The role of human resource practices in developing knowledge and learning capabilities for innovation: A Study of IT service providers in India.

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Abstract

Little is known regarding what human resource practices are best to manage information technology (IT) professionals for global competitiveness in developing countries. This paper examines human resource practices' role in developing knowledge and learning capabilities for innovation in the global IT services market. The study draws from the experience of 11 of the largest IT service providers (ITSPs) in India and based on in-depth interviews. The findings suggest that ITSPs should develop human resource practices with knowledge and learning capabilities as central piece for innovation if the organisations are to sustain international competitiveness. A conceptual framework is developed and discussed for future research.

Keywords - Human resource practices; Knowledge and learning capabilities; Innovation; Information technology professionals; India

1. Introduction

The rapid growth of multinational enterprises (MNEs) from developing countries in recent years raises important questions regarding their sources of international competitiveness. This is because the institutional and economic contexts which firms in developing countries face are different from those in developed countries. The emergence of several globally dominant information technology service providers (ITSPs) from India is a case in point. Over a relatively short period, India has become a preferred destination for off-shoring of IT services (Saini & Budhwar, 2004b). Today, India accounts for more than 50 percent of the global IT services market valued at more than US$180 billion annually. The IT off-shoring sector in India now employs more than 3 million people and contributes more than 6 percent to the national GDP.

Worldwide growth of the IT services sector since the early 1990s has also led to a global shortage of skilled IT specialist (Budhwar & Boyne, 2004). ITSPs in India are in particular vulnerable because graduates of India's elite educational institutes often seek employment overseas, such as in the United States, United Kingdom and Australia (Radhakrishnan, 2007) where salaries are much higher. In the knowledge intensive sector, such as the IT services sector, the 'brain drain' of Indian scientific, technical and computer professionals to industrialized nations is problematic as this means knowledge and learning capabilities are channeled away from India (Khadria, 2001). The loss of talented employees usually stifles the ability of firms to innovate for sustaining their international competitiveness. Accordingly, human resource practices are of great importance to developing countries like India (Kuruvilla & Ranganathan, 2010) particularly in knowledge intensive industries.

Although there has been increased attention on human resource practices in the Indian industry in recent years (Budhwar & Boyne, 2004; Guchait & Cho, 2010; Thite and Russell, 2010), the existing literature does not provide a comprehensive theoretical framework for knowledge intensive organizations, particularly in emerging markets, like India (Budhwar; Varma; Singh & Dhar, 2006). The unique features of the Indian workforce (Thite and Russell, 2010) suggests that research specific to the Indian context should be of benefit to both practitioners and academics in the HRM field (Budhwar & Sparrow, 2002) particularly with the continuing shift of the global economy from manufacturing to knowledge-based service industries (Budhwar et al., 2006). One area where research is particularly lacking concerns the management of human resource practices and the development of knowledge and learning capabilities which have largely remained disconnected fields of inquiry.

This paper intervenes in the debate on contemporary HRM issues in the Indian context by exploring the role of human resource practices in developing knowledge and learning capabilities for innovation in Indian ITSPs. The study contributes to the literature in three ways. First, little systematic research has focused on exploring the role of human resource practices in developing knowledge and learning capabilities for organizational innovation in India and in emerging economies more generally. Second, the paper draws from the experience of the 'stars' of the industry and suggests that senior executives in other ITSPs should strategically develop human resource practices with knowledge and learning capabilities as central piece for innovation and competitiveness. Third and finally, the study helps to unveil the inner workings of the black box that guide HRM strategies on the development of knowledge and learning capabilities of IT professionals for innovation in Indian ITSPs. This is particularly important to Indian ITSPs but also to other knowledge intensive organization in India and in other developing countries in general because innovation and its strategy formulation are critical elements of global competitiveness in knowledge intensive organizations.

The rest of the paper is organized as follows. Next, a brief overview of the literature on human resource practices and their relationships to the development of knowledge and learning capabilities for innovation is provided. This is then followed by an outline of the research methodology used. The findings of the interview program are presented in fourth section followed with a discussion and development of a conceptual model. The conclusions, limitations and avenues for future research are contained in the final section.

2. HR practices, knowledge and learning capabilities and Innovation

The resource-based view (RBV) of the firm highlights the importance of rare, valuable, costly to imitate, and non-substitutable resources and capabilities to the competitive advantage and performance of firms (Barney, 1991; Grant, 1991; Wernerfelt, 1995). Tacit knowledge and learning capabilities have been recognized as firm resources which fit the RBV criteria and which have the potential to contribute significantly to competitive advantage (Kogut and Zander 1992; Nonaka 1994; Barney 2007; Spender, 1996).

Knowledge originates in human beings and can only be created by humans but not by organizations (Nonaka & Takeuchi, 1995; Stewart, 1997; Watson; Stanworth; Healeas; Purdy & Stanworth, 2005). Quinn, Anderson, and Finkelstein (1996) postulate that most organizational value, whether financial or non-financial, is created by the competent members of an organization who 'know-what', 'know-how', 'know-why' and 'care-why' and the competent members can be anyone from the top to the bottom levels of the organization. In slightly different words, an organization's ability to innovate, create and use the entrepreneurial energies of its people becomes critical in the knowledge economy (Bhatnagar, 2006). Knowledge has become the central theme in the strategic management literature because it is a critical source of sustained competitive advantage (Ambrosini & Bowman, 2001; Michalisin; Smith & Kline, 1997). Organizations that are able to effectively utilize tacit and firm-specific knowledge are more likely to coordinate and combine their traditional resources and capabilities in innovative and distinctive ways, providing more value for their customers than their competitors (Teece; Pisano & Shuen, 1997). However, knowledge is more a static resource – a so-called 'stock' (Bontis, 2002) which can quicklt become redundant and lose its

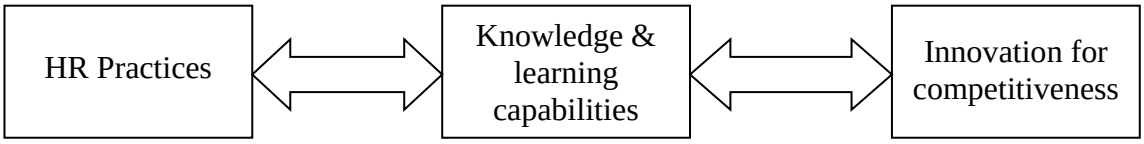
relevance, particularly in indistries which experience rapid technologycal change such as the IT services sector. Thus, knowledge is valuable only when it is constantly updated and refreshed and remains relevant for the organization.

Learning acts as a dynamic element in the creation of new knowledge and helps to augment the knowledge stock of the organization. Learning occurs in different ways including studying, interacting, and practicing (Boal & Hooijberg, 2000). These ways of learning result in changes in 'know-what', 'know-how', 'know-why' and 'care-why' respectively (Garud, 1997). However, learning firstly takes place at the individual level but can be extended to group and organizational levels (Mintzberg, Ahlstrand, and Lampel (1998). And for maximum results, learning processes need to be aligned with one another in a coherent way so that the culture, systems, structures, and procedures support the strategic orientation of an organization (Crossan et al., 1999; Vera & Crossan, 2004). Organizations that create knowledge on an ongoing basis likely develop dynamic and unique capabilities that potentially underpin continuous organizational learning (Tsoukas & Mylonopoulos, 2004). These capabilities can be defined as knowledge and learning capabilities, which are distributed throughout an organization and thus can occur at individual, group and organizational levels. Knowledge and learning capabilities assist organizations to recognize new information, assimilate it, and apply it toward new ends, and are a continuous genesis of creation and recreation where gestalts and logical structures are added or deleted from organizational memory (Boal & Hooijberg, 2000). The capabilities often involve processes used offensively and defensively to improve fits between an organization and its changing environments (Boal & Hooijberg, 2000). Accordingly, organizations that have a high level of knowledge and learning capabilities are likely to be more innovative because they build

on previous knowledge and generate new knowledge constantly (Chaturvedi & Chataway, 2006; Crossan & Apaydin, 2010).

Innovation is essential for firms to survive in today's hyper-competitive global environment (See e.g. Crossan & Apaydin, 2010; Pillania, 2007). Since the transfer of knowledge and learning occurs through superior execution of human tasks of sensing, judging, creating, and building relationships (Ireland & Hitt, 1999), organizations must manage their human resources effectively as they hold the key for innovation and strategic renewal (Bontis & Serenko, 2007; Kong, 2008; Pfeffer & Ulrich, 2001). From a global talent management perspective, multinational enterprises (MNEs) must emphasize the identification of key positions which have the potential to differentially impact their organizations' global competitiveness (See e.g. Boudreau & Ramstad, 2005; Collings & Mellahi, 2009; Scullion; Collings & Caligiuri, 2010). Strategic HR practices which focus on attracting, selecting, developing, and retaining key employees can remain innovative through superior knowledge and learning capabilities (Scullion et al., 2010). The relationship between HR practices, knowledge and learning capabilities and innovation is shown in Figure 1. In sum, strategic HR practices by firms are likely to lead to superior knowledge and learning capabilities which in turn make them more innovative and internationally competitive. In Figure 1, the two way arrows also suggest that HR practices themselves can be improved through superior knowledge and learning capabilities. Similarly, firms which are more innovative and competitive can also devote more resources to further support and develop knowledge and learning capabilities within the organization.

Figure 1: HR practices, knowledge and Learning capabilities and innovation.



3. Methodology and data

The main objective of the study is to investigate how human resource practices contribute towards the development of knowledge and learning capabilities of information technology service providers in India. In order to meet the stated objective, we use semi structured in-depth interviews of senior executives of a sample of 'star' ITSPs in India. Learning from the stars also provides an industry wide perspective of best practice which is valuable for wider generalization of our findings to emerging ITSPs in other developing countries. For the purposes of this study, the 'stars' are defined as the 20 largest ITSPs (by revenue), as classified by National Association of Software and Services Companies (NASSCOM), India's main IT industry association (See Appendix 1). Together, the 20 largest ITSPs in India account for more than 85% of the industry's total revenue and have employees in more than 100 countries.

Potential elite participants in these companies were contacted initially via email to invite them to participate in the study (Marshall & Rossman, 1999; Welch; Marschan-Piekkari; Penttinen & Tahvanainen, 2002). During the initial contact, the purpose of the research project, a background to the study and the data collection methods were clearly explained. Following initial contact and vetting of all participants, 11 ITSPs were selected to participate in the data collection exercise, the selection being based largely on the availability of participants and the logistic of organizing the interviews on

location. All the participants were in senior executive positions with key strategic management responsibilities within their organizations. Interviews were conducted at the respective ITSP headquarters in three main cities (Bangalore, Delhi and Mumbai) in India. All interviewees gave consent for taping the interviews which lasted about 60 minutes each. Qualitative data were transcribed by one of the authors and content analyzed. To maintain confidentiality, the names of all interviewees, their contact details and titles were omitted (Chell, 2004). Instead each participant was assigned a code (e.g. ITSP-1, ITSP-2 … ITSP-11) and the numerical order was not indicative of interview chronology. As recommended by Rubin and Rubin (2005), an interview guide was designed which contains a list of interview questions that reflects the nature of the information that the researcher wants to uncover in an interview. These interview questions were based on a broad review of the contemporary literature and secondary source documents from Indian ITSPs eligible for interviews. The interview question guide contained 28 questions which were designed in a style and approach that allows participants to point out their facts and opinions freely in the interviews.

Issues in relation to research reliability and validity are vital to a successful qualitative research design (Maxwell, 2002). This is particularly important to a research project like this one given that sample selection, the conduct of interviews and the analysis of interview transcripts, and research notes are intrinsically subjective in nature. Accordingly, apart from interviews, sources such as mission statements, annual reports, newsletters, memoranda, proposals, progress reports and other internal documents as well as information available from organizational websites were used to collect relevant data. As a result of the document analysis, more detailed, ‘hard’ facts were gathered to

corroborate, enrich and challenge the interview data. This helps to further strengthen the reliability and validity of the research.

4. Main findings

An analysis of the available information from secondary sources and data from the interviews has highlighted that India's IT services sector has experienced rapid growth over a relatively short period (Bhatnagar 2007). According to a study conducted by NASSCOM (2006), the most visible growth has been in IT and BPO services. Various clusters of IT related activities formed in cities such as Bangalore, Hyderabad, Pune, and Gurgaon have also brought in significant new investments to India (Chawla & Joshi, 2010). The rapid development of the Indian IT service sector has been possible largely due to the availability of a large pool (over two million) of English-speaking graduates in science and technology every year who are ready to work at up to 80 per cent less salary than their western counterparts (Bhatnagar, 2007; Budhwar et al., 2006; Guchait & Cho, 2010). The large pool of IT graduates has made India the 'electronic housekeeper' of the world (Budhwar et al., 2006) and established the country as the dominant player in the gobal IT services sector. As the following interviewees described:

> *"… the talent pool size is much larger in this country [as compared to the other countries] (ITSP-6).*

> *"… look at the size of talent [pool] and the number of professionals you can get to do the work you need to get done" (ITSP-9).*

The success of ITSPs is attributed not just the sheer size of the labour pool but also to highly committed employees who are more likely to engage in 'extra-role' behaviors such as creativity or innovation (Mathieu & Zajac, 1990). This quality was a common

feature in all the companies which participated in the study. The following comments from ITSP-4 and ITSP-6 summarise the overwhelming view:

> *"Traditionally, we have always been like … a mass of people who are willing … to put in extra [efforts at work]" (ITSP-4). "I think [our] people are simply committed to go the extra mile to do things" (ITSP-6).*

Having a large and highly committed workforce does not necessarily lead to success. A critical element of success is that this workforce should also be able to exploit knowledge and learning capabilities for innovation, which in turn, can make the difference between success and failure. A unique feature of the success of the Indian IT services sector is that it was able to seize the opportunity from adverse events such as Y2K and 9/11[1]. Because of the industry's ability to extract knowledge and learn from adverse events, Indian ITSPs have been able to build resilience against adverse events. One of the interviewees described how his organization utilized knowledge and learning capabilities to deal with one such adverse event:

> *"When the industry was going down because of 9/11, we didn't go down. We saw that everything [would] give knowledge and learning. In terms of processes and how we handle customers give you knowledge and learning. And that's what helped us to grow for almost 40% for two quarters after that" (ITSP-7).*

ITSP-7's comments can be interpreted in the following ways: 'seeing these [weak] processes' as 'know-what'; being able to understand why 'we were weak' as 'know-why'; 'thought of strengthening those processes' as 'care-why'. And finally, the ability to improve the processes involved a lot of 'know-how'. The above interviewee's comments were not an isolated one. The majority of the participants recognized the

[1] Y2K refers to the widespread speculation around 1998 that the world will experience a digital collapse due to system failures in the year 2000. India's IT specialists quickly seized the opportunity and established themselves as leading IT consultants providing solutions for the Y2K problem. 9/11 refers to the terrorist attack of 11 September, 2001 which made information security as a key issue for large companies. Indian IT service providers again seized the opportunity and built on their Y2K success to establish themselves as global information security service providers.

importance of knowledge and learning capabilities for organizational innovation in the sector. The following quotes illustrate the point further:

> *"…we have a good set of [knowledge and learning] capabilities in migrating [business] processes. Our capabilities of managing these [processes], our capabilities of doing process improvements, improving the processes once they're migrated and making them more efficient, cutting down non-value added steps, making sure that our clients get more than just labor arbitrage. So those are some of the capabilities on which we've been able to grow [our] business" (ITSP-1).*

In the above examples, 'improving business processes', 'adding values to clients' and 'extra re-engineering processes' were viewed as a form of seeking creative and innovative solutions to address problems. These knowledge and learning capabilities that embedded in the 'domain expertise' help the organizations to be innovative and sustainable.

This, however, does not mean that the Indian IT sector is growing without challenges. As put forth by the literature and confirmed by the interview data, the sector is constantly expected to reach for higher knowledge and learning capabilities in order to deliver better quality services (See e.g. Bhatnagar, 2006; Bhatnagar & Sharma, 2005; Radhakrishnan, 2007). The following examples confirmed the findings from the literature:

> *"[The] ability to move up the quality curve fast very important because initially a client will tolerate poor quality as you start to build an operation …if the customer starts to [feel] hurt [due to] poor services then they're going to come down like a ton of bricks" (ITSP-6).*

> *"…the expectation to maintain the ability to constantly deliver that [quality services] is always high" (ITSP-9).*

The '*ability*', as described from the above quotes, can be understood as knowledge and learning capabilities that address customers' demand and expectations in terms of continuously delivering better quality services. This '*ability*', as described by other interviewees, can lead to agility and novel ways of doing things:

> *"…the challenge is to increase the speed to [the] market, to get more agility of the business, that is how agile are you to serve the customer[s] a lot better, and that [agility] provides the specific and innovative solution … to [meet] those specific customer requirements" (ITSP-8).*

> *"I think the continuous challenge has been how to showcase that [knowledge and learning capabilities] as the industry grows and gets mature, it is getting much better and better at doing new things" (ITSP-9).*

The interview data also highlighted rapidly intensified competitions as another challenge in the Indian IT sector with numerous competitors emerging within a short space of time. As described by a number of the interviewees, Indian IT firms were facing severe competitions from both within and outside the country:

> *"We compete with global players such as IBM, Accenture, WNS and Genpact as well as Indian companies such as Infosys" (ITSP-1).*

Intense competition also exerts pressure on the labour market for skilled IT professionals (Dayasindhu, 2002; Kuruvilla & Ranganathan, 2010). While India has a large pool of human resources, not all of them are 'industry-ready' and 'rightly skilled' to Indian ITSPs (Bhatnagar, 2007). As unveiled from the interview data, this has become a challenge to Indian ITSPs. More than half of the participants expressed their concerns that graduates were not able to meet the expectations of the employers in the IT industry. The following quote illustrates the point:

> *"Right now what happens is that people coming out of Universities are not industry ready. You need to get people ready and trained so that they can be easily deployed on projects, rather than spending six months on training" (ITSP-10).*

The challenges of managing human resources, particularly in relation to recruitment and compensation, in the IT sector were clearly stated in the following examples:

> *"The graduates come out from the college and they search different companies for better compensation. Like [XXX IT firm] is offering double the salary. [So,]it is difficult to compete" (ITSP-8).*

> *Competition [in recruitment] is very high, because everyone's offering good salaries and good career opportunities. The competition is very high" (ITSP-10).*

As evidenced from the interview data, recruiting and retaining experienced and talented employees were very challenging:

> *"…ten years ago India's youth were struggling to get a job. Today we are struggling to get good employees. I personally feel that we are facing a talent crunch today" (ITSP-4).*

> *"If a fresher comes to us, and I'm talking about IT professional and computer graduate, the company invests about six months training in specific domain areas … and those people are getting picked up like hot potatoes in the market" (ITSP-8).*

Although most of the interviewees recognized the significance of knowledge and learning capabilities, they also realized that there was an urgent need to continuously develop these capabilities or they might lose their competitiveness in the global market:

> *"We have to provide value addition to the client[s] and it can only happen if our talent is at that level where we can provide value addition ... I think our only weakness probably is our capabilities and I think we need to gear up for that" (ITSP-8).*

> *"[If] we don't have a specific expertise…we would build capability and deliver it to you … because you are growing well, so we want to grow with you" (ITSP-7).*

As knowledge-intensive firms, Indian ITSPs look at new ways to improve capabilities to store, process, disseminate and apply knowledge relevant across different organizational functions (Chawla & Joshi, 2010). The interview data reveals that some of the Indian ITSPs developed HRM systems which helped to capture knowledge and skills of employees in the organizations:

> *"We have 'Talent Management Systems' which captures all of it [employees' knowledge and skills]. We know exactly which employees have what skills, why are they employed, when do their employments come to an end and a forecasting system for the market. Based on that [knowledge], training department and human resource department can plan what they need to do" (ITSP-5).*

> *"we have a portal called knowledge management portal and we keep filling that thing, which is accessible to all employees and not to outsiders, so there is an instant sharing, so they can see what's happening within the organization and the expertise we have" (ITSP-7).*

However, technologies, IT infrastructure, large-scale operations and capital are no longer competitive tools but rather 'entry criteria' (Bhatnagar, 2006). The following participants provided the following comments:

> *"Ultimately all graduates go to the same colleges" (ITSP-5). "I think everybody has equal access to the technologies. So [competitiveness] depends on how you use the technologies to improve your day to day operational excellence and how you integrate the solutions in serving your customers" (ITSP-8).*

The management of human resources, in particular IT professionals, is acknowledged to play an important role in the success and survival of ITSPs in an increasingly dynamic and competitive business environment as pointed out in the comments:

> *"I think the key facilitator that helps the industry to grow is …the mind power, skills and talent … I think that has been the primary driver … the IT industry is all about people" (ITSP-9).*

> *"Managing human resources and getting the best quality service to clients … are the main qualities which can make offshore service providers successful … because this is a knowledge industry, [if] you take away people from here this won't work. You can't put in machinery instead of people" (ITSP-10).*

Besides, for an emerging industry such as the Indian IT service sector, capturing knowledge is only the foundation and knowing how to utilize it is far more significant. As the following participants describe, the ability to learn and utilize knowledge for innovation contribute greatly to the success of their firms:

> *"One of the reasons for our success was that our [employees] came with extensive contacts [i.e. knowledge of clients] in the US banking industry, so we had all the top banks as our clients. They [our employees] were able to use their contacts to get the initial business. Next was the ability [of our employees] to manage off-shoring [operations]. Then I think in the first couple of years we learned to manage the service delivery very well and ensured that operations had gone as promised. The service level agreements were being met. All contracts and commitments were adhered to so that I think that [the ability to learn and utilize knowledge] is extremely important" (ITSP-6).*

> *"We are entering [are expanding business to] Japan, we need to know Japanese, learn their culture. We have a learning centre where everyone going to Japan has to have a six month intensive Japanese training. It's an immersion course where they speak in Japanese and live like Japanese, eat Japanese food, all sign boards in Japanese, so they're getting that culture. When they come out of this, they speak Japanese fluently like any other local Japanese person" (ITSP-10).*

ITSP-10's comments highlighted that the IT firm was very serious about learning new knowledge so that employees can become more innovative at work. However, learning must be related to the mission and objectives of an organization and must be seen as the responsibility of all organizational members (Martin, 2000). More importantly, Indian IT firms must adopt strategic approaches for integrating new knowledge and learning capabilities in order to develop innovation competencies for tomorrow. The following interviewees argued strongly that innovation through knowledge and learning capabilities is the key for organizational survival and growth:

> *"I think they'll [customers will] expect a partner to know how to constantly engage, evolve and look for novel ways of improvement" (ITSP-6).*

> *"Our mandate is not limited to what is there on the paper. If we have learned a new way to do something better we will be proactive and go and tell our clients" (ITSP-9).*

From the above quotes, the ability to adopt '*novel ways*', and be '*proactive*' was based on the knowledge and learning capabilities of its employees. Pillania (2007) argues that organizations must foster knowledge and learning capabilities for innovation for survival and growth as well as its development over time. As IT professionals are constantly required to work with people across sections within an organization as well as those from outside, they need diverse knowledge and skills (Ashworth, 2006; Collins & Smith, 2006; Svetlik & Stavrou-Costea, 2007). Organizations that are able to effectively utilize tacit and firm-specific knowledge are more likely to differentiate themselves from their competitors (Teece et al., 1997). Thus, organizations that ensure firm-specific knowledge and learning capabilities to be developed for innovation are likely to gain sustained competitive advantage. The point was emphasized in the interview data:

> *"The other thing you increasingly need is not just knowledge of technology but knowledge of the business sector of the industry in which it is operating. So if you're trying to sell technology to a bank you really must know the banking industry in that*

> *particular local market. I'm not talking about your theoretical macro knowledge but how a bank functions in Brazil or Canada or in Korea or in South East Asia, you need to know that to be able to design real solutions for these companies" (ITSP-9).*

The following comment provide further insights that the development of knowledge and learning capabilities of IT professionals for innovation should be seen as a more integral part of overall human resource strategies for Indian ITSPs:

> *"…the key thing is how to retain your talent and what sort of opportunities you provide to your people to work on cutting edge technologies" (ITS-5).*

In addition, the interview data revealed critical information regarding the participants' perception of specific human resource practices on the development of knowledge and learning capabilities of IT professionals for innovation. Much research today in relation to employee development is focused on the effects of training functions on productivity and financial performance (Bassi; Ludwig; McMurrer & Van Buren, 2002; Baum & Silverman, 2004; Evans & Clarke, 2010). As unveiled from the data, formal training was mainly utilized in the participating organizations but was largely for the purpose of transferring knowledge rather than promoting employees innovative behaviors. When asked what could be done to enhance knowledge and learning capabilities for innovation in their organizations, many of the interviewees (70%) perceived that formal training was the tool to achieve the purpose. The following examples illustrate the point:

> *"It [the organization] needs to constantly invest in training and development, make sure it's people are at the cutting edge of technology, professionals are continuously learning what's going on in the world" (ITSP-9).*

Formal training can be utilized as a significant human resource practice to facilitate knowledge and learning capabilities (Shadur; Rodwell; Simmons & Bamber, 1994) as it is 'instrumental in increasing the knowledge and competence of individuals' (Johannessen & Olsen, 2003). However, formal training is not the only method that can

be utilized to leverage knowledge and learning capabilities. It is important to note that the key is to facilitate the development, application and dissemination of the crucial capabilities for innovation. The process of enhancing knowledge and learning capabilities does not always require a substantial amount of resources. Indeed, informal communications and knowledge sharing can also be effective techniques to facilitate the transfer of knowledge and learning in organizations. In the interview data, only 30% of the interviewees mention approaches other than formal training for facilitating knowledge and learning in their organizations. The following quotes highlight the point:

> *"We have something called Innovative Council to encourage employees to come up with innovative ideas. I don't think anybody would have thought mobiles would have a camera or FM radio four years back. Someone came up with such an idea and say 'why don't we try this'. So this Innovation Council helps to brainstorm ideas" (ITSP-10).*

> *"Every year we have these excellence awards to employees who gave innovative ideas. If a person gets an excellence award twice consecutively, one of the rooms is named after him [sic]. So every conference room has a name" (ITSP-7).*

Venkata Ratnam (1995) suggests that rules regarding human resource practices such as recruitment, training, promotions and lay-off in Indian firms are ad hoc in nature and are subject to easy manipulations by employers. The interview data revealed similar findings:

> *"The way we manage it [employee turnover] is to have a hiring engine which fires faster than the attrition engine as long as there are more people coming into the organization than is leaving" (ITSP-6).*

The above findings suggest that there is a general lack of guidance among Indian ITSPs on how human resource practices can be used to foster knowledge and learning capabilities of IT professionals for innovation. In this sense, ITSPs full potential for creating new knowledge for global competitiveness is likely not being realized.

5. Discussion

Drawing from the experience of 11 of the largest IT service providers in India, it becomes evident that in knowledge intensive industries, such as in IT services sector, human resource practices are critical elements in the development of knowledge and learning capabilities. The IT services sector has experienced rapid growth and a global shortage of IT professionals has increased competition for talented IT employees.

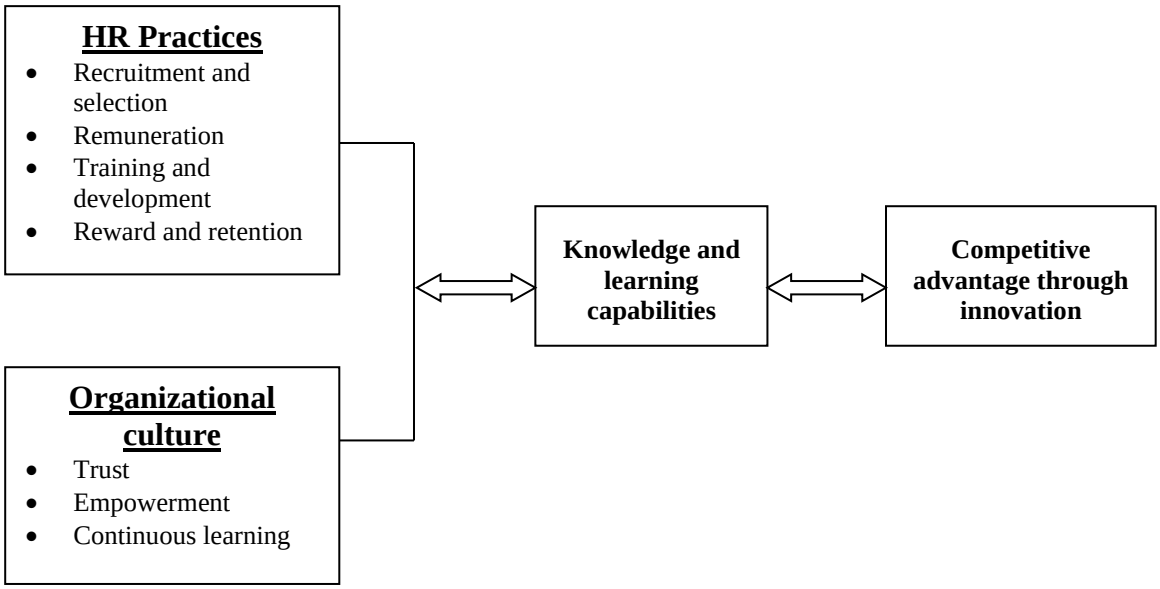
Furthermore, the findings from the interviews also confirm that competitive advantage in knowledge intensive industries can only be sustained by ensuring that knowledge and learning capabilities for the enhancement of organizational innovation form an integral part of the human resource strategy of the organization. New knowledge and skills are critical for Indian ITSPs to sustain their international competitiveness. The question then is 'how do ITSPs deal with HRM issues, in particular, in relation to capturing, utilizing and storing the knowledge of IT professionals within their organizations?

Several conventional HR practices were uncovered in the interview data including recruitment, remuneration, employee training, performance appraisal and staff retention which were all found to be critical for IT service providers in developing their knowledge and learning capabilities for innovation. It is also clear that ITSPs engage in continuous learning and are flexible and adaptable. One of the major challenges for Indian ITSPs in terms of the management of IT professionals is the ease with which employees 'walk away' to rival companies in an increasingly competitive global market for skilled IT professionals. High employee turnover often represents a loss of knowledge and learning capabilities (Loi; Ngo & Foley, 2006). It has direct impacts on the financial costs associated with the loss of human knowledge investment, additional recruitment and training, and the negative effects on productivity (Guchait & Cho, 2010). Even if newcomers join an organization, it usually takes a considerable time for

them to pick up the knowledge that they need before they can proceed in any decision-making, usually more than 6 months in the case of ITSPs in our sample. Thus, employee retention has become a key focus of HR management in ITSPs.

Because each of these practices is related to each other, human resource practices in an organization cannot be treated independently (Guchait & Cho, 2010). With this *one* bundle of human resource practices in mind, a conceptual framework which illustrates the relationships between human resource practices, knowledge and learning capabilities and innovation is proposed in Figure 2.

Figure 2: HR practices, knowledge and learning and innovation: A conceptual model.



Accordingly, the recruitment, remuneration, retention and development of talented staff constitute the key HR practices among ITSPS which theoretically leads to the development of knowledge and learning. However, the mechanism through which HR practices lead to superior knowledge and learning was not apparent from the data.

HRM policies and practices which develop knowledge and learning capabilities to enhance innovation may include activities such as encouraging employees to question the merits of current practices and suggest new ones; and empowering organizational members to make decisions that incorporate moderate and acceptable levels of risk. It was not apparent from the interview data that these policies and practices were common across the ITSPs in our sample.

Although research results to date generally agree that employee turnover has negative impacts on organizational performance (Benson, 2006; Buck & Watson, 2002; Guchait & Cho, 2010; Wright & Kehoe, 2008), some employee turnover can also be beneficial for the organization in terms of knowledge and learning renewal by bringing in 'new blood'. Thus, management's overall focus should be to maintain a balance between employee turnover and the management of knowledge and learning capabilities so that the overall stock of the organization's knowledge is not depleted.

While acquiring and developing new knowledge and learning capabilities can require significant efforts, more challenging is the decision to eliminate some knowledge stocks (Hitt & Ireland, 2002). If organizations do not invigorate their knowledge stocks through vigorous learning, they may lose their ability to explore new advantages (Hitt & Ireland, 2002). The elimination processes of knowledge stocks (often through layoffs or downsizing) must be carefully planned (whom to layoff) and executed (when to do). While human resource managers need to provide mechanisms that foster the development of knowledge and learning capabilities of IT professionals for innovation, they also need to ensure that mechanisms exist to ensure the capabilities are protected and transferred across different units within the organization.

Knowledge creation and learning transfer should be operationalized in terms of the generation of new ideas (Mitchell; Boyle & Nicholas, 2009). Organizations are likely to be more innovative if they are able to facilitate and encourage their employees to continuously utilize their existing knowledge for new idea generation. Ghoshal and Bartlett (1994) highlight that a key role of management is to create an organizational context within which knowledge and learning capabilities can be developed. Shera and Page (1995) also argue that employees are likely to be more innovative and willing to share decision-making responsibilities in an empowered organization because they feel less vulnerable, less helpless and more in-control of their own decision-making as a result of a two-way communication process. Therefore, empowered organizations where employees are valued and trusted are generally more innovative by nature (Cohen, 1999).

6. Conclusion, limitations and future research

This paper highlights the underdeveloped nature of research on human resource practices and knowledge and learning capabilities for innovation in the Indian IT context. The richness of the interview data provide valuable insights into knowledge management and learning as they related to human resource practices for knowledge intensive firms in India. Against the established norms of Indian IT firms and confirmed from qualitative interview data collected from 11 Indian IT senior executives, this study revealed that human resource practices helped to foster the development of links and institutions of knowledge and learning capabilities that were critical to organizational innovation in India. The results also suggest that Indian ITSPs needed to develop human resource strategies to manage their vast pool of specialized IT professionals and ensure

that their talents remain industry-relevant and equipped with the necessary skill sets. ITSPs also need to ensure that knowledge and learning capabilities are developed as central piece for organizational innovation.

Although the research focuses on Indian ITSPs specifically, the findings in the paper open doors for future studies to conduct cross-national HRM research in relation to knowledge and learning capabilities for organizational innovation; and compare human resource practices in different organizations and different countries around the world at organizational and individual levels. An improved understanding of how human resource practices can play a role to enhance knowledge and learning capabilities will possibly lead to innovative strategies in business organizations. Thus the findings possibly provide significant insights to managers on how they may adapt human resource strategies in order to enhance innovation in their organizations.

Limitations and future research

As with any study, this research has several limitations. First, due to the small size sample care should be taken in interpreting the findings. Second, the purposeful sample used means that the study draws from the experience of large firms only. Third, although the findings serve as a guidance to ITSPs in other jurisdictions, differences in demographic, cultural settings, technologies, work processes, interdependence among employees, and the role of customers and rivals (Batt, 2002) should be taken into consideration.

The current study has raised a number of questions for further investigation. For instance, what are the relationship(s) between the bundle of human resource practices and knowledge and learning capabilities of IT professionals that lead to organizational

innovation in ITSPs? Research to date has mostly described the link between selected human resource practices (such as recruitment, training and development, pay incentives) and knowledge and learning capabilities (Collins & Smith, 2006). However, what remains unclear is how a bundle of human resource practices influence the strategic human resource management decision making of managing knowledge creation and learning ability in the organizations. Will knowledge and learning capabilities increase proportionally if resources are injected into one type of human resource practice? Does any type of human resource practice mediate or moderate the overall knowledge creation and learning ability? What is the direction flow of the relationship(s)? Can knowledge and learning capabilities have any influence to human resource practices and how?

Additionally, another research avenue is to investigate the transformation of routine human resource activities towards a strategic approach to knowledge and learning capabilities. High attrition rates in ITSPs also present exciting research opportunities. Understanding the predictors of employee turnover in ITSPs, particularly from developing countries and from a knowledge and learning perspective, has attracted renewed interests from both academics and senior executives (Loi et al., 2006). Finally, the role of Indian IT expatriates who 'went back home' to contribute to the industry's development remains under researched. In particular, the role of Indian IT diaspora who have contributed significant high levels of knowledge and learning capabilities towards innovation in the industry (Jenkins & Ardagh, 2009) could be the subject of further investigation.

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Appendix one: Profile of Top 20 IT Offshore Service Providers in India 323

Company	2009 Revenue (US$ Mil)	Nature of Business: Main services provided
Tata Consultancy Services	6300	IT Services, IT Infrastructure Services, Enterprise Solutions, Consulting, Business Process Outsourcing, Engendering and Industrial Services, IT Software
Wipro Technologies	5880	Consulting, Business Process and Technology Services, Enterprise Application Services, Infrastructure Management, Product Engineering Design and Product Support
Infosys Technologies	4804	Consulting, Application Services, IT Infrastructure Services, Business Process Outsourcing, Software Development, Product Engineering
HCL Technologies	2324	IT Applications, IT Infrastructure Management, Business Process Outsourcing, Product Engineering
Genpact	1120	Broad Portfolio with Solutions in Finance & Accounting, Procurement & Supply Chain, Collections & Customer Service, Human Resource Services, Content Solutions, Risk Management, IT Infrastructure Services, Enterprise Application Services
Mphasis (BPO)	945	Business Process Outsourcing: Customer Sales & Support, Finance & Accounting, and Human Resources Outsourcing services
Patni Computers	656	IT services, Product Engineering Services, Infrastructure Management Services, Business Process Outsourcing
I-flex Solutions	618	Software and Services Solutions Footprint for the Financial Services Industry
L&T Infotech	424	Applications Development, Maintenance and Outsourcing, Business Process Services, Consulting, Infrastructure Management Services, Oracle and SAP Services
Hexaware Technologies	230	IT Services – application development and reengineering, Enterprise Applications, Infrastructure Development, Business Process Outsourcing, Consulting
i-Gate Global Solutions	226	Complete to-end Services that Integrate Consulting, Technology, Business Process Outsourcing and Provisioning
Mastek	209	IP Led Services and Business Technology Services including IT Consulting, Application Development, Management and Security, Systems Integration,
NIIT Technologies	202	IT Services in Application Development & Management, Enterprise Solutions and Managed Services; Business Process Outsourcing
EXL service Holdings	191	Transformation and Outsourcing Services in Multiple Industries including Insurance, Banking, Financial Services, Utilities, Transportation and Travel.
Siemens Information Systems	na	Consulting, Software Deployment, System Integration, IT Infrastructure Management
Perot Systems Satyam Computers Covansys Flextronics	Na Na Na na	These four companies have since been subject to takeovers and thus current data is not available.

Sources: annual reports and the company websites