An Instrument to Assess Organizational Readiness to Implement Knowledge Management Process

Mohamed Jalaldeen Mohamed Razi, Nor Shahriza Abdul Karim

Department of Information Systems
Kulliyyah of Information & Communication Technology,
International Islamic University Malaysia (IIUM),
53100 Jalan Gombak,
Kuala Lumpur, MALAYSIA
razi72mj@gmail.com, shahriza@iiu.edu.my

ABSTRACT

The Concept of knowledge management (KM) is highly being studied nowadays as it plays a major role in the competitive business world. Though different aspects of KM are being exposed in the literature, very limited information is available on organizational readiness for KM process implementation. Hence, the present authors propose a research model by integrating knowledge creation theory, KM enablers, and individual acceptance models. In addition, an instrument that can be used to measure the organizational readiness for KM process implementation also presented. The reliability of the proposed instrument is proved after testing it among academic staffs of a Malaysian university.

Keywords
Knowledge Management, KM Process, Organizational Readiness, KM Enablers,

1.0 INTRODUCTION

Many organizations attempt to implement knowledge management (KM) processes in an effort to manage their knowledge properly as management of knowledge has become an important trend in the present businesses (Nonaka & Takeuchi, 1995). As a result, the implementation of KM is widespread among business organizations all over the world. Two different kinds of KM approaches are emphasized for KM process implementation in the literature, i.e. personalization approach for tacit knowledge and codification approach for explicit knowledge (Choi & Lee, 2002). Nevertheless, a combined approach of both personalization and codification approach is considered appropriate as both kinds of knowledge are highly recognized for the success of any organization (Nonaka & Takeuchi, 1995).

Meanwhile, an evaluation of organizational readiness for KM process implementation is suggested before embarking to actual implementation (Holt et al., 2007; Siemieniuch & Sinclair, 2004) as KM process implementation demands some changes in the conduct of organizational activities, and attitudinal changes of organizational members (Siemieniuch & Sinclair, 2004). However, very limited information is available in this regard, as a result, many organizations making less or do not invest at all in KM (Wei et al., 2009) as the lack of understanding, including narrow focus on KM, may lead to failure or give less excepted outcome of KM (Holt et al., 2007).

Therefore, any work with empirical components on this particular area of KM would be considered as a good contribution to the literature. In this background, the present authors propose a research model with a survey instrument that can be used to measure the organizational readiness for KM process implementation.

2.0 BACKGROUND

The receptive attitudes of organizational members to be involved in KM process through the availability of resources (KM enablers) can be considered as organizational readiness for KM process implementation. In other words, the readiness for KM process implementation can be defined as 'the intention to be involved in the KM process by the organizational individuals within the prevailing organizational context'. KM enablers, such as KM supportive (i) organizational culture, (ii) organizational structure, and (iii) IT infrastructure, and the factors of individual acceptance, symbolized by (i) performance expectancy of KM and (ii) effort expectancy of KM, are expected to be the influencing factors of KM readiness.

Intensive review of KM literature shows some research gaps in this area of KM which have been presented in the following subsections under the sub headings of (1) organizational readiness for KM process implementation, (ii) KM enablers, (iii) individual acceptance, and (iv) knowledge creation theory.

2.1 Organizational Readiness for KM Process Implementation

Limited number of empirical works on organizational readiness for KM is available in the literatures which exhibit the limitedness of the literature in this area of KM. Holt et al. (2007) have done a survey study highly depending on change management literature rather than KM literature. Meanwhile, Wei et al. (2009) aimed to assess the organizational readiness for KM through the level of perceived importance (PI) and actual implementation (AI) of some KM success factors, KM strategies, and KM process, but the study actually evaluates the influence of those factors on organizational performance. In addition to these empirical works, there are few conceptual write-ups such as, Siemieniuch and Sinclair (2004). Therefore, a necessity arises for further studies on this area of KM.

2.2 KM Enablers

KM literature reveals some organizational factors which are considered as pre-conditions for a successful KM process implementation. Different kinds of terms have been used to symbolize these factors. For example; knowledge infrastructure capabilities (Gold et al., 2001), KM enablers (Lee & Choi, 2003), KM infrastructure (Beccerra-Fernandez et al., 2004), organizational knowledge capabilities (Yang & Chen, 2007), and KM capabilities (Lee & Lee, 2007). In general, all these studies exhibit the socio-technical nature of KM and mainly focused on KM supportive (i) organizational culture, (ii) organizational structure, and (iii) IT infrastructure for KM process implementation. However, these factors have not been considered comprehensively in the previous studies of organizational readiness for KM. Therefore, a need comes up to formulate a research framework involving these KM enablers to assess the KM readiness of an organization.

2.3 Factors of Individual Acceptance

There are many theories in the information systems (IS) literature which stress the importance of individual acceptance for any organizational change. For example, theory of reasoned action (TRA) (Fishbein & Ajzen, 1975), diffusion of innovation (DOI) (Roggers, 1995), theory of planned behavior (TPB) (Ajzen, 1991), technology acceptance model (TAM) (Davis et al. 1989), unified theory of acceptance and use of technology (UTAUT) (Venkatesh et al, 2003) and so on. Therefore, an all-inclusive research framework to measure organizational readiness for KM should be proposed considering the factors of individual acceptance as well.

2.4 Knowledge Creation Theory

Knowledge creation theory introduced by Nonaka and Takeuchi (1995), which consists of the processes of socialization, externalization, combination, and internalization (SECI process), is sighted as the basic process for knowledge creation and sharing in the KM literature (Beccerra-Fernandez et al., 2004). In addition, the importance of SECI process is acknowledged in the literature (Nonaka, et al., 1994; Nonaka & Takeuchi, 1995). There are number of empirical studies on KM process (Nonaka et al, 1994; Lee & Choi, 2003) based on SECI process in the past. However, the previous researchers on organizational readiness for KM have not considered the SECI process in their studies. Hence, a need arises to accommodate the SECI process in the research framework.

Considering the above mentioned gaps in the KM literature a comprehensive research model for organizational readiness for KM process implementation is proposed in the following section.

3.0 BASIC RESEARCH MODEL

The initiation for KM process implementation should come from the organizational members (Siemieniuch & Sinclair, 2004; Choi et al., 2008), thus their willingness (intention) to be involved in KM process should be investigated. The intention to be involved in KM process can be assessed based on KM sub process (SECI process) as those are the route process of knowledge creation and sharing (Beccerra-Fernanadez et al., 2004). The SECI process is considered as the way to implement KM process in an organization (Lee & Choi, 2003).

Meantime, the availability of KM enablers shows that the organization is ready for KM process implementation to some extent (Holt et al., 2004). Literature on KM enablers (Lee & Choi, 2003; Gold et al., 2001; Lee & Lee, 2007; Beccerra-Fernandez et al., 2004; Yang & Chen, 2007) demonstrate that KM enablers provide a conducive environment for organizational members to implement KM process.

Therefore, it can be expected that those KM enablers may influence the intention of organizational members to be involved in KM process. Similarly, literature on individual acceptance (Davis, 1989; Davis & Venkatesh, 2000; Venkatesh et al., 2003) substantiates that performance expectancy and effort expectancy influence the behavioral intention of individuals. In this perspective, it can be assume that the factors of individual acceptance also may influence on the intention of organizational members to be involved in KM process.

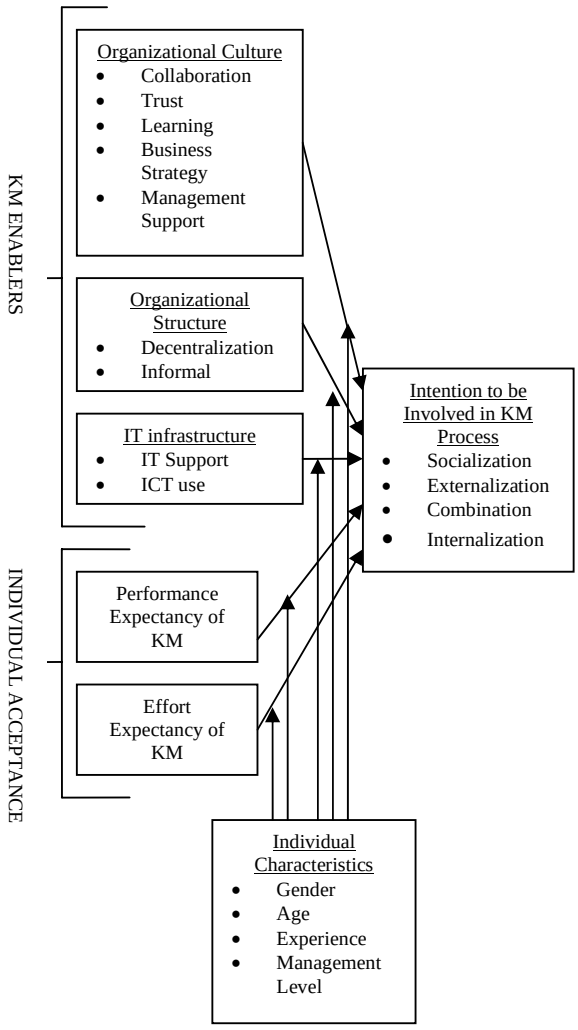

Figure 1: Basic Research Model

Meantime there are number of moderating factors such as gender, age, experience, and management level (Venkatesh et al, 2003; King & He, 2006; Schepers & Wetzels, 2007; Sun & Zhang 2006) which can influence on the relationship between behavioral intention and its antecedence. Based on the above discussion, a basic research model has been proposed in figure 1.

The model is developed based on the theories of TRA (Fishbein & Ajzen, 1975) and TPB (Ajzen, 1991) which explain that an intention leads to behavior. The model was conceptualized based on the studies of Lee and Choi (2003), Choi et al. (2008), Lee and Lee (2007), Wei et al. (2009), Lin (2007), Venkatesh et al. (2003), and Choi and Lee (2002). Most of these frameworks were developed based on the theory of knowledge creation (Nonaka et al., 1994), and the KM enablers (Lee & Choi, 2003).

Based on the works of Gold et al. (2001) and Lee and Choi (2003), three factors of KM enablers were found worth exploring namely, organizational culture (Lee & Choi, 2003; Choi et al., 2008; Lee & Lee, 2007; Wei et al., 2009; Lin, 2007a), organizational structure (Lee & Choi, 2003; Lee & Lee, 2007; Lin, 2007a), and IT infrastructure (Lee & Choi, 2003; Lin, 2007a). In addition, based on the theories of TRA (fishbein & Ajzen, 1975), TPB (Ajzen, 1991), TAM (Davis, 1989), and UTAUT (Venkatesh et al., 2003) the factors of individual acceptance, namely performance expectancy of KM (Venkatesh et al., 2003) and effort expectancy of KM (Venkatesh et al., 2003) were established. Furthermore, the factors of intention to be involved, namely the SECI process (Choi & Lee 2002; Lee & Choi, 2003) were recognized based on knowledge creation theory (Nonaka et al., 1994). Similarly, the moderating factors of gender, age, experience, and management level were derived from the works of Venkatesh et al. (2003), King and He (2006), Schepers and Wetzels (2007), and Sun and Zhang (2006).

Table 1 shows the operational definition, the source of measurement, and questionnaire items for each variable in the model.

Table 1: Operational definition, the source of measurement and questionnaire items for each variable

Variables	Operational Definition	Source of Measurement	Items	
Collaboration	Degree of active support and helps among colleagues with in the organization.	Lee and Choi (2003)	1.	Colleagues in my organization are supportive.
			2.	I am satisfied by the degree of collaboration among colleagues in my organization
			3.	I wish to collaborate across organizational units within my organization
			4.	I wish to accept responsibility for failure
Trust	Degree of reciprocal faith among the colleagues in terms of intention and behavior within the organization.	Choi et al. (2008)	1.	I believe colleagues in my organization are honest and reliable.
			2.	I believe colleagues in my organization treat others reciprocally
			3.	I believe colleagues in my organization are knowledgeable and competent in their area.
			4.	I believe colleagues in my organization will act towards the best interest of the organizational goals.
Learning	Degree of opportunity,	Lee and Choi (2003), Lee	1.	My organization provides various formal training
			2.	My organization provides opportunities for informal individual

	variety, satisfaction, and encouragement for learning and development within the organization.	and Lee (2007)	development other than formal training. 3. My organization encourages people to attend seminars, symposia, and so on. 4. My organization provides various programs such as clubs and community gatherings. 5. I am satisfied with the contents of job training or self-development programs.
Business Strategy	Degree of link between organizational strategy and KM strategy	Wei et al. (2009)	1. I understand the importance of knowledge. 2. My organization formulates strategic plans for knowledge creation and sharing. 3. My organization has specific objectives for knowledge creation and sharing. 4. My organization's mission statement reflects the importance of knowledge creation and sharing
Top Management Support	Degree of support from top managers for KM through providing guidance and necessary resources	Lin (2007)	1. My senior managers always support the knowledge creation and sharing initiatives. 2. My senior managers provide necessary help and resources for knowledge creation and sharing initiatives. 3. My senior managers are keen to see my involvement in knowledge creation and sharing initiatives.
Decentralization	Degree of the distribution of authority and control over decisions.	Lee and Choi (2003), Lee and Lee (2007)	1. I can make decisions without approval. 2. I am encouraged to make my own decisions. 3. I do not need to refer to some one else. 4. I can take action without a supervisor.
Informal	Degree of flexibility in formal rules, procedures, and standard policies.	Lee and Choi (2003)	1. There are many activities in my organization that are not covered by formal procedures. 2. I can ignore the rules and handle some situation informally in my organization. 3. Rules and procedures are not that emphasized in my organization. 4. I can make my own rules on my job.
Reward	Degree of relevancy between the rewarding system and the involvement in KM process.	Lin (2007)	1. My organization provides higher salary in return for my contribution to knowledge creation and sharing. 2. My organization provides higher bonus in return for my contribution to knowledge creation and sharing. 3. My organization provides promotions in return for my contribution to knowledge creation and sharing. 4. My organization provides increased job security in return for my contribution to knowledge creation and sharing.
IT Support	Degree of availability of IT support for KM process initiatives within the organization.	Lee and Choi (2003), Lee and Lee (2007)	1. My organization provides IT support for collaborative works regardless of time and place. 2. My organization provides IT support for communication among colleagues in my organization. 3. My organization provides IT support for simulation and prediction. 4. My organization provides IT support for systematic storing of valuable records. 5. My organization provides IT support for searching necessary information and sharing it with others
ICT use	Degree of extensive use of information and communication technology by the individuals in the organization for KM initiatives.	Lin (2007)	1. I use electronic storage (such as online data base and data warehousing) extensively to access knowledge. 2. I use knowledge networks (such as groupware, intranet, virtual communities, etc.) to communicate with colleagues. 3. I use the technology to share knowledge with colleagues in my organization. 4. I use the technology to share knowledge with other persons out side the organization.
Performance Expectancy of KM	Degree to which an individual believes that involving in KM processes will help him/her to attain gains in job performance.	Venkatesh et al. (2003)	1. I would find creation and sharing of knowledge useful in my job. 2. Creation and sharing of knowledge would enable me to accomplish task more quickly. 3. If I involve with knowledge creation and sharing initiatives, it will increase my chances of getting a better pay. 4. Creation and sharing of knowledge would enhance my productivity.
Effort Expectancy of KM	Degree of ease associated with the involvement in KM process.	Venkatesh et al. (2003)	1. My role in knowledge creation and sharing process would be clear and understandable. 2. It would be easy for me to become skillful in knowledge creation and sharing initiatives. 3. Learning the initiatives of creation and sharing of knowledge would be easy for me. 4. I would find the involvement in the process of knowledge creation and sharing be easy.
Socialization	Degree to which the individuals in the organization intend to be	Choi and Lee (2002), Lee and Choi (2003)	1. I intend to be involved in gathering information and experiences from others within my organization. 2. I intend to be involved in sharing information and experiences with others within my organization.

	involved in socialization process		3.	I intend to be engaged in dialogue with competitors.
			4.	I intend to be involved in finding new strategies and opportunities inside the organization.
			5.	I intend to be involved in creating a work environment that allows colleagues to understand the craftsmanship and expertise.
Externalization	Degree to which the individuals in the organization intend to be involved in externalization process	Choi and Lee (2002), Lee and Choi (2003)	1.	I intend to be involved in creative dialogues with colleagues.
			2.	I intend to use deductive (top down) and inductive (bottom up) thinking for strategy formulation.
			3.	I intend to use metaphors (images/description) in dialogue for concept creation.
			4.	I intend to exchange various ideas with colleagues.
			5.	I intend to provide subjective opinions in dialogues.
Combination	Degree to which the individuals in the organization intend to be involved in combination process	Choi and Lee (2002), Lee and Choi (2003)	1.	I intend to use published literature, computer simulation and forecasting to formulate strategies.
			2.	I intend to create documents on product and services
			3.	I intend to create databases on product and services
			4.	I intend to build up materials by gathering literature and technical information.
Internalization	Degree to which the individuals in the organization intend to be involved in internalization process	Choi and Lee (2002), Lee and Choi (2003)	1.	I intend to be involved in liaisoning activities with other departments by developing cross functional teams.
			2.	I intend to be involved in setting teams as a model for conducting experiments, and sharing results with entire departments.
			3.	I intend to be involved in searching and sharing new values and thoughts with colleagues.
			4.	I intend to share and try to understand management vision through communications with colleagues.

4.0 RELIABILITY OF THE MEASURES

A study was conducted among 46 academic staff of a Malaysian university to measure the reliability of the questionnaire items. For this purpose a questionnaire was prepared using seven levels of Likert scale ranking from strongly disagree to strongly agree. As shown in table 2, the Cronbach's alpha value is more than 0.800 for each variable which demonstrate the high reliability of the instruments.

5.0 CONCLUSION

The proposed research framework might be a good contribution to the KM literature as very limited information is available on this area of KM in the literature. This might be one of the prime attempts in this nature. In addition, the proposed research instrument can be used by practitioners, who plan to introduce KM in their organizations, to assess the organizational readiness for KM before embarking to actual implementation. Based on the findings, they can formulate implementation strategies. However, the instruments should be empirically validated in other organizational context as well. Further, the proposed basic research model should be tested at different organizational context.

Table 2: Reliability of instruments

Measures	**Cronbach's Alpha**
Rewards	0.965
Effort Expectancy	0.947
IT Support	0.930
Performance Expectancy	0.913
Decentralization	0.912
Management Support	0.902
Externalization	0.888
Informal	0.887
Business Strategy	0.885
Learning	0.881
Collaboration	0.878
Trust	0.875
ICT Use	0.868
Socialization	0.829
Internalization	0.820
Combination	0.800

REFERENCES

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Process, 50,* 179-211.

Becerra-Fernandez, I., Gonzalez, A., & Sabherwal, R. (2004). *Knowledge management: Challenge, solutions, and technologies.* Upper Saddle River, New Jersey: Prentice Hall.

Choi, B., & Lee, H. (2002). Knowledge management strategy and its link to knowledge creation process. *Expert Systems with Application, 23,* 173-187.

Choi, S.Y., Kang Y.S., & Lee, H. (2008). The effects of socio-technical enablers on knowledge sharing: an exploratory examination. *Journal of Information Science, 34* (5), 741-754.

Davis, F.D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly, 13*(3), 319-340.

Fishbein, N., & Ajzen, I. (1975). *Belief, attitude, intention and behavior: an introducition to*

theory and research. Reading, MA: Addison-Wesley.

Gold, A.H., Malhothra, A., & Segars, A. H. (2001). Knowledge management: an organizational capabilities perspective. *Journal of Management Information Systems*, *18*(1), 185-214.

Holt, D.T., Bartczak, S.E., Clark, S.W., & Trent, M.R. (2004). The development of an instrument to measure readiness for knowledge management. *Proceedings of the 37th Hawaii International Confrence on System Science.*

Holt, D.T., Bartczak, S.E., Clark, S.W., & Trent, M.R. (2007). The development of an instrument to measure readiness for knowledge management. *Knowledge Management Research & Practice, 5,* 75-92.

King, R.W., & He, J. (2006). A meta-analysis of technology acceptance model. *Information & Management, 43,* 740-755.

Lee, H., & Choi, B. (2003). Knowledge management enablers, processes, and organizational performances: an integrative view and empirical examination. *Journal of Management Information Systems, 20*(1), 179 – 228.

Lee, Y.C., & Lee, S.K. (2007). Capabilities, processes, and performance of knowledge management: a structural approach. *Human Factors and Ergonomic in Manufacturing, 17*(1), 21-41.

Lin, H.F. (2007). Knowledge sharing and firm innovation capability: an empirical study. *International Journal of Manpower, 28*(3/4), 315-332.

Nonaka, I., & Takeuchi, H. (1995). *The knowledge creating company*. Oxford University Press.

Nonaka, I., Byosiere, P., Borucki, C.C., & Konno, N. (1994). Organizational knowledge creation theory: a first comprehensive test. *International Business Review, 3*(4), 337-351.

Roger, E.M. (1995). *Diffusion of innovation, Fourth edition*, New York: The Free Press.

Schepers, J., & Wetzels, M. (2007). A meta-analysis of technology acceptance model: investigating subjective norm and moderation effects. *Information & Management, 44,* 90-103.

Siemieniuch, C.E., & Sinclair, M.A. (2004). A framework for organizational readiness for knowledge management. *International Journal of Operations & Production Management, 24,* (1), 79-98.

Sun, H., & Zhang, P. (2006). The role of moderating factors in user technology. acceptance. *Int. J. Human-Computer Studies, 64,* 53–78.

Venkatesh, W., Mprris, M.G., Davis, G.B., & Davis, F.D. (2003). User acceptance of information technology: toward a unified view. *MIS quarterly, 27*(3), 319-340.

Wei, C.C., Choy, C.S., and Yew, W.K. (2009). Is the Malaysian telecommunication industry ready for knowledge management implementation. *Journal of Knowledge Management, 13,* (1), 69-87.

Yang, C., & Chen, L.C. (2007). Can organizational knowledge capabilities affect knowledge sharing behavior? *Journal of Information Science, 33*(1), 95-109.