

INVESTIGATING KNOWLEDGE MANAGEMENT SYSTEMS UTILIZATION ANTECEDENTS: A CONCEPTUAL FRAMEWORK FOR EMPIRICAL INVESTIGATION

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ABSTRACT

The recognition of knowledge as an indispensable asset to be managed has attracted significant interests to knowledge management (KM) and its associated systems. While KM has gained much attention from different research perspectives, studies on its tools otherwise known as knowledge management systems (KMS) appear scanty and at infant stage. An important area demanding attention is the need to explore the factors contributing to effective utilization of KMS, as the success of KMS implementations depends on utilization. This paper is an attempt to provide conceptual understanding of an effective KMS utilization through a proposed conceptual model. The framework built on previous research frameworks and models to propose the socio-technical antecedents that can be categorized into organizational, individual and technical factors; influencing KMS utilization in organizations. The introduction of user' commitment and motivation and how other factors influence these variables in the utilization of KMS is a novelty that is hoped to be of significant contribution in understanding KMS utilization. Based on the proposed framework, several propositions are formulated as the basis for the study that will follow.

KEYWORDS- ANTECEDENTS, KNOWLEDGE MANAGEMENT, KNOWLEDGE MANAGEMENT SYSTEMS, COMMITMENT, MOTIVATION, UTILIZATION

1.0 INTRODUCTION

The recognition of knowledge as an organizational resource that guarantees the sustainability of competitiveness is gaining momentum; consequently, the task of managing it has become a crucial aspect of organizational management. Conceptualizations on Knowledge Management (KM) could be observed to have followed a number of stages, the early conceptualization of KM according to Moffett et al., (2004), focused on guiding the adoption of KM in organization as well as empowering of knowledge workers. As research on KM progresses, the importance of technology in leveraging knowledge processes through the provision of access to knowledge resources and the facilitation of continuous learning has been highlighted (Abdullah et al., 2009). The four popular processes of KM in literature are creation, storage/retrieval, transfer and application of knowledge (Alavi and Leidner, 2001). As studies on KM evolves into different conceptualizations, so does research on Knowledge Management Systems (KMS), which are Systems or Technologies dedicated for the management of knowledge activities. Two widely acknowledge classifications of knowledge are that knowledge is either explicit or tacit (Nonaka, 1994). Guided by the use of information technology for data storage, the early applications of KMS are focused on the storage and transfer or exchange of explicit (codified) knowledge.

Knowledge is explicit when it is viewed as an object which can be codified, stored, expressed and communicated, whereas tacit knowledge represents the skill or crafts as well as technical expertise which reside in individual experiences and actions (Moffett et al., 2004). Organizations quest for competitiveness via innovation have been emphasized on proper leveraging of tacit knowledge, because it is difficult if not impossible to imitate. Researchers have also mentioned that, what guarantees organizations innovative capability for competitiveness lies beyond the sole application of tacit knowledge but an interaction between both tacit and explicit knowledge (Nonaka, 1994). Further, the increasing emphasis on the complementary role of both explicit and tacit knowledge exposes the limitation of early KMSs which are more designed for explicit knowledge management. In view of the above, technologies which facilitate synchronous collaboration where tacit knowledge can be shared and integrated have been mentioned as necessary inputs to be integrated to early KMS technologies. Therefore, this study conceptualizes KMS as integrative and interactive systems or technologies which facilitate the management of both explicit and tacit knowledge in organizations.

Based on the discussion above, KMSs which leverage both integrative and interactive knowledge activities is believed to be a means through which organization's learning and intellectual capability increases by facilitating the sharing, accessibility to and utilization or application of knowledge. However, the adoption of KMS is not always successful despite the huge financial resources necessary for its implementation (Malhotra and Dalletta, 2003). One major reason is that technology can only thrive when it is supplemented by other "soft" factors such as leadership and culture (Goh, 2002). Prior studies have shown that the influence of technology on organizations performance comes through its complementary relationship with other organizational capabilities. Therefore, this paper anticipates to conceptualizing the socio-technical factors serving as antecedents of KMS utilization.

2.0 BACKGROUND LITERATURE

The importance of technology in facilitating KM practices, particularly in large and widely distributed organizations (Goh, 2002), has gained tremendous attention in literature. Technology may provide the platform through which organization can flatten and decentralize its operations when utilized under the right condition. KMS is a class of IS developed to facilitate and enhance the process through which organizations create, store/retrieve, transfer and apply knowledge (Alavi and Leidner, 2001). Three modes as mentioned in literature through which KMS facilitate knowledge activities are: storage of lessons learned, access to expertise and enabling of knowledge network (Wu and Wang, 2006). Based on these, KMS facilitates active communication and intense collaboration which prior research works have found to be important for organizational agility, innovativeness and competitiveness.

The three modes through which KMS facilitates knowledge activity have been grouped under two approaches in literature: the codification and the personification approaches. While codification stands for the documentation of externalized knowledge, personification represents the internalization of knowledge either from the codified knowledge or by engagement with others displaying their tacit knowledge. Integrative or repository KMS focuses on the codification of organization's explicit knowledge to create organization memory (Al-Busaidi et al., 2010). This form of KMS use has been mentioned by Alavi and Leidner (2001), to be of great advantage to organizations by facilitating the creation of organization memory in the form of efficient storing and reapplying of lessons learned and solutions. The usages of KMS for personalization approach or the networked form of KMS utilization focus on linking individuals with the aim of exchanging knowledge. Previous studies have shown that technologies portend the capability to reveal hidden structural linkages and develop relational base among individuals (Huysman and Wulf, 2005). Therefore, KMS which involves a combination of both integrative and interactive technologies can facilitate the exchange and integration of tacit knowledge, distribution of explicit knowledge and giving richer meaning to codified knowledge by providing linkage between knowledge donor and receiver, who can help tell more on the context surrounding any codified knowledge.

However, the values of KMS both repository and networked depends not only on the quantity of knowledge leveraged through it but also on the quality. The utilization of KMS may be hindered by a number of factors. These factors range from the attributes of the organization that implements KMS to the users of the KMS and technical functionality of the technologies comprising the KMS. These socio-technical factors which are well researched in traditional information systems (IS) studies are also factors of concern in several KMS studies.

3.0 THE PROPOSED FRAMEWORK

This framework as shown in Figure 1 below attempts to investigate the socio-technical conditions that nurture the effective utilization of KMS. Based on previous research finding, these socio-technical factor comprising of organizational, individual and technological attributes are believed to be important in organizations use of technologies particularly for managing knowledge (Gold et al., 2001; Goh, 2002; Alwis et al., 2004; Lin, 2007; Lin and Huang, 2008).

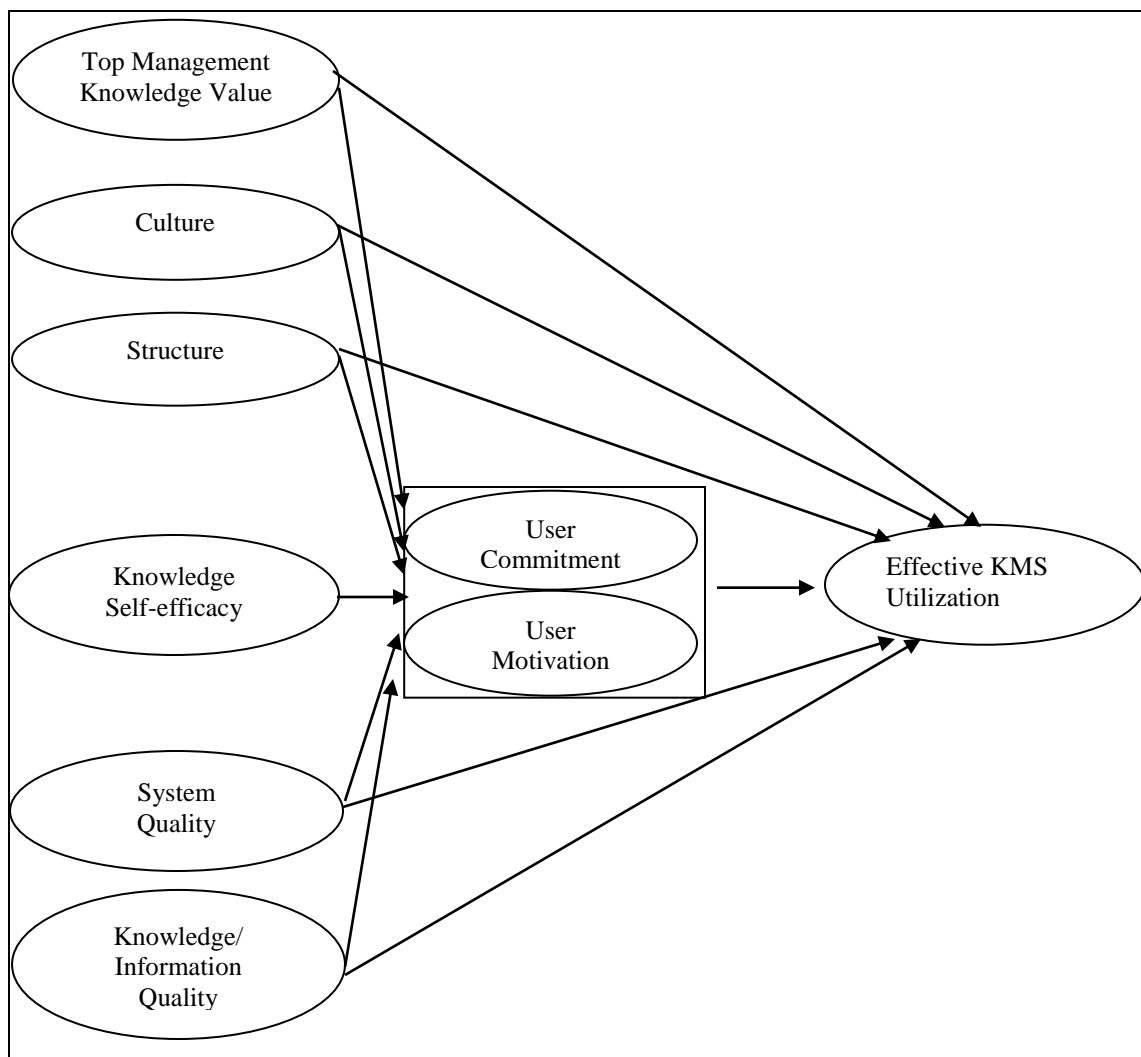


Figure 1. Research Framework

Therefore, the framework will empirically examine the effects of top management knowledge values, organizational culture and structure as organizational attributes; KMS self-efficacy by users, user's commitment as well as motivation as individual attributes and lastly, system quality and knowledge/information quality leveraged through the system as technological attributes. Apart from exploring the direct influence of these antecedents on the effective use of knowledge management technologies, the framework also hopes to explore how user commitment and motivation moderate the link between other antecedents and the utilization of KMS.

3.1 TOP MANAGEMENT KNOWLEDGE VALUES

The behavioral disposition of organization members and how business activities are being carried out depends largely on the value held by the top management (Hsu, 2008). Top management knowledge value can promote (Davenport and Prusak, 1998) or dampen knowledge management practices as well as the utilization of tools that facilitate these practices. In related IS studies, Top management support have been largely used. The concept and scope of top management support in IS studies is similar to top management knowledge value in KM and the implementation of tools that support its processes. Top management support has been shown in a number of studies to be of high importance in the implementation and utilization of organizations information system (IS) (Weill, 1992). Hsu (2008) found among Taiwanese organizations that values held by top managers is a driver of knowledge culture and the implementation of knowledge sharing practices. Hence, it is believed and conceptualized in this study that Top Management Knowledge Values will have direct influence on KMS utilization and indirect influence through user commitment and motivation to KMS utilization. Thus it is hypothesized that:

H1a: Top management knowledge value will be positively related to user's commitment and motivation towards KMS utilization.

H1b: Top management knowledge value will be positively related to effective utilization of KMS.

3.2 CULTURE

The cultural disposition in organization in terms of level of collaboration, trust and learning (Alwis et al., 2004) has been identified as either a facilitator or hindrance to knowledge management as well as knowledge management systems acceptability. While organizations are increasingly engaging information technology to leverage their knowledge practices (Schultze and Leidner, 2002), the cultural dispositions of such organizations are among the social factors that shape how technologies are used (Ciganek et al., 2008). Despite the importance and the level of consideration given to organization culture in management studies, studies exploring the relationship between organization culture and KMS are very scanty in either IS or KM literature (Ciganek et al., 2008). In a study of intranet utilization for knowledge sharing, Lichtenstein and Hunter (2004) asserts that the availability of knowledge sharing culture is essential for all modes of knowledge sharing practices including technology-supported ones. Organization culture was also found to be a facilitator of individual's motivation to sharing knowledge using KMS (Al-Busaidi, 2010). Thus it is hypothesized that:

H2a: Organizational cultural values will be significantly related to user's commitment and motivation towards KMS utilization

H2b: Organizational cultural value will be significantly related to effective utilization of KMS.

3.3 STRUCTURE

While delineated structure may be intended to give a clear description of individual or units responsibilities within an organization, its unintended outcomes may be an hindrance to collaboration and sharing of know how among individuals or units (Gold et al., 2001). Organization structure which has been categorized along the formalization, centralization and integration dimensions (Chen and Huang, 2007) plays important roles in eliciting the needs for communication and collaboration among employees. Organizations with less formalization and centralization and strong integration among units or departments tends to be more innovative by fostering individuals and groups freedom in terms of determining how tasks should be executed. It is believed that any structural form that inhibits collaboration and transfer of knowledge will undoubtedly impact negatively on KMS utilization and the morale of knowledge workers in organization, therefore, an organization with less formalization and centralization and strong integration will contribute greatly to KMS utilization and can also boost the commitment and motivation of users with respect to KMS utilization. Thus it is hypothesized that:

H3a: Organizational structural values will be positively related to user's commitment and motivation towards KMS utilization

H3b: Organizational structural values will be positively related effective KMS utilization.

3.4 USER COMMITMENT

Commitment is defined as the “totality of internalized normative pressure to act in a way that meets organization goals and interests” (Wiener, 1982; cited by McKenzie et al., 2001). This shows that commitment depends on the level of individual's willingness to internalize the expectations of other. Earlier work by Kelman (1958), distinguished between three different levels by which individuals may be influenced by or internalize the expectations of others. These levels are compliance, identification and internalization. Based on the work of Kelman, Malhotra and Dalletta (2003), define KMS User Commitment as “the degree of commitment of the knowledge workers towards the KM program and related systems and processes based on the effect of social influences on his or her behavior”. Further, they argued that both commitment by compliance and identification may be spurious because they are engendered by incentives, rewards or the need to seek recognition; it is only commitment by internalization which is “self-referential” and “self-generated” that can truly make individual to add values to organizational processes. Therefore, this study adopted user commitment as an individual factor influencing KMS utilization. Thus it is hypothesized that:

H4: The level of user's internalized commitment to KMS will be significantly related to effective KMS utilization.

3.5 KMS USER MOTIVATION

Motivation is said to be engendered by the desire of humans to satisfy inner psychological needs (Ryan and Deci, 2000). According to Malhotra and Dalletta (2003), user motivation is an unexplored construct which is vital for the success of KMS implementation in organizations. As mentioned in Self-Determination Theory (SDT) (Deci and Ryan, 1975; cited by Ryan and Deci, 2000), three needs that drive psychological eagerness in human are the need for autonomy, competence and relatedness. Based on these factors, SDT through Organismic Integration Theory (OIT) identified the continuum of motivation and articulated the process through which motivation is developed and sustained. According to (OIT) (Deci and Ryan, 1975; cited by Ryan and Deci, 2000), motivation could be described by level as amotivation, external, introjected, identified and integrated and intrinsic motivations. While amotivation is a total lack of motivation, Self-determination theory describes motivation as the intention to act and such intention can be engendered by external inducement or internally (self) initiated (Meyer et al., 2004). It has been noted that externally motivated behaviour can yield positive outcomes such as motivation, but such behaviour can easily be

overtaken by negative consequences such as “lower task satisfaction, less efforts, and less persistence (Meyer et al., 2004), except when the externally motivated actions are consciously valued and the outcomes are deemed important (identified) or when actions are accepted to be in congruent with one’s personal values (Integrated). Therefore, for users to be motivated in using KMS to exchange knowledge in terms of quantity, quality and persistence, intrinsic or somewhat intrinsic motivation is expected. Thus, the following hypothesis is formulated

H5: The degree of internal motivation among KMS users will be positively related with effective KMS utilization

3.6 KNOWLEDGE SELF-EFFICACY

Self –efficacy has become one of the common construct that has been found to be of significant impact on system or technology utilization. This construct represents an individual’s belief of personal capability to perform a task (Lin, 2007). Self-efficacy has also been mentioned as one of individual attributes that may motivate employees to share knowledge with others (Wasko and Faraj, 2005; cited by Lin, 2007). In a study that investigated knowledge sharing and firm innovative capability, Lin (2007) found knowledge self efficacy as one of the individual factors that is strongly associated with employee volition to share knowledge. In another study focusing on understanding KMS usage antecedents by Lin and Huang, (2008), KMS self efficacy was found influencing significantly KMS usage as well as performance-related outcome and personal outcome expectations of KMS. The influence of knowledge self efficacy as found by Lin and Huang helps informed the conception about influence of self efficacy on user commitment and motivation; as the sense of self capability on the knowledge to be traded using KMS precludes its utilization for knowledge activities. Motivation is said to be triggered by the need to satisfy inner psychological needs (Ryan and Deci, 2000) of which personal outcome expectation is a part. Similarly, performance-related outcome may be related to commitment, as the later describes the level of internalized pressure to act in line with organization actions and goals (McKenzie et al., 2001) of which performance is a core aspect. According to Wasko and Faraj (2005), self-efficacy can promote employee’s motivation to share knowledge with colleagues. Self-efficacy is also postulated to have positive influence on the willingness to contribute to knowledge exchange (Lin, 2007). Thus, the following hypotheses are proposed:

H6a: Knowledge self-efficacy will be positively related to user’s commitment and motivation towards KMS utilization.

H6b: Knowledge self-efficacy will positively influence effective KMS utilization

3.7 SYSTEM QUALITY

System quality implies the ease, speed of completeness and effectiveness in the performance of knowledge function using the KMS (Delone and Mclean, 1992). KMS will aid knowledge sharing when it enables faster and easy codification of knowledge (Alavi and Leidner, 2001), provides reliable assess to experts and also allows for collaboration. It can facilitate the visualization and development of relational base of organizations social capital (Huysman and Wulf, 2005) when it is sophisticated enough to diminish barriers among employees. It is hoped that with ease and speed, intended user will be more willing to use the KMS thereby increasing their commitment and motivation towards the systems. Al-Busaidi (2010) explores the effect of system quality on repository KMS usage and found that system quality significantly influences KMS use for codified knowledge. With the believe that both tacit and codified knowledge are complementary, and must be managed together for the attainment of desired proceeds of KM efforts, the need to explore both networked and repository KMS becomes evident. Thus, thefollowing hypotheses are proposed:

H7a: The quality of KMS will be directly related to the commitment and motivation of users towards the KMS

H7b: The quality of KMS will be directly related to their effective utilization

3.8 KNOWLEDGE/INFORMATION QUALITY

In the traditional IS success measure, Delone and Mclean (1992) used information quality as one of the technological factors necessary for system success. Information quality focuses on information accuracy, timeliness, completeness, relevance, and consistency. In the case of KMS, the distinction between knowledge and information is subject to the context and the user (Wu and Wang, 2006). What constitutes knowledge to someone can be another's information. For example, codified knowledge stored in repository has been mentioned to have lacked context which may reduce its value to the level of information when viewed by another knowledge seeker. However, the contributors of the codified knowledge or those familiar with its context may find it to be a useful knowledge in taking decisions. As KMS involves both integrative and interactive systems, Wu and Wang mentioned that "knowledge or information quality is a multi-dimensional construct having two components", these are; the content quality as in the well known IS environment, and context as well as linkage quality which highlights the degree of KMS usability for leveraging tacit knowledge. Further, knowledge or information quality of KMS was empirically found as having higher total effect on perceived KMS benefits, user satisfaction, and system use (Wu and Wang, 2006). Thus indicating that; knowledge /information quality of KMS can help motivate and boost commitment of users. Hence, the following hypotheses are proposed:

H8a: Knowledge/information quality of KMS is positively related to the commitment and motivation of users towards the KMS

H8b: Knowledge/information quality of KMS is positively related to their effective utilization

4.0 CONCLUSION

The proposed framework presented in this paper give the opportunity for further research investigation on the effectiveness of KMS utilization in organizations through variety of research designs and settings. Studies exploring the interaction of organizational, individual and technical antecedent on technology utilization for managing knowledge are rare; this paper extends the scope of socio-technical antecedent's influence on KMS utilization by incorporating the concepts of user commitment and motivation. By proposing how some socio-technical factors can influence commitment and motivation, this paper present a unique model aimed at furthering academic research particularly in KMS utilization and largely in the use of technologies for business functions in organizations. It is hoped that survey research design engaging users as respondents would provide a good avenue for validating the proposed framework.

The proposed model should be of interest to both the academic community and KMS practitioners. For the practitioners, it hoped that the model will enhance their understanding of the factors contributing towards effective utilization of KMS. As for the academic community, the proposed framework provides research opportunities to validate or refute the research propositions. Findings of such research could be incorporated into KM curriculum and could help in guiding KM tools implementations.

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