive centre of a MNC, third-party service provider, and a mix or a variant of the above two categories; and the nature of product-market strategy, that is, slightly differentiated, highly differentiated, and specialised services. The four IT-enabled services firms are labelled as Organisations A, B, C and D. Their descriptive and analytic details can be found in Table 1.

Table 1: Case descriptions

Description	Organisation A	Organisation B	Organisation C	Organisation D
Size and number of employees	Very large 26,000+ employees	Medium About 250 employees	Small About 50 core and 550 outsourced employees in different cities in India	Large 1500+ employees
Location	Gurgaon	Gurgaon	New Delhi	Mumbai
Ownership	Multinational	UK joint venture	Indian	Indian
Industries and geographies served	Seven industries Serving multiple countries (mainly the USA, UK, and European Union)	Telecommunication and real estate firms in the UK	Hospitals in the USA	F&A, insurance, and telecommunications industries operating mostly in the UK and USA
Key services	Call centre, F&A, insurance, IT support and high-end market analytics	Call centre sales and F&A	Medical transcription & F&A	IT networking, knowledge process outsourcing and call centres
Competitive strategy	Highly differentiated services	Slightly differentiated	Mass service and slightly differentiated	Slightly differentiated

F&A = finance and accounts; IT = information technology

The firms in this sample come from two very established regional hubs and spokes of the Indian IT-BPO industry—Mumbai and the National Capital Region (NCR, which includes cities such as New Delhi, Gurgaon, Noida, Faridabad, and Ghaziabad). There are significant differences evident in the growth and evolution of IT-BPO activity in these two regions. According to KPMG India, the NCR, and particularly New Delhi, Gurgaon and Noida, far exceed the volume and nature of all IT-BPO activity reported by Mumbai (KPMG, 2010a, b). In 2008, Mumbai contributed US\$ 3.2 billion in revenue of the IT-BPO sector, whereas Gurgaon and Noida alone contributed US\$ 7.5 billion. Additionally, the technology and educational infrastructural investments in the NCR are far greater than those in Mumbai. To get a holistic understanding of the phenomenon and to reduce single respondent bias, semi-structured interviews of 90-120 minutes were undertaken with a diverse group of 41 informants (Chief Executive Officers [CEOs] and Country Managers, Human Resource and Training Managers, Business Development Managers, Project Managers, Quality Managers and employees) from various service lines. To maintain the confidentiality of the participating organisations, the exact numbers of employees have been rounded off and pseudonyms are used for case organisations.

Analysis

A summary analysis of the strength of key factors is provided in Table 2 below.

Table 2: Analysis of work design, training practices and organisational capabilities

Practice/capability	Organisation A	Organisation B	Organisation C	Organisation D
Types of innovations	Business model, process and product innovations	Process innovations	Business model	Process and product innovations
Internal Factors				
Work design	Mostly Taylorist with some service lines allowing task discretion	All Taylorist and excessive control and monitoring orientation	High control and monitoring work orientation	High control for low-end contracts. Low control and high flexibility for complex services
Investment in learning and development	Very high, including a focus on career development	Medium and need-based investment in skills. Limited investment in career paths	Very minimal as most service delivery was outsourced	Medium to low levels of investment in learning and development
Type of learning	Formal and informal; technical and behavioural	Formal and informal; mostly technical	Formal and technical	Formal and informal; technical and behavioural
<i>Learning orientation</i>				

<i>Commitment</i>	H	H	M-L	M
<i>Open-mindedness</i>	H	M	M-L	H
<i>Shared vision</i>	H	M	M-L	M
<i>Quality management capability</i>				
<i>Commitment to quality</i>	H	M	M	M
<i>Continuous improvement</i>	H	H	M	H
<i>Information sharing</i>	H	M	H	M
Quality management systems (activity description)	Strong infrastructure. Centralised as well as decentralised structures (Six Sigma, ISO, Lean Six Sigma culture)	Evolving quality management infrastructure (Six Sigma and COPC certification)	90% of core staff tasked for quality monitoring of MT work from its outsourced network. No quality resources for the F&A business	Well-developed teams of centralised and decentralised quality managers (ISO, CMM and Six Sigma)
External factors				
<i>Client specifications and flexibility</i>	H	M and H	H and L	H and M
Relevance of available human capital	Very high level of public and private investment in university education in the NCR	Very high level of public and private investment in university education in the NCR	Very high level of public and private investment in university education in the NCR	Medium to high
Market orientation				
<i>Sensing</i>	H	M-H	M-H	H
<i>Disseminating</i>	H	M	H	H
<i>Response</i>	H	H	H	M

COPC = Customer Operations Performance Center; F&A = Finance and Accounts; CMM = Capability Maturity Model; H = High; ISO = International Organization for Standardization; L = Low; M = Medium; M-H = Medium to High; M-L = Medium to Low; MT = Medical Transcription.

The analysis considers how various factors, internal and external to a firm's strategic environment, variously shape the development of innovative capacity. Although the focus of the study is not on regional innovation systems, given the background of these two economic regions, the study found some differences in the nature and extent of innovative activity and outcomes.

Organisation A

Of the four case organisations, Organisation A had the highest levels of innovative capacity as it invested heavily in team-based work design, provided extensive learning and development opportunities, as well as allowed flexibility and room for creativity to certain groups of employees to work on product and process innovations. Organisation A's strong experience of working on numerous projects was critical in sensing information and framing solutions for its clients. As noted by Organisation A's Project Manager:

Our solutioning strategy is that we understand customers' needs and then see what solutions we might provide, whilst also keeping in mind our resources and capabilities. [It's] not as if one size fits everyone... We have a very strong solutioning team there upfront. So what happens is that when a business comes up and says I am running this problem, at that time [when] we do the solutions architecting that might lead to some changes in the processes at their end, their training, thinking, methodologies, and deliveries.

The same project manager explained how new information from its external clients was transformed using data from its existing quality management benchmarks. Its access to, and support from, the parent organisation's vast consulting experience was also very useful in exploring and exploiting the new knowledge from external sources. There was strong evidence of process and product innovations.

So, we recreated the form. We advised the client of the new design and suggested that if you change the design in such a manner, we would be able to address a very big problem at our end... Identify how can we improve the process and advise our client about the process improvement. Based on our advice, the client changed the process and then we made the necessary changes to the process. In the last year, we would have given close to about 245 ideas on process improvements.

Organisation A also invested heavily in a number of quality management systems and had developed well established mechanisms for sharing the learning from its internal (parent company) and third party client contracts. The role of quality management capability in building innovative capacity was noted by a number of managers:

See, identifying a new idea is done by people in quality. They then break it down into smaller parts and bring about process improvements. Once this is done then it becomes the responsibility of the trainers to make

sure this knowledge is disseminated. So, actually, training is an integral part of operations. **Project Manager - Insurance**

We have to constantly look at better ways of improving our information gathering tools from the shop floor level using methodologies such as Six Sigma and Lean Six Sigma. **Project Manager – Finance and Accounts**

There was a time when we only developed metrics and measured defects, but now we have developed metrics around (the) quality of our deliverables. Which, by the way, I know that there is not a single training vendor around the world that has attempted to develop metrics or the quality of the deliverable... Having done so, we won so many awards last year. I haven't come across such a structure or metric in any other organisation. Very shortly, we will be putting (in) an IP [Intellectual Property] application for it. **Project Manager- Content Solutions**

Organisation A's culture of information sharing, strong market-based organisational learning and quality management capabilities, coupled with a strong learning and development infrastructure allowed it to constantly challenge and critically evaluate all external and client-specific information to bring about specific process and product innovations. Reviewing and evaluating such information typically happens during the solutions design stage. As noted by two project managers:

...At the build-up stage, people who are involved are solutioning and functional guys, including operations and business development.

...one way we challenge people...what's stopping you from developing something new... Then the customers come back and say, no no...this doesn't work for us. So, they have the fire burning inside them to excel and go back to the customer with better solutions. They are constantly speaking to our customers and showing them something that is at a higher level. The customers too, get interested as they get to work on a higher level and the benefits of upskilling are huge.

Organisation B

Although Organisation B is a medium-sized firm with an evolving training and quality management infrastructure and follows a control-oriented work design, Organisation B's CEO exclaimed, "One word that can capture the essence of business process outsourcing work is *control!*" Although its ability to be agile and transparent was high, due to a relatively small workforce size, Organisation B is faced with the challenges of changing the client specifications and disseminating information, primarily due to the nature of work received from its client as well as not being "in the know" or being a part of any regional or global innovation

systems. Relative to the work received from the UK-based clients, work from the US clients was more prescriptive and inflexible and did not allow much leeway to make any changes or suggest innovations to the process. This frustration was noted by the Team Leader:

...in terms of products, we really cannot do much about it as the agent goes to the manager and discusses his problem but at the end of the day if the client is not willing to change the product offering we cannot do much as we are only providing the services.

With Organisation B's evolving training and quality capability and the ability to work closer with the client's ecosystem, Organisation B was successful in implementing process and product innovations. This was confirmed by Organisation B's Quality Manager:

At times the client does not have an idea of what the specifications should be, so we contribute from our own standards; that this is what people have requested us and this is how it has to be done. This happens at the service level agreements stage with the clients... If the client has a very haphazard way of dealing with its accounts, then we try and streamline it with the use of this application/tool... We provide them with the reengineered processes; it may be very similar to their current process, but certain aspects in the boxes in the flowchart may differ, or it can be a completely redesigned and reengineered process, so yes, some suggestions are made. Then again the client may implement this right then or may do it later.

Organisation C

Organisation C was set up as a Greenfield project, funded by a diversified group of Indian businesses to tap into the growing market for IT-enabled services. In order to satisfy the return on investment demands of the owners, the CEO of Organisation C adopted a new business model, very different to what is typically employed by most Indian outsourcing providers. As a business model innovation, all the services at the front end (business development) were further leased to outsourcing business partners in the US, and the back-end (operations) in India were further outsourced to 70 service providers in about 12 cities. To service this new business model, Organisation C employed a core group of business development and quality management personnel to coordinate these two front-end and back-end networks. A low emphasis on building 'internal capabilities' (other than quality assurance) meant that it had to rely on external resource markets and its regional and national networks for building its innovative capacity. One Project Manager noted:

See, there's a concept which we call 'a mosquito'. You're living in this room for the last five years, and you know that there is a mosquito; you will never try to kill that mosquito because you have a habit of living with that mosquito. But let's suppose if you ask a new person to come in this room, he will have a 1000 ways to kill that mosquito. So if a person you are hiring is raw, or from a different industry, he'll have more ideas and there will be more thoughts on how to improve to the process, rather than the person who is working on that particular process. It is a human habit that we're used to malfunction... But the person who is going to come from outside will definitely know how this can be changed.

Similarly, the Finance Manager explained a number of instances where the team came up with efficient ways of using software applications in Microsoft Excel.

So, these three people are continuously looking at areas for improvement and challenging them.

Overall, Organisation C relied on external hiring and its distributed vendor network for new ideas and knowledge.

Organisation D

Being a large and diversified organisation, and having been in existence for almost a decade, Organisation D had well developed systems and processes for learning, quality management and information sensing. Despite these systems, Organisation D had to constantly deal with inflexibility from clients and had problems in sharing and disseminating information to its wider service delivery teams due to a culture of operating in silos. As its Manager (Voice Operations), noted:

For example, if you see our US process, 100% focus is on the script because that's what is provided by the client. If you see a UK process we have some generic training. So, that really depends on the client's involvement. Some clients [US-based] may be very specific, this is the kind of training and some clients may not be that stringent on the kind of training which we give. It really depends on the client. ...some clients they don't come in and they are not that much involved.

In its knowledge process outsourcing service line, Organisation D relied extensively on the information and training received from its clients, as the Indian labour market could not offer the deep consulting skills necessary for developing the sustainability ratings of large global firms. The clients' proprietary software had predictive modelling applications, which relied heavily on analytical skills. Such skills could only be developed over time and with experience. As such,

Organisation D had to rely on its global network for the innovative analytics that its client has access to. A senior manager explained:

We don't have the data to probably compare statistically... Oil companies have a lot of human right violation issues, or are involved in corruption. Probably, intuitively you can say that...but we don't have data to support... Suppose I am looking at the telecom companies based out of Scandinavia, and I see that the company has somebody who has covered the structure details and has found out that Nortel's data points are very awkward, how are telecom companies in Scandinavia structured? Either Nortel is a different company or there is something seriously wrong with this analysis. That drives us to look further as to what is wrong. It is trying to get in the shoes of an analyst and try to think... Those kinds of issues emerge. That takes a little bit of time.

Summary

Overall, a firm's innovative capacity is shaped by a number of external and internal factors. Organisation A was most successful in building its innovative capacity and outcomes. Organisation A also had well developed market-sensing and quality management capabilities. Being a wholly owned subsidiary of a large US MNC, it was part of a global network of subject matter experts that helped it develop a strong domain knowledge of the industries it served. Organisations B and C were evolving and gradually developing their internal capabilities, but learning from their clients was of immense value and strengthened the limited innovative capacity of these firms. Organisation D, the only firm from the Mumbai region, did better than Organisations B and C but fared poorly compared with A. This may be explained by a number of factors such as regional differences, for example human capital supply, cost of living, and the strength of the various organisational capabilities.

Findings

Our findings indicate that a firm's innovative capacity is shaped by a complex interaction between factors that are internal and external to the firm. In terms of the internal factors, although the choice of a firm's competitive strategy sets the tone for the nature of the service market a firm wants to operate in, its innovative capacity can be built by sustained investments in human capital and strategic choices in work design and investment in market-based organisational learning and quality management capabilities. In terms of external factors, in addition to the institutional and competitive environment of firms, the nature of the knowledge exchange between the service provider and clients plays a critical role in fostering innovative capacity. This interaction requires the effective application of its market-based organisational learning and quality management capabilities to

maximise the learning from its clients. However, this was not always the case, especially if the firm's capabilities and client relationships were not well developed. Although *trust*-, *team*- and *commitment-based* work designs were helpful in fostering innovative capacity, they were not sufficient. Most organisations faced restrictions to innovate due to the nature of the *contractual* obligations with their clients and the extent to which they had invested in *training and development*, *market-based organisational learning* and *quality management capabilities*. The differences between the case organisations are analysed and discussed in the following section.

Discussion and Conclusion

Overall, the findings suggest that for firms to build innovative capacity they not only require a flexible work design and strong investments in human capital, but they also require investments in developing market-based organisational learning and quality management capabilities for knowing which capabilities matter and at what point additional learning is counterproductive. The findings also suggest that a high quality of informal and incidental learning from the firm's clients and network partners is critical and forms the basis of the formal diffusion of knowledge and information. Firms exercise choices in developing certain capabilities. This is partly influenced by the degree of leeway and the extent of constraints they have in their institutional environment. Firms that had well developed market-sensing and dissemination capabilities were able to successfully embed such learning into their work routines and decision rules. Extensive information sharing and cross-functional coordination through teamwork ensured the successful capture of new knowledge. Firms that did not have well developed mechanisms for sensing, disseminating and exploiting new information were also low on innovation outcomes.

This context-specific research is critical for practitioners from different disciplines, as it suggests that managers should adopt an inclusive and integrated approach to their marketing, people development, and operations management approaches. Managers of firms operating in this dynamic offshoring industry can benefit by investing in flexible work design, human capital development and certain dynamic capabilities to continue to foster the innovative capacity of their ecosystem. From a theoretical viewpoint, longitudinal research is needed to unravel the dynamics at the client-service provider dyad level. Deeper exploration of the relationships between the client and the service provider will yield richer insights into the phenomena of developing innovative capacity. The study also raises a number of policy implications, especially for education and innovation policy-makers. While the state played a positive role in creating a favourable

institutional environment, its level of investment in the human capital and technology infrastructure ecosystems was low. The proactive and opportunistic policy-making allowed space for private investors to boost overall capacity (Arora & Bagde, 2010). Sustained improvisations and concessions by the state governments in Tier 2, 3 and 4 cities matched with appropriate investments in socio-technical and human capital infrastructure will allow widespread diffusion of innovation and sustainable growth of this industry. Nurturing new domestic and international hub-and-spoke relationships in the global IT-BPO ecosystem will help the industry protect its competitiveness from other emerging markets such as Latin America, Eastern Europe, Philippines and the rest of Asia.

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