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
This paper examines the role of human resource practices in the development of knowledge and learning capabilities for innovation for information technology service providers (ITSP) in India. Developing knowledge and learning capabilities for innovation has been the subject of much attention from industry, governments and researchers. However, the questions surrounding how human resource practices influence the development of knowledge and learning capabilities that lead to organizational innovation remains unclear; particularly for knowledge intensive firms in developing countries. The study draws from the experience of 11 of the largest ITSPs in India and based on in-depth interviews. The findings suggest that while traditional human resource practices are important, senior executives should take a strategic approach in developing human resource practices with knowledge and learning capabilities as central piece for organizational innovation.

Background
Research on how firms from developing countries develop and grow to become global players in their fields remains underdeveloped. This is a particularly important gap in the literature given that over recent years foreign direct investment (FDI) from developing countries has increased at a faster pace than FDI from developed countries. Thus, the growing activities of MNEs from developing countries raise an important question regarding their sources of international competitiveness given that the institutional and economic context within which these firms develop and grow are different from those in developed countries. The rapid emergence and growth of information technology service providers from India is a case in point. Over a relatively short period, India has become a preferred destination for off-shoring of IT services. 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 2 percent to the national GDP. The success of the IT services sector in India is often attributed to the competitive advantage that India has in the human resources area. For example, India has an abundance of engineering graduate and is among only a few countries which have the structural and institutional capacity to train IT skilled graduates in large numbers necessary to sustain the IT services industry.

The rapid expansion of the IT services sector worldwide since the early 1990s has also put pressure on the personnel function of firms in the sector (Budhwar & Boyne, 2004) as they compete against each other to attract the best talents. Indian IT service providers (ITSPs), in particular are vulnerable as graduates of India's elite educational institutes often seek employment overseas, such as in the United States, United Kingdom and Australia (Radhakrishnan, 2007). Indian IT-graduates that have gone abroad often represent the ideal of Indian success with a global scope, which has further encouraged other talented graduates to seek opportunities outside of India (Nair & Prasad, 2004).

The recruitment and retention of talents is important because individuals carry knowledge and skills when they join an organization (Grasenick & Low, 2004), though their level of knowledge and skills theoretically increases with time in the organization. A higher level of knowledge and skills is often associated with greater, innovation, productivity and higher incomes or compensation (Wilson & Larson, 2002). It is therefore in the interests of human resource managers to recruit and develop the best and brightest employees as a means of achieving competitive advantage (Bontis, Crossan, & Hulland, 2002). When employees leave a company, organizational memory is usually lost (Loi, Ngo, & Foley, 2006) as they take their talent, skills and tacit knowledge with them (Grasenick & Low, 2004). The loss of talented staff usually stifles the ability of firms to innovate for sustaining their competitiveness. The

existing literature does not provide a comprehensive understanding of the link between HR practices, knowledge creation and innovation, particularly for firms from developing countries. Knowledge has become the central theme in the strategic management literature, not only because it is a meaningful resource for organizations, but also a critical source of sustained competitive advantage (Ambrosini & Bowman, 2001). From a resource based view of the firm (Barney, 1991; Wernerfelt, 1995), knowledge constitutes the most rare, valuable, costly to imitate, and non-substitutable resource that a firm can possess by being intangible and implicit and tacit in nature.

Knowledge originates in human beings and can only be created by humans but not by organizations (Watson, Stanworth, Healeas, Purdy & Stanworth, 2005). Quinn, Anderson, and Finkelstein (1996) postulate that most organizational value, whether financial or non-financial, is created by 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. 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 asset – a so-called 'stock' (Bontis, 2002). Learning acts as a dynamic element which helps to augment the stock of knowledge in organizations. 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 in individual level but can be extended to group and organizational levels (Mintzberg, Ahlstrand & Lampel, 1998). To maximize the effect, 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 (Vera & Crossan, 2004).

Organizations that create knowledge on an ongoing basis are more likely develop dynamic and unique capabilities that 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 as they build on previous knowledge and generate new knowledge constantly, which involves a great deal of learning and is often crucial for strategic renewal (Chaturvedi & Chataway, 2006). The management of knowledge and learning capabilities becomes critical if organizations are to be innovative (Schultze & Stabell, 2004) and competitive (See e.g. Crossan & Apaydin, 2010; Pillania, 2007). Mathieu and Zajac (1990) suggest that committed organizational members are more likely to engage in 'extra-role' behaviors such as creativity or innovation in organizations. 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 which constitutes a decisive factor to organizational success and sustained competitive advantage (Bontis & Serenko, 2007).

This main objective of this paper is to explore the question: '*What role do human resource practices play in the development of knowledge and learning capabilities for innovation in knowledge intensive firm from developing countries*'. In order to address this question, Indian

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offshore ITSPs are used as the setting. Indian ITSPs have played a significant role in the knowledge era transition (Chawla & Joshi, 2010).The study also helps to unveil the inner workings of the black box that guide HRM strategies in the development of knowledge and learning capabilities for innovation in Indian IT firms. This is particularly important to Indian IT organizations 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 competitiveness in knowledge intensive organizations. The paper is divided into three sections. The next section describes the research methodology and data for the study. The findings of the interview program are presented in the third section, with an emphasis on the Indian IT context. The final section discusses the limitations and implications for future research.

Methodology and Data
In order to meet the objectives of the study we focus on the HR practices and management of knowledge and learning of the "stars' in the industry through semi structured interviews. Learning from the stars also provides an industry wide perspective of best practice which is valuable for wider generalization of our findings. The 20 largest IT service providers (by revenue), as classified by National Association of Software and Services Companies (NASSCOM), India's main IT industry association, were selected to be included in the study. Together, the 20 largest IT service providers in India account for more than 85% of the Industry's total revenue and have employees across national boundaries. Emails were sent out to potential elite participants in these companies (Welch, Marschan-Piekkari, Penttinen & Tahvanainen, 2002) to explain the purpose of the research project and invite them to participate in the semi structured interviews for the purposes of data collection.

Following initial contact and vetting of all participants, 11 companies were selected to participate in the data collection exercise. All the participants were in senior executive positions involved in key strategic management positions within their organizations. All interviews were conducted at the respective IT firm headquarters in three main cities (Bangalore, Delhi & Mumbai) in India and lasted about 60 minutes each. All interviewees gave consent for taping. Qualitative data were transcribed by one of the authors and content analyzed. To maintain confidentiality, all interviewees' names, 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 IT firms 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.

Main Findings
India is widely accepted as the preferred location for outsourcing IT services because it has one of the world's largest pools of scientific and technical personnel (Budhwar, Varma, Singh & Dhar, 2006). 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 size of talent, how many bodies [professionals] can you get to do the work you need to get done" (ITSP-9).

The success of ITSPs is also attributed to committed organizational members who are more likely to engage in 'extra-role' behaviors such as creativity or innovation in organizations (Mathieu & Zajac, 1990). This quality can be found in Indian IT professionals:

"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).

Indian IT professionals, especially Indian IT Diaspora, were highly motivated for success. However, willing to be innovative is one thing; being able to seize knowledge and learning capabilities that lead to innovation can make an enormous difference between organizational success and failure (Sull, 2005). Without a high level of knowledge and learning capabilities, innovation is likely hindered (Kong, 2008). One of the interviewees described how his organization utilized knowledge and learning capabilities to deal with crisis:

"There have been challenges. The industry was going down because of 9/11 as lots of things happened. We didn't go down as we saw that everything [would] give you knowledge and learning. In terms of processes, how do we handle customers, it gives you knowledge and learning and that's what we learnt at that time. Basically [we] see [sic] these processes … and we thought we were little weak … that's when we thought of strengthening those processes. And that's what helped us to come out of that [crisis] and we are on a growth today. For the last two quarters we were growing almost 40%. We are looking forward to a similar kind of growth in the next one year to two years" (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 importance of knowledge and learning capabilities for organizational innovation in the sector. The following quotes illustrate the point:

"… we have a good set of [knowledge and learning] capabilities in migrating [business] processes. We've migrated about 225 different processes so far which is probably one of the highest for the industry … 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 there's some value that we add. So those are some of the capabilities on which we've been able to grow [our] business" (ITSP-1).

"In addition to this domain expertise … in extra reengineering process[es], the cost for me decreases and hence I can get back [to] you faster, so … we can do the same thing faster, better and cheaper" (ITSP-4).

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.

The intensification of global competition for talented IT professionals exerts considerable pressure on human resource functions in Indian IT and BPO firms (Kuruvilla & Ranganathan, 2010). While India does have a large pool of human resources, not all of them are 'industry-ready' and 'rightly skilled' to Indian firms (Bhatnagar, 2007). As unveiled from the interview

data, this has become a challenge to Indian IT firms. 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:

> "… the guys [graduates that are] coming out of the Colleges and Universities, I believe [only] a fraction of those people [could] fit into [the] IT [sector]" (ITSP-4).

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

> "… because these are the people who come out from the college and they search different companies for better compensation. Like [XXX IT firm] is offering double the salary. [Thus,] you're getting nobody" (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:

> "… we see ten years back India youth were struggling to get a job. Today we are struggling to get men [sic] … 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, 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 especially Indian IT companies they know that the only weakness probably they have is that capabilities of theirs and I think we need to gear up for that" (ITSP-8).

> "[If] we don't have this expertise … we're saying that okay we will invest, we will share with customers saying that we don't have this expertise today but since you know us, our past track, we would build capability and deliver it to you … because you are growing well, so we want grow with you" (ITSP-7).

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

> "We have 'Talent Management Systems' which capture 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, how will that requirements come, and dispute forecasting system for the market. Based on that [knowledge] training department and HR 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 certain 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 of us go to the same colleges; same campuses and most of them go to the same stock of people, same sort of technology" (ITSP-5).

> "I think everybody has equal access to the technologies. I think as technologies per se all those things would be available on the shelf. So it depends on how you are using the technologies to improve your day to day operational excellence and how you are going to integrate the solutions in serving your customers and delivering the solutions to your customers" (ITSP-8).

The management of human resources 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 off-shore 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 ITSPs, 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 some 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 initial business. In those days ... the infrastructure was very poor and the BPO industry had just started. So I think it was an ability [of our employees] to convince the buyers that we could send work here and we could manage it well. 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).

ITSP-6'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 knows 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 tell our clients" (ITSP-9).

From the above quotes, an organization's 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 (Collins & Smith, 2006). 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 well, as it applies in that particular local market and I'm not talking about your theoretical macro knowledge but where 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 for innovation should be seen as a more integral part of overall human resource strategies for Indian ITSPs:

> *"The challenge is how to make those working population come into the mainstream of IT. We still have that advantage, but if we don't convert advantage into some actionable [human resource strategies] then probably it will become a serious threat" (ITSP-8).*

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 for innovation. Much research today in relation to employee development is focused on the effects of training functions on productivity and financial performance (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:

> *"If a fresher comes to us, and I'm talking about IT professional and computer graduate, company invests about six months training in specific domain areas …" (ITSP-8).*

> *"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. The task of this Innovation Council is 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).*

> *"What happens is every year we have these excellence awards. Every year when we have our annual day we give 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 Indian IT firms generally lack structured guidance on how human resource practices can be used to foster knowledge and learning capabilities for innovation and thus the organizations' potential for creating new knowledge is likely not fully acknowledged.

Discussion and conclusion

Research in relation to human resource practices and the development of knowledge and learning is largely restricted to recruitment, retention and development of employees in organizations mostly from advanced industrialized countries. The HR practices of knowledge

intensive MNEs from developing is less understood. One of the major concerns of Indian IT service providers in terms of the management of human resources is the loss of employees to rival companies. Employee turnover often represents a loss of knowledge and learning capabilities (Loi et al., 2006). It has direct impacts on the financial costs associated with loss of human knowledge investment, additional recruitment and training, and the negative effects on productivity (Guchait & Cho, 2010). However some employee turnover can also be beneficial for the organization in terms of knowledge 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 so that the overall stock of the organization's knowledge is not depleted. Human resource managers need to provide mechanisms that foster the development of knowledge and learning capabilities for innovation, and verify that mechanisms exist to ensure the capabilities are protected and transferred across different units within the organization.

It is also important to note that retaining and training a sufficient number of organizational members does not necessarily mean that knowledge is developed and shared. It becomes meaningless for organizations to focus on the number of organizational members to be retained and trained, though the number may provide some insight. 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 are generally more innovative by nature (Cohen, 1999).

Indian IT firms must have HRM policies and practices in place to foster knowledge and learning capabilities that uncover innovative possibilities. These policies and practices 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. These policies and practices, however, did not emerge in the interview data. Previous studies on human resource practices and knowledge and learning development may not be generalized to the Indian context because of the differences in demographics, cultural settings, technologies, work processes, interdependence among employees, and the role of customers and rivals (Batt, 2002). This paper offers significant insights on Indian IT senior executives' perception of the role of human resource practices on the development of knowledge and learning capabilities that lead to innovation in their organizations.

As with any research, this research also has some limitations, the main one being its exploratory nature and small sample size which limits the generalization of our findings. However, the richness of the data provides valuable insights into knowledge management and learning as they relate to HR practices for developing country knowledge intensive firms. The findings provide improved understanding of how human resource practices can play a role to enhance knowledge and learning capabilities and lay the foundations for future research on the topic. The findings in this study confirms the established view that while traditional approaches to HR management are important, competitive advantage in knowledge intensive industries can only be sustained by ensuring that knowledge and learning capabilities for enhancement of organizational innovation are integral pieces of HR strategy of the organization.

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