



Research Article

# Proposed Framework for the Usage of Information Technology Tools to Enhance Knowledge Management Process of Organizations

Salem Obaid Salem Bin HADEEBA and Wan Fauziah Wan YUSOFF

Faculty of Technology Management and Business, Universiti Tun Hussein Onn, Malaysia

Correspondence should be addressed to: Salem Obaid Salem; Hp170107@siswa.uthm.edu.my

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## Abstract

Despite the importance of information technology (IT) to the knowledge management process, many studies found that the usage of IT in the knowledge management process has not been very successful mainly because of the improper utilization and integration of IT into the knowledge management. Hence, this study proposes a theoretical framework for using information technology tools (cloud computing, online conferencing, and mobile technology) to enhance the knowledge management process (knowledge sharing and knowledge application). The theoretical framework included organization culture as a mediator between the usage of information technology tools and the knowledge management process.

**Keywords:** Information Technology, knowledge management process, organizational culture

## Introduction

The rapid development of information technology (IT) and its influencing fields has an impact on all aspects of human life. Person, organizational, and government roles have all been transformed by IT tools, and job performance has improved as a result (Ihnatenko et al., 2020). Without a doubt, fast access to accurate information via IT tools is a critical factor in the age of global competition. Knowledge is a criterion and a cornerstone for organization

advancement because IT tools are rapidly expanding across the world. Organizations need this technology to succeed, and any organization that ignores it is destined for failure (Schwalbe, 2015).

Individuals, organizations, and governments have all changed as a result of information technology, resulting in economic and social change. Without question, having easy access to reliable data is critical to succeeding in the international competition area (Sharma & Sharma, 2020).

The probable organizations' focus on knowledge and IT and its tremendous significance from various aspects and dimensions would be the explanation for relating the current age to the information explosion age. As a result, knowledge serves as a benchmark and a yardstick for empowerment.

This paper introduced a theoretical framework to examine the impact of information technology tools on knowledge management processes to increase company efficiency in IT tools and knowledge management processes. The value of knowledge management and the relationship between information technology and knowledge management are discussed in this paper. The paper then goes through the various components of the proposed architecture, such as information technology resources (cloud computing, video conferencing, and mobile technology) and the knowledge management mechanism (knowledge sharing and knowledge application). This research proposes a framework for enhancing the role of technology in improving knowledge management processes in order to improve organizational efficiency.

## **Literature Review**

### ***Information Technology***

Information Technology (IT) is a type of technology that assists us in recording, storing, processing, transferring, and receiving data (Fox, 2020). It is due to various types of technology that deal with the electronic processing, storage, and transmission of data (Epiphaniou et al., 2020). The word refers to the use of modern technology like computers, fax machines, micrographs, and telecommunications.

Information Technology (IT) is a critical component of effectively organizing and sharing knowledge. IT enables companies to use the information for operational productivity and effectiveness (Antunes & Pinheiro, 2020) and offers a conducive learning and engaging atmosphere for employees. Organizations use programmes like expert systems to collect and organize information (Schneiderjans et al., 2020).

There are a number of important IT aspects relevant to knowledge management processes in the company. The first one is IT practices, which refers to how a company employs technology in its day-to-day operations. The advancement of networking technology and wireless area networks, for example, has allowed fast and widespread Internet connectivity, and computers have led to increase use of IT as part of information management (Ode & Ayavoo, 2020). The second one is cloud-computing. According to Sultan (2013), cloud computing is a method of delivering a variety of ICT services by software and virtual hardware (as opposed to physical hardware) provisioned (through data centres owned and run by cloud providers and/or end-users), thus according user demands and needs and transmitted remotely through public (e.g., internet) networks. The third one is online conferencing, which is one of the most important instruments of information technology (IT). Initially, most knowledge management programs began with enormous IT expenditures, such as the use of video conferencing, which helps to confer knowledge. IT technologies, such as video conferencing, are only a tool for knowledge sharing and, as such, would be unable to promote knowledge sharing unless properly used (Mohamed & Pillutla, 2014). The fourth one is mobile technology, which refers to the use of mobile devices that have been developed for mobile use (Kane, 2017). Thus the category of mobile devices encompasses a wide spectrum of appliances.

### ***Knowledge management Process***

Knowledge management has been described as a continuous, consistent, and beneficial procedure that assists businesses in establishing, selecting, systematizing, preserving, disseminating, and sharing knowledge in order to achieve their desired advantage and retain its value (Dalkir, 2017). Information Management, according to Davenport (1994), is "the process of moving, creating, sharing, and the successful use of knowledge," while King (2009) defines it as "the use of an organization's knowledge resources to

achieve the organizational goal." Despite the definition of knowledge management as well as how systematic and operational approaches in organizations operate knowledge, knowledge is still emphasized as an effective and shared element that is supported by people, communal skills, and connections which take into consideration the facts when establishing and implementing knowledge management (Hislop et al., 2018). Knowledge sharing and knowledge application are two crucial aspects of knowledge management.

### ***Knowledge Sharing***

Igbinovia and Ikenwe (2017) identified knowledge sharing as a fundamental priority of knowledge management and defined it as an act in which individuals, organizations and institutions exchange and share information, knowledge, ideas, skills and experiences acquired. Knowledge sharing helps information and knowledge management maximize an organization's knowledge. The key justification for sharing individual knowledge with the whole organization is that knowledge does not vanish if the employee leaves the organization (Dhamdhare, 2015). In order to ensure information is communicated and to prevent knowledge accumulation, an organization must put such initiatives (incentives) in place.

### ***Knowledge Application***

When knowledge is shared among people in organizations, it is important to apply the shared knowledge to solve a problem. If the collected, processed, produced and shared knowledge is not properly applied, according to Dhamdhare (2015), the entire process will be in vain and the knowledge management process should be communicated to users for proper application of knowledge. In other words, information should be put to work affectively and effectively to fill a void or need. This is the primary objective of the knowledge management process. This application requires knowledge organization (through classification, indexing or the appropriate tab of knowledge), retrieval of knowledge (by

enabling staff to access it easily and in the shortest time). Knowledge is ready to use (deleting some of the inconsistent parts, re-debugging and constantly checking the knowledge, introducing the appropriate new one, and eliminating the old one.

### ***Relationship between Information Technology and Knowledge Management***

Despite representing major consultancy firms, Schniederjans et al. (2020) provided a more general overview of IT's position in knowledge management for organizations. That is, codification strategy views IT in the context of information systems to transform implicit knowledge held by individuals in organizations into explicit knowledge types. On the other hand, IT may play a role in personalization strategy and facilitate communication between parties associated with the handling of tacit knowledge (albeit to a lesser extent).

Initially, most knowledge management programs began with enormous IT expenditures, such as the use of video conferencing, which helps to confer knowledge. IT technologies, such as video conferencing, are only a tool for knowledge sharing and, as such, would be unable to promote knowledge sharing unless properly used (Mohamed & Pillutla, 2014). In fact, online conferencing is a facilitator of knowledge sharing because it allows people to exchange information and encourage contact and collaboration with co-workers. In addition, efficient information sharing requires the use of video conferencing and other IT resources to solve time and location challenges in many cases. Thus, when the company supports it for its staff, online conferencing facilitates information sharing.

According to Gegenfurtner et al. (2020), information technology can promote collaboration and connectivity between organizational members, such as video conferencing. IT resources such as online conferencing help to keep track of individuals with unique skills and allow for rapid communication between them. Groupware, intranet, and the Internet are some of the IT resources that enable

organizations to collaborate or manage information.

### ***Organizational Culture as a Mediator***

Organizational culture is connected to the daily occasions and routine of the organization environment. Its importance emerges from its impact on the behavior of the workers, which also impacts the organization's performance (Iqbal, et al., 2020). That is, workers usually communicate with each other to discuss the organization's internal surroundings, which has an impact on the organizational behavior and the organization's performance. In addition, organizational culture is one of knowledge management's major success factors because culture influences learning, acquisition, sharing and other related fields of knowledge (Lee, Shiue, & Chen, 2016), especially with utilizing IT tools (Borges, Bernardi, & Petrin, 2019). Organizational culture, on the other hand, is often known as the biggest obstacle to the progress of organizational information management (Akhavan, et al., 2014). That is, the organizational culture might not encourage the utilization of knowledge management to improve the organization performance. Therefore, organizational culture is essential for a better knowledge management process in any organization.

Moreover, the relationship between information technology and organizational culture has been a matter of dispute in terms of its impact on the organization performance as well as the performance of the employees. That is, the routine information technology tools in organizations have been perceived as a tool that has led to rule-oriented culture with low trust and creativity levels, which has a negative impact on the organization performance. However, dynamic information technologies have been perceived as a tool that created a high level of collaboration, communication, creativity, trust, and personal commitment to achieve the work tasks, which positively impacts organization performance (Iqbal et al., 2020). Information technology has created an avenue for the workers to explore in order to do their tasks, and the utilization of

the technology has become a daily routine and a part of their work. The organizational culture values are a part of the utilization of the technology because workers might utilize their organizational culture values to improve the organization's performance (Memon, Qureshi, & Jokhio, 2020). Also, the advancement of information technology influences the organizational culture in terms of quality of knowledge management (Chang, Liao, & Wu, 2017).

To conclude, organizational culture is essential for better knowledge management and information technology utilization to improve the organization performance. However, neglecting the organizational culture might affect both knowledge management and information technology utilization, which negatively impacts organizational performance. This shows that the triangle of organizational culture, knowledge management, and information technology tools has a complementary value to improve the organization business.

### **Proposed Framework**

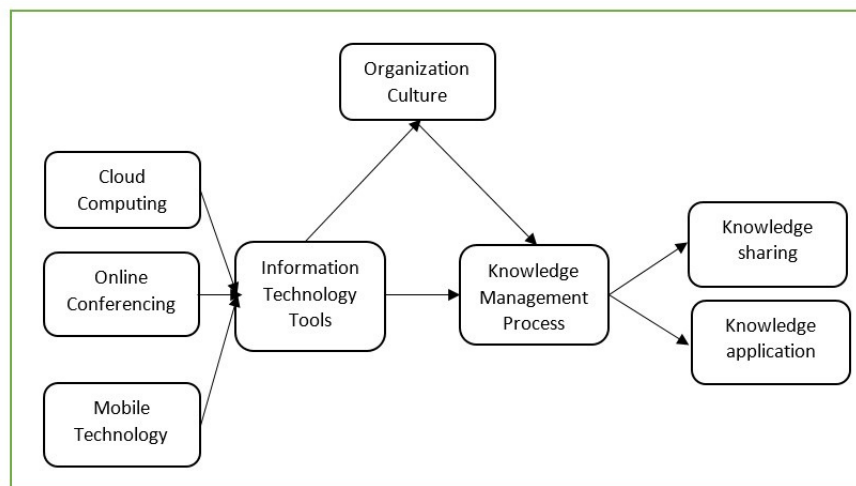
Under the impact of knowledge-based philosophy, the emphasis has shifted to the abilities and capacities of workers (Grant, 1996). When it comes to actual information application, organizations prefer to try a range of approaches to knowledge management. One simple way to categorize these strategies is to divide them into technical and non-technological approaches. The technical approach to knowledge management uses IT to help knowledge management in organizations. Such an approach aims to use IT to collect, codify, store, distribute, and reuse explicit information, abstract significant tacit knowledge from context, and make implicit knowledge explicit, portable, transferable, sharable, and accessible. In several knowledge management programmes, information technology is a critical enabler of the effective use of organizational skills (Gloet et al., 2020). Databases and data centres, for example, are commonly used as central repositories for information collection and storage, and online networks or community support systems are found to allow for widespread interaction among an

organization's members. This is consistent with the study IV variables of cloud storage, online conferencing, and mobile technology, since cloud computing stores data, while online conferencing and mobile technology allow employees to share information and then implement it in the context of their organization.

The non-technological knowledge management approach emphasizes the managerial, organizational, social and cultural elements of knowledge management (Atiku, 2020). These techniques include the management of organizational changes, the analysis of human resources practices, the development of informal networks or practice groups, the creation of knowledge-friendly environments and incentives to ensure that knowledge workers are rewarded for supporting, developing and sharing their knowledge. Recognizing the subjective and social nature of knowledge, these knowledge management approaches focus on the need for trust and on the norms and practices for sharing and applying tacit knowledge to build new knowledge via human interaction through social networks. This emphasis of the non-technological approach on organizational culture is in line with the mediator of the study, since organizational culture values are important

to foster the use of IT tools and to share and apply knowledge for the purpose of gaining competitive advantage and improving the performance of the organization (Aldulaimi, 2015; Afshari, 2020).

Knowledge management practises are interconnected and incorporated to build and maintain the information flow or loop in organizations. Knowledge management researchers and practitioners have developed many models to describe the relationships between these activities in knowledge management. The SECI knowledge conversion spiral model (Nonaka & Takeuchi, 1995) is commonly cited in the information management literature. In this model, information is transformed in four ways: (a) from tacit knowledge to tacit knowledge (socialization); (b) from tacit knowledge to explicit knowledge (externalization); (c) from explicit knowledge to tacit knowledge (internalization), and (d) from explicit knowledge to explicit knowledge (externalization). These processes are ongoing, with a complex relationship between implicit and explicit information occurring in each of the four quadrants, creating a knowledge spiral that drives the knowledge flow. Figure 1 shows the proposed model for this analysis



**Figure 1: Proposed Framework**

## Conclusion

This paper presents a proposed framework that can investigate the impact of information technology tools on knowledge management process to improve organizational performance. The proposed framework included cloud computing, online conferencing, and mobile technology as variables of IT tools. Also, knowledge sharing and knowledge application are included in the framework as variables of knowledge management process. Besides, the study presented organization culture as the mediator on the relationship between information technology tools and knowledge management process. The current study employed knowledge-based theory that put emphasis on knowledge and improving the capabilities of the workers, and it also discussed that using technology is a key factor to achieve this. This study also utilized the SECI knowledge conversion spiral model that emphasises transferring knowledge from tacit to explicit to facilitate its application. Finally, the proposed framework can be used by organizations to investigate and improve knowledge management through utilizing IT tools to improve organization performance. Also, scholars and researchers can use it as a theoretical or conceptual framework to carry out empirical studies on different organizations, such as manufacturing and construction organizations. Also, the proposed framework can be used by scholars to carry out studies on big organizations that have different branches to enhance knowledge management of the whole organization.

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