

# Contributing Factors of Organization, Human and Information Technology in Organizational Knowledge Transfer Process: A Conceptual Paper

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**Abstract.** Knowledge transfer is a phenomenon faced by many organizations especially when dealing with the challenges of globalization. Organizations develop valuable knowledge from time to time and this knowledge has to be shared among the organizational members so that the organizations can leverage it to achieve the competitive edge. This paper is meant to discuss the factors that contribute to the phenomenon of interest including communication, management, transfer process, and also the working process in a virtual organization as a study setting. This issue is chosen because of the difficulties in dealing with knowledge transfer within the virtual organization and to identify the right factors involved in the knowledge transfer process. Perhaps from this study, the best approach of knowledge transfer process could be recognized and adapted by the virtual organization to strive in a business competitive world. Organizations that failed to adapt to the changing business environment especially with regard to the knowledge transfer process will be phased out from the business competition. The implications of the study will also be discussed in the paper.

**Keywords:** Knowledge Transfer, Organization, Information Technology, Human.

## 1 Introduction

The computer-savvy environment creates an undoubtedly increasing number of people engaging with information and communication technology (ICT) and has created a new world of globalization. The rapid and dynamic change of technology used has forced people to live in wired and wireless environment. These changes have forced the organizations to restructure and coordinate all aspects of their operations to become competitive in business environment in line with the emergence of ICT. Knowledge becomes the most treasured asset for organizations as it is regarded as the competitive means for them to sustain and survive in the business environment. The organizational knowledge management literature reckons knowledge process as implanted within a localized environment [1] and according to Lave and Wenger [2], the localization of knowledge relies on an understanding of the social and cultural aspects of the local community of practice which is a particular group, engaging in common practices to accomplish a mutual objective [1].

Since knowledge becomes the most critical asset in the organization, and the globalization has taken place in a very fast pace, business people must be aware of the need of having a new organizational form. Moreover, organizations have to change into a new form of structure which is from traditional structure into a virtual structure in which the organizations can exist without a specific physical office space. There is no specific office layout and some organizations only have employees located at different locations. According to Demirel [3], a virtual company is one of the new establishment models that is created for the purpose of acquiring the information that continuously evolves and becomes the tool of competitiveness for any companies [4]. The aim of this new structure of the organization is more likely to be intangible with the purpose of obtaining the information and keeping it for future used and this involves the knowledge management elements with the knowledge transfer as one of the elements that is critical in any companies embraced the knowledge management practice in their operations.

Knowledge management has been greatly practiced in several companies especially the ICT based establishments. Knowledge management has become the common practice since the information and knowledge have been regarded as the critical assets for organizations. Knowledge is important for the achievement of the vision 2020 that is to become the informative nation by transforming the workers into knowledge workers [5], knowledge workers are connected to the knowledge economy that leverages on the soft factors of ideas, information, knowledge and relationship, which contributes to the ICT skills without ignoring the effective use of them.

## **2 Knowledge Management Practices in Malaysia**

Knowledge exists in various settings and occurrences such as relationships between people, processes, existing organizational data storage and products [6]. It involves the nature of the knowledge which ought to be understood first by the organizations and methods used to maintain it as organizational memory and approaches used to transfer the knowledge within the organization and these should be considered by organizations to remain relevance.

The impact of knowledge management is everywhere [7]. Knowledge management is a common practice; it has been implemented in business, education, finance, marketing, and other fields. From the business view, an organization's success mostly depends on its ability to optimize the use of knowledge and generate value from its knowledge assets [8]. In most companies, knowledge is initially kept and arranged in organizational database where this knowledge is later recovered to be used in future. Therefore, knowledge is a component of the organizational memory [6].

The emergence of information and communication technology in Malaysia has risen the used of knowledge in organizations. Knowledge has become the critical asset for companies to strive in the competitive business environment. Organizations are aware that knowledge does exist within the organization especially among the organizational employees which are known as communities. The transferable process does exist without companies realizing it. It is among the community members which originates from the individuals themselves and some from the community itself.

As today's concern, organizations have made a larger decision to practice the knowledge management approach within the organizational setting. Knowledge does exist in the day-to-day management of the organization, it changes the way the employees communicate, it changes the way the knowledge is transferred and how employees execute their work (the work process) by adopting the knowledge management approach in the organization. Many researchers and practitioners see ICT as an enabling tool to support the efforts of the knowledge management process [9]. As far knowledge is concerned, knowledge management is closely related to the ICT tools to manage the knowledge, to communicate the knowledge, to transfer the knowledge especially the explicit knowledge, however it may be difficult to transfer the tacit knowledge because it involves the complex working process and its impact on the organization bottom line.

### **3 Problem Statement**

Vast amount of knowledge is stored within virtual organizations, which comprises knowledge from employees, which resides in employee's memory that covers the knowledge and experiences of employees known as tacit knowledge. As for tacit knowledge, it is knowledge from person to person and knowledge transfer is the most effective way to share the complex tacit knowledge [10]. However, the problem appears due to the transfer process. The possibilities could appear from the people, management, tools, and the process itself and other related factors. For the explicit, the produced knowledge comprises documents, policies, handbooks that are explicit and could be read and understood with limited judgment of employees. Knowledge transfer by itself is a process influenced by many factors or variables that depend on the context. The barriers could occur during the transfer process. People should be aware that there could have a variety of factors that may facilitate or hinder people from transferring or sharing what they have or what they know. Based on the previous research [11], these factors are related to:

a)The knowledge itself, which involves the hardship in transferring or sharing knowledge that is directly concerned the sort of knowledge involved, either explicit or implicit [12].

b)The sender and recipient of knowledge, which involves the existence of a common language between the parties involved; the capability of the recipient to absorb the shared knowledge, or putting it differently, the recipient's capability to obtain and apply it; the perceived worth of the sender's knowledge and motivation – of the sender to transfer the knowledge and the recipient to acquire it [13], and

c) The context or the environment for sharing knowledge the involves the organizational variables, subject to how they are configured and affect the knowledge transfer activities, including the structure of the organization (formality, complexity, focus), the culture of the organization (organizational and social elements), the information technology (IT competencies), the human capital dimensions (structural network, cognitive and communication), the components of behavior including political behavior; and the knowledge protection elements [14]. The nature of the transfer can be intra-organizational or inter-organizational [15].

However, these factors could be varied and depend on the context or situation that takes place during the transfer process. This study drives an investigation for the dominant factors of knowledge transfer that influence the effectiveness of knowledge transfer process. The investigation was conducted in the virtual organization setting which involves the employees in the virtual working environment. The present study was conducted since the study setting is new in Malaysia and focused on the tacit knowledge transfer due to its inertness of knowledge and due to the issues that arise from the virtual organization settings.

## **4 Objectives**

The present paper attempts to investigate the critical factors involved in knowledge transfer process in virtual organizations including organizational factors, human factors, and information technology factors that are perceived to contribute significantly in ensuring the effectiveness of knowledge transfer process.

## **5 Organizational Factors**

### **5.1 Culture**

Organizational culture plays a significant role in any organization. The culture symbolizes the nature of the organization. Culture serves as an enabler for knowledge transfer [16]. It plays a significant role in determining the organization operations and facilitating the transfer of knowledge. A dimension of culture that is crucial to knowledge transfer is co-operation and collaboration [16]. Moreover, culture plays a crucial role in the transfer process and virtual organization should consider an organization culture before any transfer process could take place. The value that the organization places on knowledge shapes the culture that either facilitates or hinders the transfer process [9, 17]. In a virtual organization, the culture of the organization is different from the traditional establishment; it is more flexible however tends to be complex in structure and culture.

An organizational culture as the common, basic suppositions that an organization acquires while adapting to the environment and resolving issues of external adaptation and internal integration that are taught to new members as the right approach to resolve those issues [18]. Culture could be the people beliefs or expectations that are parallel to the business environment that can be accepted by the organization. Culture at the organizational level is similar to the frame of reference at the individual level [19]. The culture that is brought into the organization may be adopted from the workers in the form of individuals' experience, their beliefs and ideas.

The organizational culture must support and enhance the activities for knowledge transfer [20] since the barriers and obstacles to tacit knowledge transfer exist across organizational levels [9]. Emotions, cultural filters and political power bases will all affect the negotiation process [21]. According to Kermally [22], the success of transformation in the SECI process depends on the leadership and culture of the organization. Kermally [22] claimed that managing

knowledge is all about creating a culture that will institutionalize trust and facilitate knowledge transfer and creation. The culture of organization affects the transfer process of knowledge and it is critical to build trust among the workers. The trust is needed in the process of knowledge transfer and it must be present when it involves the transfer of knowledge in a dynamic organization such as a virtual organization. Culture is related to trust and it affects the knowledge transfer process.

## **5.2 Structure**

Firms develop the new form of corporate collaboration based on the use of the innovative IT-enabled organizational structure [23]. Dealing with competitive surroundings characterized as e-business, organizations sometimes change their structures radically or innovate using new structures to establish a competitive edge [23]. Organizational structure can be in the form of traditional, modern with the matrix added structure and several structures relevant to the organization. The organization structures, formal and informal can inhibit or facilitate interaction between people [20]. As in common structures, transferring knowledge or having chit-chat as informal communication can help in the interaction process between co-workers.

However, in a virtual organization, there are some difficulties in transferring knowledge because of the complex structure of this organization. Some virtual organizations are permanent and some exist because of the project and after the project is completed the team will be dissolved. Failure to understand the changing role of management in virtual transfer environments [9, 24] results in failure to sustain competitiveness. Failure to comprehend the complex structure of an organization, will result in failure to transfer knowledge. Organizational structure is fundamental in sustaining and managing an organization which emphasizes on departmental, administrative, and work relationships between its members [15]. In most organizations, the structure helps the management to manage and control the resources comprising capital, people, IT, or operations. Complex structures could contribute to the failure of the organization management.

# **6 Human Factors**

## **6.1 Self Efficacy**

Self-efficacy is defined as the ability to organize cognitive, social and behavioral sub skills into actions to serve myriad purposes [26, 27]. Self-efficacy reflects the assessment an individual makes about his or her capacity to create the motivation, cognitive resources and course of actions needed to organize future performance on a particular task [26, 28]. Self-efficacy concerns an assessment a person does on his or her ability, skill and competence to perform the task assigned by a company. It is more on the individual capabilities in performing the right process for the task assigned to achieve the organizational goals. Self-efficacy is required together with trust to assess the disposition of workers to transfer their knowledge among them [29]. Previous author discovered the different effects of trust on employee disposition to share and use tacit knowledge [30]. It was also found that self-efficacy acts as a moderator in the organizational culture-training transfer relationships [32].

Self-efficacy has been regarded as a mediator in the link between organizational culture and the transfer of knowledge where the people's relationships and communication among them are accepted and it could facilitate the transfer of knowledge among them. Self-efficacy is described as individuals' confidence in sharing valuable knowledge [32, 33]. Previous researchers stated that those individuals who have higher self-efficacy are supposed to be more comfortable and are willing to share knowledge [33]. Self-efficacy is described as a concept that illustrates how individuals may be motivated to share complex, tacit knowledge [10].

## **6.2 Reward Systems**

To facilitate knowledge sharing, workers need to have a good reward system that provides benefits to them. The reward system that the organization should use is a pay per performance approach. Then only the members of virtual organizations will have a motivation to perform the work and effectively engage in knowledge sharing. Rewards is important in the virtual environment because of the geographically dispersed members of the virtual organization. Without the reward, there will be no motivation for them to share the knowledge they have.

The reward system should allow for an incentive program initiated by the management to motivate the workers to share their knowledge and expertise. The geographical location is not a barrier if they are rewarded with such incentives. The visibility of the workers can be enhanced because of the eagerness of workers to develop their expertise by offering other workers with their expertise and knowledge. Through this system, effective knowledge sharing can be achieved. Sometimes, reward systems are needed to encourage workers to share and transfer their knowledge for the completion of task assigned by the organization. Reward systems could be great incentives for workers as an exchange for their knowledge, skills, expertise and ideas. People tend to work faster and better if the organization reward them an an appreciation for their good effort.

## **7 Information Technology Factors**

### **7.1 Information Technology Infrastructure - Technology**

Information technology has been proposed as the solution to intra – organizational knowledge transfer issues. It can be regarded as a good, even a necessary solution for an organization that is widely dispersed and still wants to encourage a learning environment through information sharing [16].

The employees in a virtual organization are dependent upon information technology (IT) to coordinate their activities [23]. Employing advanced IT, this new organizational form is highly adaptive and well-suited to changing and uncertain environments [23]. Previous authors agreed that there are two success factors in knowledge management projects. The first one is the utilization of the network technology infrastructure such as Lotus Notes and global communication systems for effective transfer of knowledge and second one is the establishment of a broad information system infrastructure based on desktop computing and communications [8].

The information technology systems ascertain the way in which knowledge is transferred and accessed [20]. The success of knowledge transfer is determined by the utilization of IT infrastructure and tools. Today, the use and optimization of IT for facilitating tacit knowledge sharing is almost inevitable [34]. IT certainly enables individuals to share their tacit knowledge especially the one with low to medium degree of tacitness by supporting various conversions of tacit-explicit knowledge although it may not be as rich as face-to-face interaction [35].

## **8 Conclusion**

It is believed that the leader of the organization should play a significant role to monitor the factors or activities of knowledge transfer within the organization. Human factors such as employees' attitudes, teamwork initiative, and personal judgment among employees are influenced by the leadership style and practices of their immediate supervisor at work. In-depth discussion on the organizational, human and technological factors has confirmed the role of these factors as the determinants of knowledge transfer among the organizational members. There is a strong link between these factors that affects the success of knowledge transfer within the organization. The human factors are important to execute the knowledge transfer process, while the organizational factors act as the foundation that enables the transfer of knowledge. The technological factors, on the other hand, serve as the tools to facilitate the transfer of knowledge. Future research is recommended to confirm the proposed link among the pertinent factors of knowledge transfer by conducting a comprehensive study covering various industries, business environment, and geographic locations of the organizations.

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