Knowledge Management Processes and Firm Innovation Capability: A Theoretical Model

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Abstract

The major goal of knowledge management (KM) is to enhance innovation. Previous research on innovation and knowledge management has shown a positive relationship between innovation and effective knowledge management (Smith et al., 2005; Darroch & McNaughton, 2002; Dougherty et al., 2002; Nonaka & Takeuchi, 1995). Some scholars have maintained that the innovation that accelerates creative solutions depend greatly on the accumulation of new knowledge in an organization. Knowledge accumulated is the organization is essentially utilized by people via four major knowledge management processes. Unfortunately, KM literature overpraises the technological aspects neglecting the people dimensions and the soft aspect of people who actually possess the knowledge that could spark innovation. In a bid to fill this void, this paper contributions to knowledge by considering the need for a theoretical model of the attitudinal and behavioural conditions of the employees who engage in knowledge management processes to push the boundaries of their firm's innovation capabilities.

1. Introduction

Most scholars (Storey & Kelly, 2002; Lin, 2001; Tsai, 2001) have expressed the spontaneous idea that knowledge is the most essential component in innovation. These authors maintain that the effective transfer of knowledge between groups and individuals is required to solve complex problems. Storey and Kelly (2002) found that lack of knowledge is the major barrier to innovation in service firms while Tsai (2001) records that new knowledge is crucial in developing innovative ideas for new products and services. Davenport et al., (1998) expressed that if organizations aim at maximizing the benefits that could be derived from their knowledge management effectiveness, it is pertinent for such organizations to capitalize on investing in the development of organizational knowledge management systems that supports knowledge work and enhances organisational learning. Above all, organizations should invest in its people who actually possess the knowledge that could spark innovation. Sadly, knowledge management practice is often misguided to be the implementation of new information technology systems, disregarding the importance of the organizational aspects particularly the human aspects.

Thus, this study considers the four major processes namely: knowledge discovery, knowledge capture, knowledge sharing, and knowledge application as the processes of knowledge management that could spark firm's innovation capabilities. Moreover, it considers the important organizational aspects particularly the human aspects into account by considering the attitudinal and behavioural condition of employees that engage in knowledge management processes and innovation. This contribution is consistent with scholars' argument that the failure of knowledge management practices could be ascribed to the too much importance placed on technological aspects and insufficient attention paid to the human aspect of knowledge (Beesley, 2004; Call, 2005; Cooper, 2006). The sections of this paper start with an overview of knowledge management, followed by a section on innovation and innovation capabilities before highlighting the antecedent variables. A research framework is provided to clearly express the theoretical position of the paper while the paper is concluded by emphasis on the need for further empirical validation.

2. Knowledge Management

Synthesizing the descriptions of the term knowledge management (KM) from the existing literature (Nonaka, 1991; Nonaka & Takeuchi, 1995; Chase, 2006; Gupta & Govindarajan, 2000; Malhotra, 2005; Raub & Von Wittich, 2004; Spender, 2006; Debbie, 2006; Hicks et al., 2006; Nonaka & Konno, 1998; Wong & Aspinwall, 2006; Beesley & Cooper, 2008), the term knowledge management could be described as the processes of knowledge acquisition, knowledge creation or transfer, knowledge storage, knowledge sharing, knowledge retrieval and knowledge application. In a nut shell, these processes involves the identification and collection of useful information, the transfer of tacit knowledge to explicit knowledge, the storage these knowledge into organizational repository and subsequently disseminating it throughout the whole organization enabling the employees to easily retrieve it and apply the knowledge effectively.

The concept of knowledge management (KM) came into limelight in the late 1990s and has enjoyed more than a decade of immense popularity. KM has progressed beyond the status of being ''fashionable'' as it is now gained great attention in management and strategic processes of high profile organizations, governments as well as academic institutions (Malhotra, 2005; Beesley & Cooper, 2008). Knowledge management can be widely described as an evolving set of organisational processes, design, structures, applications, technologies and operational principles that enables knowledge workers to intensively utilize their ability and creativity to create business value (Gurteen, 1998). Indirectly, this implies that knowledge management encompasses the processes of utilizing the collective knowledge existing in an organization and applying such knowledge to enhance innovation and to boost business performance (Nonaka, 1991; Quinn et al., 1996; Davenport et al., 1998).

Sustainable competitive advantage is an outcome of innovation while innovation itself could be derived from the four processes of knowledge management. Therefore, it could be deduced that knowledge management can enable sustainable competitive advantage through continual improvement of the firm's innovation capabilities. The proffer more lucidity on these, the next section is devoted to elucidate on the knowledge management processes and how it is utilized to generate tacit knowledge and explicit knowledge.

2.1 Knowledge Management Processes

Knowledge management is essentially made up of four major processes known as knowledge discovery, knowledge capture, knowledge application and knowledge sharing (Becerra-Fernandez *et al.,* 2004). Knowledge discovery is the process by which new explicit knowledge or tacit knowledge is developed from information and data or from the combination of prior knowledge through the processes of combination and socialization. Combination is the discovery of new explicit knowledge through the combination, reconfiguration, re-categorization and re-contextualization of more complex or multiple sets of existing explicit knowledge, data, and information to produce new explicit knowledge. Socialization is a process used to discover new tacit knowledge normally through the combination of individuals' tacit knowledge by joint activities instead of verbal or written instructions (Becerra-Fernandez et al., 2004).

Knowledge capture is the process of retrieving tacit or explicit knowledge that resides within people, artifacts, or organizational entities through the processes of externalization and internalization. Externalization is the process of transforming tacit knowledge to explicit knowledge in the form of words, visuals, concepts and so on. Internalization is the conversion of explicit knowledge into tacit knowledge (Becerra-Fernandez *et al.,* 2004).

Knowledge application refers to the utilization of knowledge in daily organization activities through the processes of direction and routine. Direction involves a person who possesses the tacit knowledge directing the actions of another person without transferring the knowledge underlying the direction to that person. Routine is the process of utilizing the knowledge embedded in manuals, procedures, norms and rules that guides the future behaviour of the person (Becerra-Fernandez et al., 2004).

Knowledge sharing is the process by which tacit knowledge or explicit knowledge is transferred to other individuals through the processes of socialization and exchange. Socialization is a process whereby individuals share their tacit knowledge through gathering, meeting, face-to-face communication and so on. The process could be formal or informal in the organization. Exchange is the process of sharing explicit knowledge (for example, the sharing of knowledge which already exists in manuals or hand-outs).

In sum, these four processes form the core of knowledge management activities. One could deduce that the greater the level of these knowledge management processes, the great the innovation capabilities of the firm.

3. Innovation

Various definitions of innovation describes it as the generation of creative ideas, acceptance and implementation of such creative new ideas within the organization into processes, products or services (Anderson et al., 2004;

Kikoski & Kikoski, 2004; Schulze et al., 2008). Innovation differs from creativity because innovation is the process of deliberately introducing and applying a new or improved ways of doing things (Anderson *et al.,* 2004). Innovation is mostly considered as a combination of two distinctive strategies, namely exploitation and exploration (Kikoski & Kikoski, 2004). Exploitation is utilizing existing opportunities while exploration involves the search for new ones (Schulze et al., 2008).

Since the late 1980s, the fundamental changes in global economy have mandated many firms to seek ways of developing and utilizing their intellectual capital base to attain competitive advantage and sustainable long-term survival. The main characteristic of today's knowledge-based economy is that firms rely heavily on knowledge assets and innovation to generate profitable values. According to Wong and Aspinwall (2006), knowledge management is an important process in which knowledge existing in an organisation is transformed into innovation and economic value.

3.1 Innovation Capabilities

Innovation capabilities is conceptualised as the capacity of firm's to generate new ideas to improve their products, services, processes to enable them enhance their organisational performance and attain competitive edge (Jantunen, 2005). With an innovative capability, a firm enhances their adeptness to gather and integrate knowledge to become rare, unique and difficult to imitate, thus enabling them to develop the capacity to sustain high level of competitive advantage. Many authors perceive innovation capability as the prospective ability of a firm to constantly generate improved ideas for the development new products, new technologies and process advancements that enables it to attain competitive advantages over its competitors.

4. Antecedent Variables

This section is devoted to conceptual issues on the study's antecedent variables which are: behavioural aspect (organizational citizenship behaviour and employee engagement) and attitudinal aspect (organizational commitment and job satisfaction).

4.1 Behavioural Antecedents

Organizational citizenship behaviour and employee engagement are the behavioural antecedents examined in this study.

4.1.1 Organizational Citizenship Behaviour

The construct of organisational citizenship behaviour is first coined and introduced almost three decade ago by Dennis Organ borrowing from Chester Barnard's concept of 'willingness to co-operate' and Daniel Katz's clarification between 'dependable role performance' versus 'innovative and spontaneous behaviours'. Organ described organisational citizenship behaviours as: "an individual's behaviour that is discretionary and not directly acknowledged by the official reward system of the organization but enhances the smooth operational running of the organization" (Organ, 1988, p. 4). By discretionary, the author emphasizes on the behavior that is not an enforced obligation of the employee's job roles and it is not clearly specified in the employee's employment contract. Thus, the behaviour is entirely based employee's choice, thus its inadvertence does not usually result to punishments.

In the management literature, the significance of organisational citizenship behaviour (OCB) has grown as a critical antecedent to organisational effectiveness (Ramasamy & Thamaraiselvan, 2011). A major positive outcome of organisational citizenship behaviour is reflected in employee's willingness to remain with the organization and employee's willingness to share knowledge (MacKensie et al., 1999). Previous studies on organizational citizenship behaviour and knowledge sharing provides great support for this study.

These prior studies have shown that different dimensions of OCBs have been proven to have positive relationship with knowledge sharing. For example, Wasko and Teigland (2004) studied knowledge sharing in online virtual community and established that knowledge sharing online is influenced by good citizenship behaviour. The authors further suggested that the antecedents of OCB could also influence knowledge sharing. No doubt, both knowledge sharing and organizational citizenship behaviour (OCB) are linked with the social exchange theory. This is perhaps while Wasko and Teigland (2004) claimed that not sharing knowledge could be ascribed to lack of OCBs.

Al-zu'bi (2011) examined of the influence of organisational citizenship on knowledge sharing among employees working in the pharmaceutical companies in Jordan and revealed that dimensions of OCB namely altruism, courtesy, sportsmanship, conscientiousness, and civic virtue have significant influences their on knowledge sharing behaviour. Most importantly, the results of the study demonstrated that the organisational citizenship

behaviour dimensions namely altruism, sportsmanship and conscientiousness have more positive influence on the knowledge sharing behaviour. Ramasamy and Thamaraiselvan (2011) examined the influence of organizational citizenship behaviours (OCBs) on knowledge sharing among 181 part-time undergraduate students in India using the structural equation modelling (SEM) to analysis the impact of five dimensions of organisational citizenship behaviour on knowledge sharing. Their findings showed that all the five dimensions of OCB (altruism, courtesy, sportsmanship, conscientiousness, and civic virtue) are positively and significantly influence knowledge sharing.

Aliei et al. (2011) employed the case study approach to study the relationship between organisational citizenship behaviours (OCBs) and knowledge sharing among 53 managers and subordinates of knowledge-based organizations in Iranian. The findings of their study revealed that all the five dimensions of OCBs namely (altruism, sportsmanship, conscientiousness, courtesy and civic virtue) have positive correlations with knowledge sharing. Islam et al. (2011) employed the structural equation modelling technique to investigate the mediating role of organizational citizenship behaviours (OCB) between organization learning culture and knowledge sharing using 402 employees in Malaysia as their respondents. The findings of the study confirm that organizational citizenship behaviours (OCB) mediate the relationship between organizational learning culture and knowledge sharing.

Teh and Sun, (2012) examined the influence of job involvement, job satisfaction, organizational commitment and organizational citizenship behaviours (OCB) on knowledge sharing behaviour of 116 information system employees in Malaysia. The findings of their study showed that job involvement, job satisfaction and organizational citizenship behaviour have positive influence on knowledge sharing. Conversely, organizational commitment has a negative association with knowledge sharing behaviour. Surprisingly, organisational citizenship behaviour did not mediate the relationship among job involvement, job satisfaction, organizational commitment and knowledge sharing behaviours of the employees.

4.1.2 Employee Engagement

According to some scholars (Robinson et al., 2005; Ellis & Sorensen, 2007; Melcrum Publishing, 2005), the concept of employee engagement is comparatively new to the field of HRM. Although the concept emerged in the literature for almost two decades, yet it was made popular in 2005 by a HR consulting firmed the Gallup organization. Since then, the construct has received increasing attention by academic researchers.

Engagements at workplace, was originally conceptualised and defined by (Kahn, 1990, p. 694) as follows: *"The harnessing of organizational members' selves to their work roles; in engagement, people employ and express themselves physically, cognitively and emotionally during role performances".* Harter et al., (2002) sees employee engagement as employee's involvement, commitment, satisfaction and enthusiasm to their organizations and its values. Employees that are engaged and committed in their job roles and organisational roles are great asset to their organization because they are crucial for the companies' competitive advantage, higher productivity and superior performance (Robert, 2006). Engaged employees are aware of the organizational objectives and organizational goals of their firm. Therefore works with other co-employees to enhance their performance for the benefit of the entire organisation.

The construct of employee engagement is built on other well-known concepts e.g. employee commitment, job satisfaction, flow, organisational citizenship behaviour and so on, but it goes further in-depth than these constructs (Bates, 2004; Harter et al., 2002; Saks, 2006). Saks (2006) as well as Roberts (2006) illustrated that employee engagement is more closely linked with the two extant constructs namely job involvement and flow. Robert (2006) also mentioned that engagement is synonymously linked with the well-known concept of job involvement (conceptualized by Brown in 1996) and the concept of flow (conceptualized by Csikszentmihalyi in 1990). According to Robinson et al. (2004), despite the numerous of description of the concept of employee engagement, its definitions and measures sounds very similar with other well-developed concepts such as organisational citizenship behaviour and employee commitment.

Remarkably, there is mixed perspectives on the concept of employee engagement. For instance, Kahn's perspective on engagement was on the employee's cognitive affection and employee behavioural aspect, while scholars like Gubman (2004) and Bates (2004) perspective was on the emotional attachment of the employees. These scholars perceive engagement as an apex emotional attachment to one's job, one's organisation and co–employees. Baumruk (2004) was on both sides, as he straddles the cognitive and emotional perspective and gave his definition of engagement as: *"a state of emotional and intellectual commitment of an individual"* (Baumruk, 2004, p. 49). Lastly, Shaffer (2004) perspective mainly focused on the behavioural outcome and perceives

engagement as an individual's readiness to spend discretionary efforts on their jobs as well as the employee's loyalty to stay with their organizations.

4.2 Attitudinal Antecedents

Job satisfaction and organization commitment are the attitudinal antecedents considered in this study

4.2.1 Job Satisfaction

Locke (1976) was the original scholar to define and conceptualize the construct job satisfaction. According to the author, job satisfaction is described as the positive or pleasurable emotional state ensuing from the assessment of one's job roles or job experience. It reflects employee's attitude and feeling about their jobs (Spector, 2003). Job satisfaction is considered as attitudinal variable and a workplace attitude that influence on employee's knowledge sharing behaviour.

De Vries et al. (2006) investigated the relationship among team communication style, job-related cognition and knowledge-sharing attitude and behaviours among 424 employees of diverse work-related teams in Netherlands. In their study, the authors differentiated between knowledge sharing attitude (willingness and eagerness) and knowledge sharing behaviour (knowledge collecting and donation). They found that job satisfaction has positive relationship to knowledge sharing attitude (willingness and eagerness to share knowledge). Chu *et al* (2005) studied the antecedents of organizational citizenship behaviours among Nurses in Taiwan and found that job satisfaction and job involvement significantly influences organizational citizenship behaviour of the nurses.

4.2.2 Organization Commitment

Wasko and Faraj (2005) revealed a contrary finding. They found that commitment has a negative relationship with knowledge sharing in a virtual community of practice. There could be major reasons for this surprise finding. They authors suggested that the negative results may be due to that fact that the participants do not interact regularly, do not have shared history and are not interdependent in executing their functions.

Cabrera et al. (2006) found value-based commitment to be a strong predictor of knowledge sharing. The authors expressed that value-based commitment is the similarity between the values of the employees and the values of their organizations. Thus, organizational commitment would most probably influence knowledge sharing based on employee's perception on their organization, the support given by their organization and accessibility to quality information within their organization. Lin (2007) revealed that organizational commitment has indirect influence on knowledge sharing through distributive and procedural justice; and employee cooperativeness.
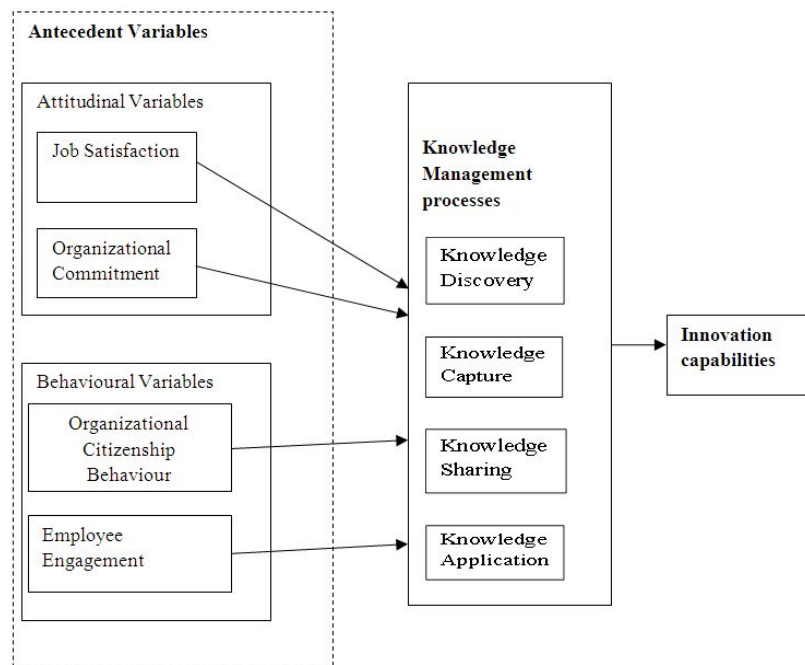
5. Research Framework

Figure 1: Proposed theoretical model for KM processes and firm innovation capabilities

6. Conclusion

In this paper, the authors proposed a theoretical model of KM processes and firm innovation capabilities and also considered the importance of organizational aspects particularly the human issues by putting into account the attitudinal and behavioural conditions of employees that engage in knowledge management processes and firm innovation process. This contribution is consistent with scholars' argument that the failure of knowledge management practices could be ascribed to the too much importance placed on technological aspects and insufficient attention given to the human aspects of knowledge management (Beesley, 2004; Call, 2005; Cooper, 2006). However, the theoretical model proposed in this paper needs further empirical investigation. Thus, the authors would like to suggest that further empirical studies are essential to validate the model. Future studies could consider only one or two KM processes; operationalize and measure innovation capabilities by Tsai et al. (2001) three constructs which combines products, process and management innovation. The reason for suggesting Tsai et al. (2001) constructs to measure innovative capability is because Tsai et al. (2001) constructs provides a comprehensive measure for all innovation types. Also, Liao et al. (2007)'s claim that there are very few existing empirical studies on innovation capabilities; most of which focus essentially their discussion on the technical aspect of innovation. The structural equation model (SEM) would be a useful statistical technique for the empirical validation of this proposed theoretical model.

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