Knowledge Management Tools’ Influence on Organizational Performance in Bangladesh

Letticia Adeyemi*

Department of Business Studies State, University of Bangladesh
Dhaka 1207, Bangladesh
*Corresponding author: lettiade@bu.edu.bd

Abstract: By analyzing the result of implementing the KM tools, this paper mainly tries to clarify their impact on organizational performance. In order to collect a series of data and figures, a group of the top and mid-level managers of the organizations were gathered to fill in the self-administered questionnaire survey. For the purpose of achieving research objectives, descriptive figures were adopted with multiple regression. All the achieved statistics show that 3 tools are mainly used in these organizations, which are the internet, intranet and training and support (E-learning). However, the tools with least implementation are groupware, extranet, and knowledge map. Regression analysis outcomes indicate that each of the KM tools has a prominent
positive impact on improving internal business processes. Nevertheless, these tools have no obvious influence on upgrading customer related performance. 

Keywords: Knowledge management, business process, regression

I. Introduction

Knowledge Management (KM) technologies play a vital role in enabling knowledge Management in today's globalized company, which operates in a complex network of partnerships and alliances (Liu and Abdalla, 2013). KM tools are essential to consider since these are an unsolidified combination of outlined practices, morals, related information, and adept acumen which make available a guideline for assessing and embedding novel practices and information (Tyndale, 2002). KM tools are evolving to continue to reach a level which requires effective management (Moura Madeira et al., 2013). KM tools are not stand alone technologies as these tools can be comprehended by their application and techniques followed in applying them (Tyndale, 2002). KM tools have to be readily available and must be user friendly in order to make these tools usable by the people (Pereó Valderrama et al., 2013).

It is often argued that technologies that are designed to manage data and information are numerical, structured, and incorporates a huge volume of reflections but KM tools are often text oriented (Egbu and Botterill, 2002). However, technology alone cannot make an organization creative since these technologies are used by the people in an interactive way hence the role of people is important to the success of using KM technologies (Egbu and Botterill, 2002). KM tools should be chosen in such a way so that it becomes possible to perform KM activities appropriately else these will be a burden in terms of cost and value of using the tools (Xu et al., 2013). KM tools facilitate collaborative work among the users involved in the process of knowledge management and establish a robust structure for administering the information on which the knowledge to be managed is based (Cobos et al., 2002). Balmisse et al. (2009) mentioned that KM tools promote continuous learning, usage, and contextualization of organizational knowledge at the individual level. Emadezade et al. (2012) highlighted that KM technologies play a vital role in implementing knowledge value added techniques to promote organizational performance. KM technologies are effective in fostering innovations and provide organizations a competitive advantage by generating innovative and customized products which enhance revenue (Goh, 2005). Chiu and Chen (2016) concluded that the integration and
deployment of knowledge through technologies are essential for knowledge organizations. According to Rasula et al. (2012), level of capturing both tacit and explicit knowledge and usage of these tools have a positive influence on KM. KM technologies facilitate the creation and dissemination of knowledge. Agarwal and Islam (2014) mentioned that stages of adoption of KM technologies lead to effective use of these tools while performing KM activities. The requirements of KM activities impulse the emergence of diverse KM tools, and on the other hand, the prosperity of KM tools opens new perspectives and change behaviors in knowledge management (Zhao et al., 2013).

Empirical studies regarding KM tools are limited to two dimensions. Firstly, identifying the application of the tools in different KM activities. Secondly, analyzing the impact of these tools on different performance issues including organizational performance. There is a dearth of research in identifying the extent of implementation of KM tools. Moreover, the impact of the implementation of these tools was not that much investigated. Even though some studies considered the impact of KM tools on OP, but this impact was identified only as a facilitating factor of OP. Hence, studies related to determining the impact of KM tools on OP with respect to the required functions the KM technologies perform was very limited. In light of the above considerations, the objective of this study is twofold: firstly, the study aims to determine the level of implementation of KM tools in the organizations of Bangladesh. Secondly, the study intends to find out the impact of the level of implementation of these tools on organizational performance (Karlinsky-Shichor and Zviran, 2016).

II. Literature Review

The existence of technological arrangement comprised of computers, networks, and databases as well as software set up into these structures are termed as KM tools (Uriarte Jr., 2002). KM tools are those techniques which facilitate KM activities such as codification, creation, or transfer of knowledge (Tyndale, 2002). These tools can be computer based or non-computer based. KM tools perform four vital functions: promoting appropriateness of the information, judiciously transferring information, fostering social connections and networking, and providing a tailored human-computer interface and fulfilling the need of the people who are using it (Wu et al., 2014).

Knowledge management tools stimulate and facilitate knowledge
processes in order to make a better decision (Tyndale, 2002). Better collaboration and working environment improved competitive advantage and receptiveness, and enhancement of overall productivity is possible to achieve through efficient utilization of KM tools (Uriarte Jr., 2002). KM tools focus on enabling personal learning continuously through integration and understanding of information (Ghani, 2009). These tools also foster using and contextualizing organizational knowledge incorporated within individual and documents (Tyndale, 2002). KM tools expose new viewpoints and alter the behaviors in KM. These tools support KM and new knowledge creation (Paton, 2013). Also, KM tools can collect, catalogue, organize and share knowledge or transfer information (the explicit knowledge) embedded in various forms and types of documents and media (Kimble, 2013).

KM tools can be IT based and non-IT based. Literatures have categorized KM tools according to the required KM process these perform. Bhosale, (2016) classified these tools as a general tool, knowledge acquisition tools, knowledge indexing tools, knowledge dissemination tools. Agarwal and Islam (2014) classified KM tools as tools for knowledge creation and capture, tools for knowledge sharing and dissemination, tools for knowledge application and use. While, Kaisar et al. (2008) grouped these tools as knowledge aim tools, knowledge identification tools, knowledge acquisition tools, knowledge creation tools, knowledge transfer tools, knowledge use tools, knowledge conservation tools, knowledge evaluation tools. APO (2010) mentioned that KM tools can be used in identifying the knowledge, creating knowledge, storing knowledge, sharing knowledge, and applying knowledge. Dalkir (2011) classified KM tools as capture and creation tools, sharing and dissemination tools, acquisition and application tools. Cobos et al. (2002) mentioned that KM tools could be use for collaboration, generation of knowledge structure. Balmisse et al. (2009) focused on KM tools as discovering, expertise mapping, and collaboration tools. Dieng et al. (2006) analyzed KM tools from a corporate memory perspective. The authors defined corporate memory as an explicit, access and reuse by adequate members of the organization for their tasks (Chu et al., 2014).

Theoretically, KM technologies have a permanent association with organizational performance (OP) and act as a facilitating factor in terms of developing knowledge management competences (Edvardsson & Durst, 2013). Some of the researchers are in a position to conclude that the whole KM system would have been failed if technologies were not there into the integrated knowledge management structure (Kiesling et al., 2009; Pettersson, 2009). Several authors have found a positive linkage between
KM technologies and organizational performance. Rasuła et al. (2012) ascertained the indirect effect of implementing KM tools. The authors found that IT tools indirectly affect knowledge management in the organization that ultimately leads to improved organizational performance. In this regard knowledge capturing and using IT, tools are useful in making an appropriate decision about technology choice. Imran (2014) established that technology has a dominant role in improving knowledge management performance that causes improvement in organizational performance. Cherchione et al. (2015) found KM tools improve SMEs overall performance through improving financial, technical, market, and human performance. Also, Gholami et al. (2013), Liu and Abadalla (2013) and Wei et al. (2011) found that KM technologies have a positive impact on organizations’ economic and financial, market, technical and innovative, human, and overall organizational performance.

Technology affects positively to the organizational performance and facilitates implementation of KM system (Zaied et al., 2012). While Akhavan and Pezeshkan (2014) and Emadezade et al. (2012) contended that even though KM technologies have no positive association with the performance but these act as facilitating factor in developing KM infrastructure. Technology supports organizations in improving productivity through providing information on a timely manner (Sandhawalia and Dalcher, 2011).

KM technologies also promote a reduction in response time (Zaied et al., 2012) and minimize operations and process cost of the organizations. KM technologies increase capacity to choose the appropriate knowledge and store the knowledge in the organizational memory that will increase organizational efficiency leading to the increase in organizational value and competitiveness which ultimately help in increasing organizational performance (Chang and Chuang, 2009). Shaabani et al. (2012) strongly viewed KM technologies as a vehicle for effective utilization of KM system that enhances organizational performance.

The author also depicted the positive relationship between Technology with KM performance and firm performance. Organizational performance is measured in terms of knowledge management performance (Mehregan et al., 2012).

III. Research Methodology

The survey was a single cross-sectional and field survey. The unit
of analysis was the organization. The respondents were selected from the top and middle level management of enterprises of Bangladesh across different industries. The sampling frame for this study was based on the list of all companies in Bangladesh selected from the Bangladesh Bureau of Statistics yearbook 2011. The simple random sampling method was used to collect data from the respondents (Weiss et al., 2013).

The data was collected through a self-administered questionnaire survey. The questionnaire was divided into two sections. The first section asks general characteristics of respondents such as gender, position, highest education level, number of years working in the organization (Salonius and Kapyla, 2013).

Also, organizational information regarding industry sector, ownership structure, number of years operating, and organizational size in terms of number of employees. The second part asked questions related to the level of implementation of KM tools in the organizations. KM technologies are identified based on the literature of Egbu and Botterill (2002).

These technologies are then categorized according to the classification proposed by Dalkir (2011). Questions were asked to determine the level of implementation of KM tools. The level of implementation includes three scales of implementation, i.e., not implemented=1, implementing=2, and implemented=3.

The organizational performance was measured using the criteria proposed by Huo and Zhu (2014). Likert five points scale was deployed to measure organizational performance. The scale was used to record the level of agreement of the respondents as “strongly disagree=1” to “strongly disagree=5” through “neutral=3”.

In total 1100 questionnaire were distributed to the top and mid-level managers of 134 organizations out of which 478 were returned. Out of the returned questionnaires, 450 was considered for analysis with response rate of 40.9%.

Descriptive statistics were used to present the overall level of implementation of KM tools in the organizations. To establish the relationship composite mean score was calculated for each of the categories of KM technologies (Ooi, 2014).

Also, organizational performance was determined considering a balanced scorecard approach. Based on the composite score of the KM tools the regression analysis was carried out to determine the impact of the KM tools on organizational performance. Reliability and validity of the variables were assessed. The level of significance chosen was 0.05. The data were analyzed in SPSS version 22 (Albors-Garrigos et al., 2016).
IV. Findings

A. Demographic Profile of Respondents and Organizations

Data indicates that the majority of respondents were male almost triple of the female respondents. It is also found that most of the respondents are functional managers (80.3%) followed by general managers (11.1%). Lastly, it reveals that most of the respondents are Master degree (78.7%) holder followed by Bachelor degree (12%).

Other figure summarizes the organizational profile of the respondents. It is found from that number of respondents are from service organizations (60%) compared to manufacturing (40%). Also, the majority of the respondents belong to the organizations that are medium sized (56%) followed by small sized (24%) and large sized (20%).

B. Implementation of Knowledge Management Tools

Figure 2 provides a schematic presentation of the level of implementation of knowledge management tools in the organizations. The results show that an average of 40.90% of the responses indicate that the responding organizations have implemented these technological tools, while 51.46% of the responses indicate that they are implementing them, and 7.64% of the responses show that they have not yet implemented these tools.

The results also show that the most common tools used in these organizations are internet (96.58%), intranet (52.63%), training and support (E-learning) (48.68%), and decision support and expert system (47.37%).

While, the least implemented tools are knowledge maps (25.04%), extranet (25%), and groupware (23.07%) as it is evident that non-implementation level of these tools is the highest among all others.
C. Effect of Knowledge Management Tools on Organizational Performance

The KM tools are categorized according to Dalkir (2011) as knowledge capture and/or creation tools, knowledge sharing and dissemination tools, and knowledge acquisition and application tools. Knowledge capture and/or creation tools are data management system; document management system; data mining; analyzing and reporting; and user manuals (Noh et al., 2016).

Whereas, knowledge sharing and dissemination tools are internet; data warehousing; an intranet; an extranet; groupware; and e-messaging, e-chatting an e-meeting. While knowledge acquisition and application tools are yellow pages and/ or contact details; video and photos management; knowledge maps; training and support (e-learning); and decision support and expert systems.

Figures presents the composite mean score of implementation level of KM tools. It is found that the highest implemented tools are knowledge capture and creation tools (2.33) while lowest implemented tools are acquisition and application tools (2.25).

In order to identify the organizational performance indicators factor analysis using the principal component method with varimax rotation has been adopted. Factors over eigenvalue 1 were chosen for analysis. Figures represents the factor analysis result. It is found that four factors were extracted with total 72.999% variance explained by all the factors. The first factor was identified as customer related factors. The second factor was the internal business process. The third factor was the learning and growth perspective. The last factor identified was financial perspective. The extracted factors were then used to perform the regression analysis.

Data depicts the regression result of the effect of KM tools on organizational performance. In this regard, four regression models were formulated to test the relationship. Each of the models tests the relationship of knowledge sharing and dissemination tools, knowledge capture and creation tools, and knowledge acquisition and application tools as an independent variable with financial, customer, internal business process, and learning and growth of organizational performance indicator as dependent variable respectively.

It is evident that the independent variables explain 36% variance in
the customer related performance. It is found that none of the sharing and dissemination tools ($\beta = .098$, $t= 1.49$, $p=.137$), capture and creation tools ($\beta = .008$, $t= .138$, $p = .891$), and acquisition and application tools ($\beta = .027$, $t= .410$, $p = .612$) has significant impact on customer related performance.

It is also found from that each of the sharing and dissemination tools ($\beta = .170$, $t= .2.611$, $p = .009$), capture and creation tools ($\beta = .226$, $t= 3.96$, $p = .000$), and acquisition and application tools ($\beta = .019$, $t= .289$, $p = .037$) has significant positive impact on improving internal business processes related performance. all of these tools together explain 39% variation in the internal business processes related performance (Nowacki and Bachnik, 2016).

It is evident that the independent variables explain 41% variance in the learning and growth related performance. It is found that none of the sharing and dissemination tools ($\beta = .051$, $t= .771$, $p = .441$), capture and creation tools ($\beta = .033$, $t= .567$, $p = .571$), and acquisition and application tools ($\beta = .33 t= .567$, $p = .571$) has significant impact on learning and growth related performance.

It also reveals that none of the sharing and dissemination tools ($\beta = .041$, $t= .617$, $p = .538$), capture and creation tools ($\beta = .056$, $t= .962$, $p = .337$), and acquisition and application tools ($\beta = .056$, $t= .962$, $p = .337$) has significant positive impact on improving internal business processes related performance. all of these tools together explain 30% variation in the internal business processes related performance.

V. Conclusion

This study shows that the overall implementation of KM tools in organizations in Bangladesh is in moderate stage. Hence, there is still much effort needed to enhance the awareness of people and organizations about the importance and future benefits of adopting KM tools in the organizations of Bangladesh (O'Mahoney et al., 2013). Even though organizations have implemented internet to a very high level and intranet, e-learning and decision support system to a moderate level but they lack well behind in implementing other tools. This is an important bearing for the organizations that without implementing KM tools to the high levels organizations will not be able to perform KM activities properly. This will lead organizations to fall behind in the competition. Since we are in the information age, it is essential for the organizations to use KM tools
regularly to search, acquire, share, store, implement, and create new knowledge. Also, the implementation of KM tools will ensure better cooperation and teamwork among the employees in the organizations. Moreover, the implementation of KM tools will increase the knowledge base of the employees which will enhance their performance. Additionally, organizations will be well aware of the inventions around the industry and remain connected with the global scenario (Pirkkalainen and Pawlowski, 2014).

Also, it is found from the study that each of the KM tools has a significant positive impact on improving internal business processes related performance. However, these tools have no significant impact on improving customer related performance, related financial performance, and learning and growth related performance. The findings shed light on issues related to the use of KM tools on improving organizational performance.

Organizations in Bangladesh are not able to use the KM tools appropriately on reducing cost, achieving faster asset growth rate, and are not much innovative. Additionally, organizations are not becoming able to satisfy their customers and employees thereby not able to achieve growth in market share (Jimenez-Jimenez and Sanz-Valle, 2013). Moreover, organizations are not much willing to invest in developing appropriate KM infrastructure to generate different innovation mechanisms to enhance their learning. However, the study divulges that fact that organizations are enriching their knowledge base. This means that organizations have more knowledge inventory and using these knowledges in their business processes.

**VI. Future Research Scope**

This study was a cross sectional survey that was conducted only on time. In order for having greater understanding of longitudinal study or in-depth case study can be conducted in the future. Further, the reasons for not having improved financial, customer, and learning performance were not investigate in this study. Hence, future study can be conducted to supplement this limitation of the current study. I this study KM tools are grouped according to the KM activities they perform. The tools are grouped in lesser detail (Jasimuddin and Zhang, 2014).

Future study can be initiated to develop more precise grouping to identify the impact in greater detail. Lastly, implementation level of KM
tools and the impact of these tools on OP may vary according to the size, industry domain, ownership, and organizational experience. Therefore, future study can be conducted to perform a cross comparison with respect to mentioned issues.

Reference List


