

# The Impact of Knowledge Management Infrastructure and Process on University Performance

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## Abstract

**The major purpose of this conceptual paper is to integrate the viewpoints of different researchers about Knowledge management infrastructure, process and university performance. After an in-depth study of literature, we concluded that with proper attention towards knowledge management infrastructure, knowledge management processes and technology, universities can outperform their competitors. Initially the research was conducted by the use of Google scholar search engine with the keywords of “Knowledge management infrastructure”, “Knowledge management process” and “University performance” to understand the basic interpretation of vital terminologies. Furthermore, different research papers were searched and collected by using the same key words from Emerald, Science Direct, J-store and EBSCO hosts and a detail review was done of each paper. Approximately 110 papers were downloaded initially, and the most appropriate research papers for this conceptual paper were shortlisted. In order to be among the top performers in this era of information, universities should accept, adopt and consistently foster their knowledge management practices. Universities have to provide a platform for the knowledge management practices by developing the culture and motivating the human element. Once the platform is created, knowledge acquisition, storage and application becomes inevitable. Technology leads the way towards achieving the higher overall performance in the utilization of knowledge management practices.**

## Keywords

*Knowledge management processes, knowledge management infrastructure, Information Sharing universities' performance.*

## 1. Introduction

In this era of globalization and technology the economy of materials and production has taken a paradigm shift to the economy of information and knowledge. Knowledge has become an integral economic resource of modern times and in fact the only source to comparative advantage. (Drucker, 1993). As a consequence, many organizations whether small or large, have realized the potential of knowledge management (KM) and they are investing rigorously in knowledge management practices. The aim of knowledge management is to enhance the performance of an organization through proper utilization of knowledge resource. It comprises the processes of generating, capturing and applying the knowledge to enhance organizational performance (Nonaka, 1994). Recently, there has been a surge in the application of knowledge management practices in the long run success of organizations in the corporate sector. As such, numerous studies y et al. (2001) studied the relation of KM infrastructure capabilities and knowledge management processes capabilities with organizational effectiveness (Gold, Malhotra, & Segars, 2001). While Lee and Choi (2003) studied how organizational creativity is a consequence of knowledge management practices, Quink (2008) investigated the relation of KM infrastructure, KM processes and the effectiveness of non-profit organizations (Quink, 2008). In addition, Mills and Smith (2011) had examined the impact of knowledge management resources on organizational performance whereas Chang and Chuang (2011) empirically researched the role of KM infrastructure capability and business strategy on the performance of a firm (Chang & Chuang, 2011). Moreover, Meihami and Meihami (2014) while studying about manufacturing companies found that knowledge management is a way to gain competitive advantage for firms and businesses. Many researchers have argued that government and university policies are needed for the helical innovation model to work in developing economies like Bangladesh.

The research quoted above and other studies in the corporate sector suggest that the KM process and KM infrastructure lead to the ultimate success of an organization. However, research on the application of KM practices is still in its early stages in the education sector specifically in the context of Bangladesh. Studies have been conducted to support this notion in other cultures such as in Singapore. For example, while studying the application of knowledge management in universities' research in Singapore, Loh, Tang, Menkhoff, Chay, and Evers (2003) found that creation and maintenance of relevant knowledge repositories, improving knowledge access and environment, and valuing knowledge can benefit higher education institutions. Similarly, Shoham and Perry (2009) had stressed the importance of knowledge management for technological and organizational change in Israeli universities (Shoham & Perry, 2009).

The above discussion recognizes the importance of KM practices in universities and findings from the success of KM practices in corporate sector. The authors opted to study the impact of KM practices on universities' performance in Bangladesh. The model is derived from earlier studies on knowledge management in the corporate sector, which

identifies how KM infrastructure and KM processes lead to the enhanced performance of universities in Bangladesh.

## **2. Literature review**

### *2.1. Knowledge*

#### *Management*

##### *Infrastructure a.*

##### *Human resources*

In the current era, the power of a company (economic or production) resides within the intellectual assets rather than the tangible assets. Human resource is one of the most influential drivers of knowledge management. In order to achieve organizational goals, Soliman and Spooner (2000) stated that a culture which allows free flow of knowledge within the organization must be leveraged (Soliman & Spooner, 2000). This culture can be created through proper human resource management. Lee et al. (2013) analysed the relationship between KM infrastructures, knowledge process capabilities, creative organizational learning, and organizational performance (Forces et al., 2013). Along with other factors, they concluded that top management support leads to organizational performance. When employees are rewarded for knowledge management practices, it positively impacts the knowledge management performance. (Yu et al., 2004). When organizations motivate employees for knowledge sharing and link rewards directly with knowledge sharing, than better knowledge management performance is a consequence (Wu, 2004).

##### *b. Knowledge management culture*

Knowledge culture is defined as a type of organizational culture that influences the creating, sharing and making full use of the knowledge for the prosperity of an organization (Oliver & Reddy Kandadi, 2006). King (2008) referred to the fact that culture is considerably related to knowledge sharing behaviors of individual personnel, groups and overall organizations (King, 2008). It is the culture that determines which knowledge is to be shared, with whom it could be shared and when it should be shared. King (2006) argued that the motivation of people to share their indigenous knowledge with others, especially when they are not well acquainted to each other is very important (King, 2006). Attitude towards learning, flexibility and intention to share information influences the knowledge management performance significantly (Yu et al., 2004). Thus in order to manage the knowledge effectively in an organization, a knowledge culture must be fostered. (Gholipour, Jandaghi, & Hosseinzadeh, 2010). Pandey and Dutta (2013) examined the role of knowledge infrastructure capability in knowledge management practices within an organization and suggested that organizational structure plays a facilitating and steering role in developing the culture of knowledge (Pandey & Khare, 2012). According to Betz, Min, & Shin,( 2014) the problem of proper control in society is a complicated issue. It is complicated by the fact that there are three different types of control existing in a society (Betz et al., 2014): control in socio-technical systems, control in managed systems, and control in self-organizing systems.

Organizational culture is considered to be the biggest obstacle in the way of effective knowledge management. To manage knowledge more efficiently, an organization must shape its culture more effectively (Davenport & Klahr, 1998). Thus the interaction between individual employees in an organization is key to innovation (Sensiper, 1998). Often new ideas are created courtesy of a dialogue between individuals in an organization. Hence, formal as well as informal interaction among the employees should be encouraged which will allow for the sharing of ideas and opinions (O'Dell & Grayson, 1998). Interaction among individuals becomes significant when there is an intention to transmit tacit knowledge between individuals or to convert that tacit knowledge into explicit form. This knowledge will ultimately be transferred at the organizational level (Nonaka & Takeuchi, 1995). It has been suggested that individuals should be able to organize their own knowledge and they should have the ability to apply their knowledge in solving prevailing organizational problems (O'Dell & Grayson, 1998).

Many scholars have pointed out that corporate vision is an imperative element of the organizational culture (Leonard, 1995). The overall vision of an organization states a clear goal of the organization and ignites the mandatory actions in the organization to achieve those goals (Nonaka and Takeuchi, 1995). A vision incorporates two things: first it shows the desired future direction of the organization and secondly it shows the organizational values. A well-articulated and well communicated vision can be utilized to develop involvement and contribution among the employees (O'Dell & Grayson, 1998). Vision and the corporate values determine the knowledge that is required by the organization and the knowledge related activities accepted by the organization (Leonard, 1995; Levinthal & March, 1993). Hence the clearly stated visions foster the knowledge management behaviors in the organization (von Krogh, 1998). In conclusion, the focus in vision statements should be on those components of the organization that promote the knowledge management processes to occur.

### *c. Technology*

Advent of IT in recent times has paved a way for many opportunities. Organizations, with high speed internet connection can collect, analyze and share information more easily and effectively. Use of knowledge management systems reduce time barriers significantly and the dissemination of knowledge more quickly. Hence organizations can respond quickly to market changes in this dynamic environment. The presence of network and electronic commerce allows for cooperation among organizations (Mudge, 1999). Universities are at the forefront of using technology in knowledge management practices as higher education is relying more on virtual education systems (Pritchard 1999). Universities are now offering online courses for the vast majority of subjects.

Extracted from earlier literature, Lee and Hong (2002) have highlighted four basic steps of the knowledge management cycle; knowledge acquisition, knowledge development, knowledge sharing and knowledge application. Technology plays an important part in every step of the knowledge management cycle. For example, information systems can be used

for information creation, online data bases for information storing and networks for information sharing. Technology has a significant importance in the overall knowledge management process. The fragmented knowledge in the organization can be integrated through the proper use of information and communication technologies (Argiris & Schon, 1978). Thus barriers to communication that occur between the different units of an organization can be eliminated or reduced significantly. To be successful, an organization must invest in the comprehensive technological infrastructure that can support different types of knowledge and handle communications in difficult situations.

## *2.2. Knowledge management processes*

### *a. Acquisition*

Knowledge acquisition can be organizational as well as individual. Liao et al. (2009) defined organizational knowledge acquisition as gathering knowledge from the external environment and molding it to be useful for the organization. Thus it involves extraction, interpretation, and transfer of knowledge for the enhancement of knowledge that already resides with organization. However, the individual knowledge acquisition comprises three different ways to gather knowledge: obtaining from the knowledge repository within the organization, learning from other individuals, and learning from experience (Ryu, Yong Jin, Chaudhury, & Rao, 2005). Knowledge within an organization usually resides within the individual's memory (Forces et al., 2013). Thus, the acquisition of knowledge within an organization mostly relies on gaining knowledge from others. A new perspective on knowledge acquisition is that individual learning should be transformed to organizational learning (Lank, 1997) as this will lead to higher organizational performance.

Knowledge acquisition involves the process which ultimately leads to obtaining knowledge. Different terms have been used to refer to the acquisition of knowledge such as acquire, seek, generate, gather, collect, capture, etc. However, all of these terms have a common central idea: to accumulate knowledge. Another aspect of knowledge acquisition is innovation, which is the process of creating new knowledge from the application of existing knowledge. Use of existing knowledge in an improved way and effective acquisition of new knowledge is the core in the knowledge acquisition process (Inkpen & Dinur, 1998).

Benchmarking and collaboration are considered to be the most prevalent types of acquisition processes. Benchmarking is a process that involves identifying best practices within the industry and then assessing the organization's own processes against those standards (O'Dell & Grayson, 1998). Once the best practices and differences are identified, the knowledge acquired by the organization can be used internally. Creation of new knowledge in an organization basically depends upon the knowledge sharing of personal experiences of employees (Inkpen & Dinur, 1998).

Collaboration between individuals leads to knowledge creation. As an individual comes up with differences such as different cognitive styles, backgrounds, and experiences, these differences can be used to create new knowledge (Leonard, 1995). The basic assumption is

that the interaction among the individual employees will foster the learning process and in turn, this fosters the process of knowledge socialization (Nonaka & Takeuchi, 1995). Beyond this, the collaboration between individual employees and collaboration between organizations also leads to the creation of knowledge (Dyer, 1997; Inkpen & Dinur, 1998). Pacharapha and Ractham (2012) studied the factors that increase or lessen an individual's tendencies to acquire knowledge from others and found that individual knowledge acquisition is influenced by the recipient's perceived value of knowledge content and knowledge source (Pacharapha & Vathanophas Ractham, 2012). Sharing of technology between firms, transfer of employees, alliances, and joint ventures are the different ways that help in acquisition of knowledge in organizations.

### *b. Storage*

Once knowledge has been acquired, it must be preserved carefully. Chan while integrating knowledge management and customer relationship management argued that along with other elements, knowledge storage is a key element of knowledge management process. Havens and Knapp (1999) argued that knowledge is created by an organization, thus it is an asset for that organization. Hence disclosure of this knowledge to outside sources should be prohibited. Market value of an organization depends upon the intellectual assets, and attention must be put on an organization's intellectual assets along with other tangible assets (Dubin & Wild, 1988). To ensure that valued data is kept safe, organizations must develop a process of choosing valuable data and suitable storage for its preservation.

To ensure the protection of data against misuse or illegal practices, many organizations design security-oriented knowledge management processes. To generate and to sustain the competitive advantage, a firm must protect its invaluable knowledge (Liebeskind, 1996). Patents, trademarks, and copyrights are suggested as some of the ways to protect knowledge. But the problem is that all types of knowledge can be defined according to the intellectual property rights and property laws (Liebeskind, 1996). Although protecting the knowledge is very difficult, it should not be overlooked. Organizations can take initiatives to protect assets such as job design or employee conduct rules etc. furthermore, organization can rely on the use of technology and software application to limit the access to value knowledge of organization. Extant literature suggests that for an asset to be an actual or potential source of competitive advantage it must be rare and not possible to be easily imitated (Barney, 1991). Those organizations which lack the security-oriented processes are on the verge of losing vital knowledge and competitive advantage all the time.

### *c. Application*

Knowledge application involves using the knowledge in performing tasks like problem solving, decision making, new idea generating and learning. Knowledge application is the core task of knowledge management. Nelson and Winter (1982) found that knowledge application is done when an individual person or work unit influences a behavioral change in another unit (Cohen, Nelson, & Walsh, 2002; Winter, 1998). An important factor in

knowledge transfer is the extent to which an individual not only acquires knowledge from others but also uses that knowledge to perform his/her own tasks (Minbaeva et al., 2003). According to March (1991), the best possible treatment of knowledge in an organization requires application of knowledge for the betterment of organization. Application-oriented knowledge management processes are those which are related to the actual utilization of knowledge. However, a minor debate has been on the effectiveness of knowledge application in past studies. Most of the studies on the effectiveness of knowledge application were based on assumptions rather on being explicit. Consider for example, it was assumed that once an organization has created the knowledge, it will be applied effectively (Nonaka & Takeuchi, 1995). Effective application of knowledge helps organizations to improve their efficiency level and reduce their costs.

### *2.3. Universities' performance*

#### *a. Research and productivity*

In the era of knowledge economy, research activities in universities have gained considerable importance (Flagg, Gilley, & Park, 2011). It is true that the performance of a faculty is measured in terms of research output over the years. Publications by faculties have been recognized as a key measure for the accreditation bureaus and academic administration to allow accreditation to continue and assess the qualification of a faculty. Research output will continue to be the core element in overall performance appraisals of faculties and for the qualification of promotions.

#### *b. Employee commitment*

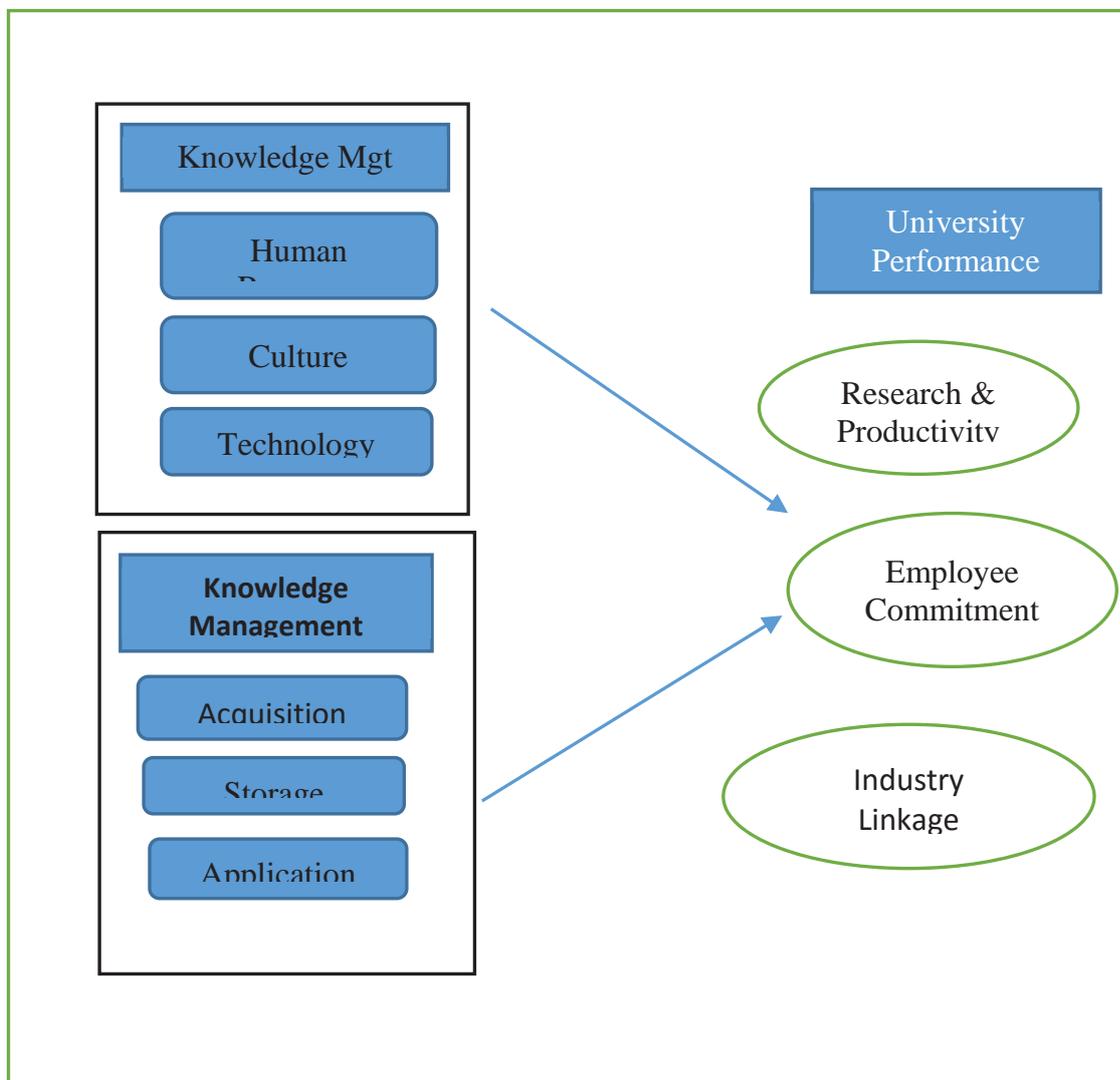
Employee commitment at work is defined as the psychological attachment sensed by the employee for the organization he or she works for. Employees who are committed to the organization have a tendency to believe in and accept the organizational goals and culture. They are loyal with the organization and are motivated to offer the best possible services to the organization. Studies have shown that those organizations that provide support tend to have more committed employees (Gu & Chi Sen Siu, 2009). The organizations that invest to develop committed employees have more customer satisfaction (He et al., 2010). Commitment has been found to be significantly related to the employee performance in existing studies. Committed employees develop a sense of psychological attachment with the organization which encourages him/her to behave in the manner that is consistent with the organizational goals and objectives. For example, it was found through a study that employee commitment was positively related to sales performance of the organization (Farh, Tsui, Xin, & Cheng, 1998).

#### *Industry linkages*

In recent times, there has seen more linkage of industries and universities which has changed the role of universities over time. Currently, universities are more engaged in technology transfer activities such as technology based venture creation, patents, licenses,

consulting and collaborative research. However, these firms which regard profit as their primary objective are different from universities as their primary objective is to teach and conduct research (Etzkowitz & Etzkowitz, 2003). Yet, university-industry linkages are formed to reap several benefits such as gaining access to vital knowledge (Caloghirou et al., 2001), enabling problem solving capability (Cohen et al., 2002), development of new technologies by allowing access to new tools and techniques (Rosenberg, 1992), improving firm reputation among potential partners and in labor markets (Hicks, 1995), entering the academic network (Pargament, Magyar-Russell, & Murray-Swank, 2005), and escalating opportunities for more public funding.

*Fig.1- Conceptual Model*



The results of this study have provided support for the applicability of Western theories and approaches to organizational commitment and job satisfaction from a Bangladeshi perspective. The study examined the effect of employee demographics, job and role-related

factors and selected HRM practices on organizational commitment, job satisfaction and turnover intentions among academic and administrative employees in Bangladeshi universities. The findings indicate that employees' commitment and satisfaction was enhanced by positive work practices. In addition, the results showed that employees were willing to endure unpleasant working conditions (e.g. lack of participation, routine work and high role stress) because of the cost of leaving was too high (continuance commitment), especially considering the poor performance of the Bangladeshi economy which has rendered attractive suitable jobs as almost obsolete.

Management can apply the findings of this study in several areas of human resource management policy and practice. The strongest negative predictor of organizational commitment and job satisfaction is labor turnover or turnover intention, and this was confirmed in this study. The decision to remain with a firm is largely determined by an employees' level of commitment to the firm. Allen and Meyer (1990) observe that an individual's commitment to stay with a firm is influenced by an organization's management practices including HRM.

The study concludes that in order to be among the top performers in this era of information, universities should accept, adopt and consistently foster their knowledge management practices. Universities have to provide a platform for the knowledge management practices by developing the culture and motivating the human element. Once the platform is there, knowledge acquisition, storage and application becomes inevitable. In the entire process, it should not be forgotten that technology leads the way towards achieving the higher overall performance in the utilization of knowledge management practices.

Similar to a lot of other researches, this paper is also subjected to some limitations. The first and foremost limitation is the type of paper itself, as this paper only integrated the viewpoints of different researchers as it does not provide empirical evidence and so a future empirical research is highly recommended to deduce reliable quantitative results.

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