A Conceptual Paper on Enhancing the Organizational Effectiveness of Knowledge Management Implementation in Public-Sector Organizations through Characteristics, Processes, Outcomes and Critical Success Factors

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Abstract

The purpose of this conceptual paper was to investigate the linkage of four elements of knowledge management (KM) – characteristics, processes, outcomes and critical success factors (CSFs) – to successful KM implementation and organizational effectiveness in public-sector organizations. The paper reviewed a large number of literatures on the effects of these four elements in order to map out an integrated model for KM success and organizational effectiveness. It posits that KM characteristics (i.e. transactional, analytical, asset management, process based, developmental and innovation/creation KM), processes (i.e. acquisition, creation, storage, transfer and application) and outcomes (i.e. competitive advantages) could have an effect on the KM implementation. Also, the CSFs (i.e. organizational strategy, organizational structure, leadership, culture, networks/communities of practice and KM system) could have an effect on organizational effectiveness, with regard

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to KM. The contribution of this paper is toward developing our understanding in a range of KM options and enhancing KM success and organizational effectiveness. Also, it can be used as practical guideline for improving the success and organizational effectiveness of KM in public-sector organizations in the future.

Keywords: *Knowledge Management, Implementation, Effectiveness, Characteristics, Process, Outcomes, Critical Success Factors*

กรอบแนวความคิดการเพิ่มประสิทธิภาพขององค์การโดยนำการจัดการความรู้ไปปฏิบัติในองค์การภาครัฐ ผ่านคุณลักษณะ กระบวนการ ผลลัพธ์ และปัจจัยแห่งความสำเร็จ

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บทคัดย่อ

การศึกษาในครั้งนี้มีวัตถุประสงค์เพื่อสำรวจกรอบแนวความคิดการเพิ่มประสิทธิภาพขององค์การโดยนำการจัดการความรู้ไปปฏิบัติในองค์การภาครัฐ ผ่านคุณลักษณะ กระบวนการ ผลลัพธ์ และปัจจัยแห่งความสำเร็จ การศึกษาครั้งนี้ได้ศึกษาทบทวนวรรณกรรมเกี่ยวกับการจัดการความรู้ผ่านบริบทของคุณลักษณะ (เช่น การถ่ายโอนความรู้ การวิเคราะห์ การจัดการความรู้ในฐานะที่เป็นทรัพย์สินขององค์การ กระบวนการจัดการความรู้ การพัฒนา และนวัตกรรม) กระบวนการจัดการความรู้ (เช่น การได้มาซึ่งความรู้ การสร้างความรู้ การเก็บคลังความรู้ การถ่ายโอนความรู้ การประยุกต์ใช้ความรู้) ผลลัพธ์ (เช่น ความสามารถในการแข่งขัน) และปัจจัยแห่งความสำเร็จ (เช่น กลยุทธ์องค์การ โครงสร้างองค์การ ภาวะผู้นำ วัฒนธรรมองค์การ เครือข่ายสังคม/ชุมชนนักปฏิบัติ และระบบการจัดการความรู้) ที่ส่งผลต่อต่อการเพิ่มประสิทธิภาพองค์การโดยนำการจัดการความรู้ไปปฏิบัติ เพื่อพัฒนาแนวความคิดจากการศึกษาดังกล่าวเป็นกรอบแนวคิดเชิงบูรณาการ ผู้ศึกษาได้วางกรอบการศึกษาให้คุณลักษณะ กระบวนการ ผลลัพธ์ และปัจจัยแห่งความสำเร็จล้วนมีผลต่อการเพิ่มประสิทธิภาพในการจัดการความรู้ โดยคุณลักษณะและปัจจัยแห่งความสำเร็จมีผลต่อกระบวนการจัดการความรู้ขององค์การ ซึ่งส่งผลต่อผลลัพธ์ของการจัดการความรู้ในขณะเดียวกันปัจจัยแห่งความสำเร็จในการจัดการ

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ความรู้ล้วนมีความสัมพันธ์ระหว่างกัน การศึกษาครั้งนี้ได้เสนอแนวทางการยกระดับการเพิ่มประสิทธิภาพขององค์การผ่านการจัดการความรู้ เพื่อใช้เป็นแนวทางในการปรับปรุงการจัดการความรู้ขององค์การภาครัฐในอนาคต

คำสำคัญ: *การจัดการความรู้ การนำไปปฏิบัติ คุณลักษณะ กระบวนการ ผลลัพธ์ ปัจจัยแห่งความสำเร็จ*

Introduction

It goes without saying that the world has changed rapidly in recent decades. There is a dynamic global environment; the development of information and technology has accelerated exponentially; and there is an increasingly intense competitive environment in many countries. Government agencies and public-sector organizations have attempted to adapt themselves to be effective organizations by developing new initiatives and adopting new management techniques and tools. To remain effective, public-sector organizations have adopted various kinds of management tools, including knowledge management (KM).

According to Wallace (2007), KM was presented as a recent development borne entirely of the business world. It gained prominence as an innovative approach to redirecting the energies and activities of organizations by enhancing the generation, flow and use of internal knowledge during the 1990s. McAdam & Reid (2000) argue that there has been very little study regarding KM and knowledge sharing in public-sector organizations. However, the evidence still shows that KM is one of the most popular management tools used in most public-sector organizations, in terms of KM application to both public and private sectors. According to Grover and Davenport (2001, cited in Jasimuddin, 2012), KM has quickly been moving into other industries and organizations, including manufacturing, financial services, government officers, educational institutions and military organizations. In this respect, Wiig (1997) viewed KM as the systematic creation and use of knowledge to maximize the knowledge-related effectiveness of an organization which can play an important role to increase public services. It can be concluded that currently most governments recognize the important of KM to their policy-making and service delivery to the public, and some government departments are beginning to place KM on their agenda (Wiig, 1999; Anongkhanatrakul, 2004; and Jakawattanakul, 2007, Mingmitr, 2016a).

In general, KM incorporates ideas and processes from many different sources and technologies; a wide variety of disciplines, techniques, and processes contribute to the art and science of managing knowledge in organization. In most organizations, knowledge was often embedded, not only in documents or repositories, but also in organizational routines, processes, practices and norms (Davenport and Prusak, 1998). In this respect, knowledge could be seen merely as having little value unless it was transferred (Small &

Sage, 2006). According to McNabb (2007), KM is a set of processes, practices, and management philosophies that exist to collect, process, store, and make available the organizational knowledge that enables government agencies to be more proficient and competitive in the delivery of public services. Based on this ground, although there is plenty of talented staff in public-sector organizations, a lack of knowledge regarding KM processes implementation can make organizations ineffective.

Problem Statement

The problem to be addressed in this conceptual paper is that most scholars intend to identify, analyze, write and propose conceptual frameworks to explain KM options, but the KM spectrum is still difficult to comprehend by reference to its topic alone. Many scholars have accepted that KM definition is difficult (Lopez et al., 2004; Earl, 2001; Chauvel & Depres, 2002, cited in Jasimmudin, 2012). In the meantime, some scholars have attempted to explain KM definition as it depends on the fact that is subjective has been studied by several disciplines, and from different approaches. Some scholars identify possible factors to define knowledge itself as KM (Hlupic et al., 2002; McNabb, 2007; Jasimmudin, 2012). Most scholars in the field of KM have discussed KM processes in their studies (Nonaka & Takeuchi, 1995; Alavi, 1997, Ruggles, 1998; Hult, 2003; Joch, 2004 and Karadsheh, 2009). However, the number of scholars who have studied KM characteristics, KM outcomes and critical success factors (CSFs) of KM implementation is still very small. Therefore, more studies which emphasize KM characteristics, processes, outcomes and CSFs affecting KM implementation effectiveness is needed. Applied to KM implementation, new research on this topic could be beneficial for any public-sector organizations in terms of KM success and enhancing its organizational effectiveness.

More importantly, KM characteristics, processes, outcomes and CSFs have been separately studied by scholars. Hence, this conceptual paper aims to explore a specific linkage of KM characteristics, processes, outcomes and CSFs in order to map out an integrated model of study to gain KM success and organizational effectiveness. Accordingly, this paper intrinsically attempts to review a large number of literatures regarding to the aforementioned areas. Lastly, the proposed constructive model to enhance KM success and organizational effectiveness in public-sector organizations will be discussed.

Purpose of the Study

This conceptual paper is intended to investigate, identify and understand the factors that affect KM implementation in public-sector organizations through the analysis of a large number of literature reviews in terms of KM characteristics, processes, and outcomes. Additionally, a number of CSFs affected by organizational effectiveness, in terms of KM implementation, are reviewed as well. As a conceptual paper, the review of a large number of literatures regarding the aforesaid KM elements is performed in order to map out an integrated model of the study to gain KM success and organizational effectiveness.

Significance of the Inquiry

This conceptual paper is significant because it explores a number of factors that affect KM implementation and organizational effectiveness. The contribution of this paper is in enhancing successful KM implementation and organizational effectiveness through developing the proposed model, which has been developed to assist the public-sector organizations in understanding the range of KM options in the future.

Summary of Theoretical Framework

Knowledge Management (KM)

Whilst a large number of KM studies have been carried out, KM definition is still difficult to achieve, and it has been defined in a number of different ways by different scholars (See, for example, Nonaka & Takeuchi, 1995; Grey, 1996; DeJarnett, 1996; Wiig, 1997; Hibbard, 1997; Davenport et al., 1998; Beckman, 1999; Laudon & Laudon, 2000; Alavi & Leidner, 2001; Tiwana, 2002a; Al-Hawamdeh, 2003; Hult, 2003; Joch, 2004; Murray, 2005; Dalkir, 2005; Jasimuddin et al., 2006; Grudin, 2006; Wallace, 2007; O'Dell & Hubert, 2011; Jasimuddin, 2012).

Nonaka & Takeuchi (1995) defined KM as the substantiated understandings and beliefs in an organization about the organization and its environment. They differentiated knowledge into two types - tacit and explicit. Whilst the first was codified, translated and shared, the latter was personal knowledge and hard to confirm and share with others – it was private understanding. They concluded that a major task of KM was to turn tacit knowledge to explicit knowledge. Since then, KM established itself as a key part in

many organizations. Afterwards, Peter Drucker was credited with coining the phase 'knowledge worker', and management interest in knowledge was not new anymore (Morey et al., 2000).

DeJarnett (1996) viewed KM as knowledge creation, which was followed by knowledge interpretation, knowledge dissemination and use, and retention and refinement of that knowledge. Wiig (1997) defined KM as the systematic creation and utilization of knowledge to maximize the knowledge-related effectiveness of an organization. Hibbard (1997) defined KM as the capture of an organization's collective expertise and the distribution of such expertise.

In the Encyclopedia of Knowledge Management, KM was a multi-disciplinary subject, with contributions from such disciplines as information systems and technology, strategic management, organizational theory, human resource management, education science, psychology, cognitive science and artificial intelligence (Wallace, 2007). To connect with this, Beckman (1999) defined KM as a fast growing discipline with a lot of ideas yet to be tested, issues to resolve, and a lot of learning still to be discovered. Also, Jasimuddin et al. (2006) viewed KM as a discipline that promotes an integrated approach to identify, capture, store, retrieve and transfer an organization's knowledge in order to enhance its competitive advantages.

Grey (1996) viewed KM as a collaborative and integrated approach to the creation, capture, organization, access and use of the enterprise's intellectual assets. O'Dell & Hubert (2011) viewed KM as a systematic effort to enable information and knowledge to grow, flow and create value. For them, the discipline was about creating and managing the processes to get the right knowledge to the right people at the right time, and to help people share and act on information in order to improve organizational performance.

Davenport et al. (1998) defined KM as a process of collecting, distributing, and efficiently using knowledge resources. To support this view, Laudon & Laudon (2000) viewed KM as a process of systematically and actively managing and leveraging the stores of knowledge in an organization. Alavi & Leidner (2001) viewed KM as the inter-dependent processes of knowledge creation, storage, retrieval, transfer and application. Al-Hawamdeh (2003) defined KM as a process of identifying, organizing and managing knowledge resources, which has five important dimensions in KM activities – capture,

creation, use (leverage), sharing and retention. Hult (2003) defined KM as the organized and systematic process of generating and disseminating information, and selecting, distilling and deploying explicit and tacit knowledge, to create unique value that can be used to achieve competitive advantages. Grudin (2006) stated that KM included acquiring, creating, transforming, retaining, finding and reusing processes. Debowski (2006) defined KM as the processes of identifying, capturing, organizing and disseminating the intellectual assets that are critical to the organization's long-term performance. For the processes, the definition of KM processes can be best summarized by McNabb (2007) who concluded that KM was a set of processes, practices, and management philosophies that exist to collect, process, store and make available the organizational knowledge that enables government agencies to be more proficient and competitive in the delivery of public services.

Joch (2004) defined KM as managing information to make the most of the knowledge in an organization to benefit from finding and applying innovative answers to old and new questions. Tiwana (2002a) defined KM as a changing mix of worker's experience, values, expert insight and intuition that provides an environmental framework for evaluating and incorporating new experiences and information. Murray (2005) defined KM as the practice of selectively applying knowledge from previous experiences of decisions making to current and future making activities with the express purpose of improving the organization's effectiveness. Based on this ground, Dalkir (2005) defined the comprehensive definition of KM as the deliberate and systematic coordination of an organization's people, technology, processes, and organizational structure to add value through re-use and innovation.

It is worth noting that KM has moved rapidly beyond the stage of a fad (Morey et al., 2000). To some, KM was just another management fad, like 'Management by Objectives - MBO' and 'Total Quality Management - TQM'. To others, KM was not new anymore (McNabb, 2007). KM then was considered as the most critical resource of an organization (Drucker, 1993). In a knowledge-based society, knowledge was a primary source, whilst the economists' traditional factors become secondary (Drucker, 1992). This was the supportive idea that knowledge became one of the crucial production factors or means, in terms of an organization's capacity to survive, and gained sustainable competitive advantage (Jasimuddin, 2012). Figure 1 illustrates the timeline of KM during 1990-2015.

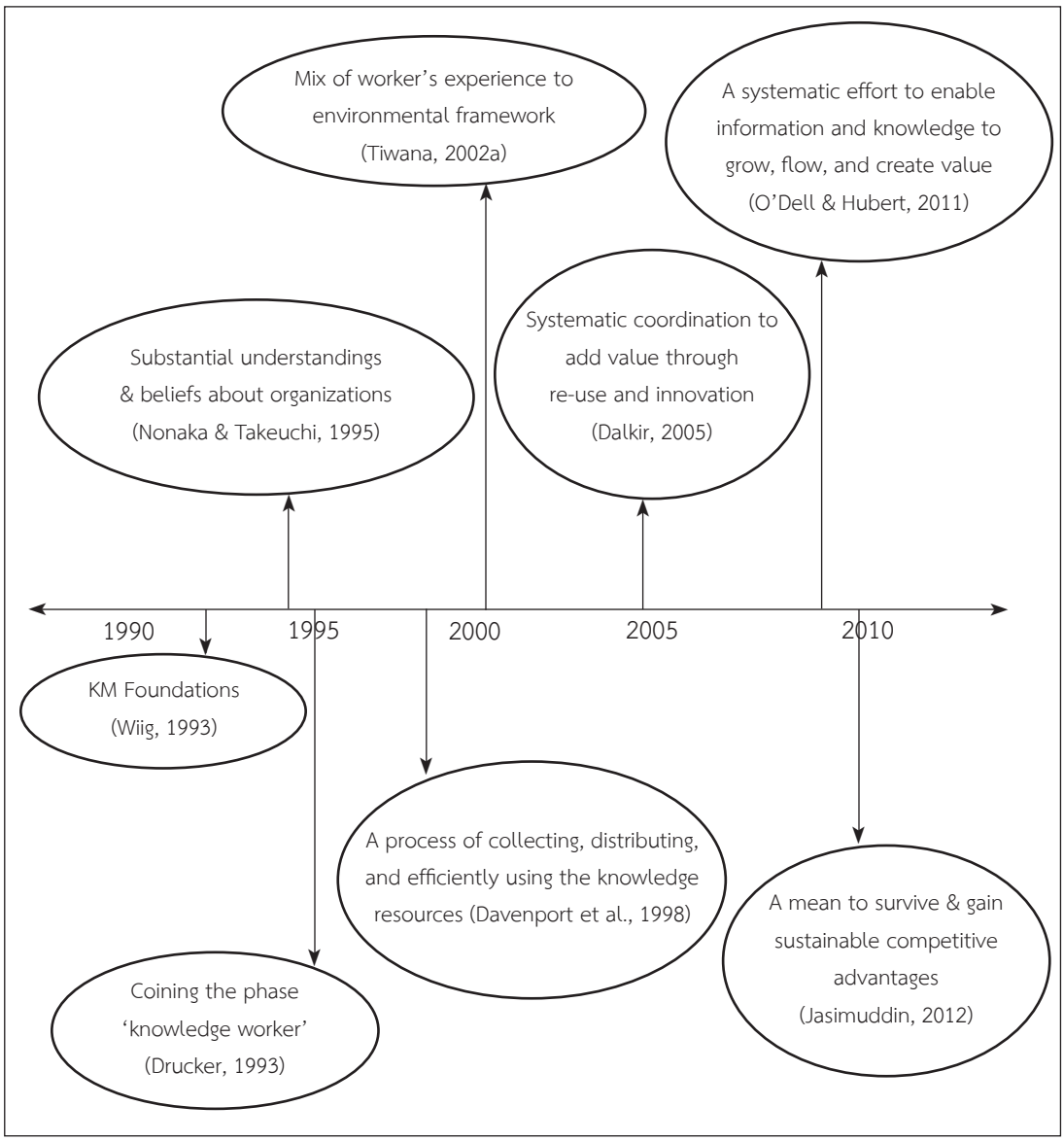

Figure 1: A Summary of Timeline of KM during 1990-2015

KM in Public Organizations

For the first decade of the twenty-first century, differences between private and public organizations were at the core of public administration theory and had been the topic of ongoing research, i.e. personnel management, decision making and information system (Watson & Carte, 2000). KM came to prominence by the middle of the first decade of the twenty-first century (McNabb, 2007) and became a normal way of operating in

many states and local governments. In general, business managers (in private-sector organization) and administrators (in public-sector organization) agree that KM's blend of *technology*, *processes* and *people* holds the key to organizational improvement. In this respect, *people* (i.e. the CKOs) in business and the government have similar responsibilities and skills, but *people* in public-sector organizations are influenced by the political dimension of government and are not influenced by rewards and punishments, according to market controls. Based on this ground, Table 1, showing KM activities in public and private organizations, illustrates these differences.

Table 1: Key Activities in Private-sector Organization and Public-sector Organization

Key KM Activities	
Private-sector organization (McKeen & Staples, 2001, cited in McNabb, 2007, p. 200)	Public-sector organization (McNabb, 2007, p. 5)
Creating and managing intranet	More constrained in their choice of procedures
Creating knowledge repositories	Perform activities that are mandated by political forces
Establishing and managing a data warehouse	Face more external formal controls and specifications on their actions
Creating internal networks of knowledge workers in communities of interest (CoIs) and/or communities of practice (COPs)	Deal with greater external influence on what and how they do it
Implanting groupware to support collaborations	Gain approval from a variety of stakeholders
Mapping sources of knowledge and expertise in the organization	Have multiple, often contradictory, objectives
Launching new knowledge-based products or services	Have less autonomy and control over decision making and human resources
Establishing new knowledge roles	Less able to devise incentives for staff performance
Implementing decision-support tools	Often forced to have their failures aired in the public press

Source: Adapted from McNabb (2007)

According to McAdam & Reid (2000), public-sector organizations had not been widely studied regarding KM. A number of studies corroborated the fact that KM has been implemented in giant companies, especially in private-sector organizations, i.e. Ernst & Yong, Ford, Hewlett-Packard, Siemens, and Unilever (MacGillivray, 2003). According to Jasimuddin (2012), it was still observed that KM was getting a greater role in all types of organizations, especially in private-sector organizations, educational institutions, public enterprise, military establishments, hospitals, government and non-governmental organizations. Governments had been forced to become more adept at grappling with many challenges, i.e. globalization of society, rapid advances in science and technology, opportunities facing governments for maintaining and improving the quality of life for the citizens and greater accountability for the actions of government (McNabb, 2007). Furthermore, the evidence showed that business and government departments and agencies, in each year, spent billions of dollars on the purchase of KM equipment, materials and consultants, as well as information and communications technology (McNabb, 2007). Most government agencies recognized the importance of KM as a supportive tool to policy-making and service delivery (Jakawattanakul, 2007). Nowadays, KM is adopted by public-sector organizations to blend their strategies, planning, consultation and implementation.

According to Bozeman (2004), the term of public-sector organizations referred only to government organizations. It referred to the functioning agencies and units at the state, country, municipal and local levels of government; this sector includes all agencies, government corporations, the military and departments and miscellaneous units that perform some form of public service (McNabb, 2007). Based on this ground, a number of KM studies have been made, such as National Office of the Information Economy of Australia (Rao, 2005), the FBI, the Department of the Navy, the Department of US Treasury, the office of the Architect of the Capitol (AOC) the U.S. General Accounting Office (as required by the Legislative Branch Appropriations Act – to conduct a review of all legislative branches operations) (McNabb, 2007), the Asia-Pacific International Labor Organization (Anongkhanatrakul, 2004), Siriraj Hospital in Thailand (Lorsuwannarat, 2005), the Thai Revenue Department (Jakawattanakul, 2007) and the Thai parliament (Mingmitr, 2016a). This conceptual paper focuses on KM in such government agencies.

KM Characteristics

Whilst there are a myriad number of KM studies, the study of KM characteristics is still a relatively unexplored area of research. A number of KM-element concepts have been studied by a number of scholars (Nonaka & Takeuchi, 1995; Davenport & Prusak, 1998; Barclay & Murray, 1999; and Alavi & Leidner, 1999). Binney (2001) concluded that KM applications addressed in the literature have been synthesized into six common categories – *transactional KM, analytical KM, asset management KM, process-based KM, developmental KM,* and *innovation or creation KM*. This can be viewed as:

a) For transactional KM, knowledge is used as prepackaged and provided to users in the course of interacting with the system in a transaction to assist in addressing a customer problem; use of knowledge is embedded in the application of technology. It provides a method for representing a past situation and retrieving similar cases when a new problem is input (Davenport & Klahr, 1998, cited in Binney, 2001).

b) For analytical KM, customer-related information is set to assist product development and competitive intelligence applications, which incorporate external sources of knowledge, are being used by government agencies (Elliott, 1999; cited in Binney, 2001).

c) For asset management KM, the focus is on processes, associated with management of knowledge assets - management of explicit knowledge and management of intellectual property and processes surrounding identification, exploitation and protection (Guthrie & Petty, 1999; cited in Binney, 2001).

d) For process-based KM, codification and improvement of process are the main areas of focus (as work practices, procedures and methodology), which are often being improved through internal lessons, learned sessions, formal engineering of process by internal best practice selection and codification and external benchmarking (Binney, 2001).

e) For developmental KM, increasing competencies or capabilities of an organization's knowledge workers is focused upon – investing in human capital. Investing in developing knowledge and the capabilities of an organization's

workforce is becoming a measure of value, because it is increasing the knowledge content and capability of the organization (Edvinsson & Malone, 1997). In this respect, people can exchange their ideas and learn from each other in another emerging form of tacit knowledge development (traditionally related to products, disciplines and technologies) where people can learn from the experiences of others (Binney, 2001).

f) For innovation or creation KM, the focus is on providing an environment in which knowledge workers can come together to collaborate in the creation of new knowledge; this is becoming the most popular topic in today's management literature (Binney, 2001).

Based on an organization's current KM-related reviews, these KM characteristics can be used as strategic planning tools for the organization. The public-sector organizations can apply each of them to their strategy to generate the organizational knowledge that enables all organizational members to be more competitive and proficient in the delivery of public services. For example, the Secretariat of the House of Representatives of the Thai parliament employs *developmental* KM, which focuses on increasing the competencies or capabilities of each and every parliamentary staff. For twenty-three Bureaus and five groups at the Secretariat, there is a crucial event, annually organized by the Secretariat, called the *Learning Organization Day* (LO Day). Here, the parliamentary staff gather together to transfer their tacit knowledge via developmental interventions (i.e. membership in a community of interest or experimental assignments) to explicit knowledge (Mingmitr, 2016a). More or less, this is an emerging emphasis on developing *learning organization* and collaborative skills. In this respect, this can be referred to as investing in human capital, which is one of developmental KM, according to Edvinsson and Malone (1997).

KM Processes

A number of studies have sought to explain KM processes. Scholars have suggested that a KM process has different activities, including the creation, transfer and sharing of knowledge. Based on this, the ways of creating, transferring and sharing of knowledge across different levels of an organization were widely discussed by many scholars (Wiig, 1993; Nonaka & Takeuchi, 1995; Davenport et al., 1996; Alavi, 1997, Ruggles, 1998; Tiwana, 2002a; Hult, 2003; Joch, 2004; Debowski, 2006; Karadsheh, 2009).

In their classic work – 'Theory of Organizational Knowledge Creation' by Nonaka & Takeuchi (1995), the five-phase model of the organizational knowledge (creation process) was presented as: a) sharing tacit knowledge, b) creating concepts, c) justifying concepts, d) building an archetype and e) cross-leveling of knowledge (Nonaka & Takeuchi, 1995; Morey et al., 2000). However, this was just a part of KM process because Nonaka and Takeuchi focused on knowledge creation. To explore the bigger picture, Davenport et al. (1996) defined a KM process as a set of activities using individual and external knowledge to produce outputs characterized by information content. They postulated KM as the process approach which promotes an examination of what and how things are done from a viewpoint of producing value for a customer. Grover and Davenport (2001) then elaborated that KM processes lie somewhere between information and the organization's source of revenue, its products and services. Generically, the said processes can be grouped as a three sub-process: knowledge generation, knowledge codification and knowledge transfer or realization.

Wiig (1993) viewed KM related to the processes of creating, building, compiling, organizing, transforming, transferring, pooling, applying and safeguarding knowledge that must be carefully and explicitly managed in all affected areas. Alavi (1997) viewed KM as processes with six stages: acquisition (i.e. collecting and interpreting data from various sources), indexing (i.e. developing the data by classification), filtering (i.e. categorizing and screening the data for the important issues), linking, distribution and application. Ruggles (1998) mentions that KM main activities are: knowledge generation (i.e. creating new ideas), knowledge codification, and knowledge transfer (i.e. ensuring knowledge has been exchanged between individuals and departments).

Interestingly, Hult (2003) defined a KM process in terms of *inbound* and *outbound*, in which the first was associated with knowledge creation (focusing on generation and dissemination of information, developing a shared understanding, filtering such understanding to value and storing the wisdom within an accessible mechanism in the organization), whilst the latter was associated with the deployment of organizational knowledge to achieve the goals of sustainable competitive advantages.

Al-Hawamdeh (2003) viewed KM as a process of five activities: knowledge capture, knowledge creation, knowledge leverage, knowledge sharing and knowledge retention. Debowski (2006) viewed KM as the process of identifying, capturing, organizing and

disseminating the intellectual assets that are critical to the organization's long-term performance. Karadsheh (2009) stated that KM activities can be associated with eight stages as: capture, combination, evaluation, filtering, repository, sharing, application and performance. O'Dell & Hubert (2011), however, report that KM processes have seven stages: create, identify, collect, review, share, access and use.

As described above, KM processes may be divided into many stages. Generically, the major processes and activities in KM can be associated with: a) knowledge acquisition, b) knowledge creation, c) knowledge storage, d) knowledge transfer and e) knowledge application. They can be explained as follows:

a) Knowledge Acquisition

Knowledge acquisition is an important stage in any KM processes. A number of scholars viewed this issue as a process to identify the sources of knowledge and gathering them for use (Alavi, 1997; Tiwana, 2002a; Dalkir, 2005; McCall et al., 2008). For example, Tiwana (2002a) viewed knowledge acquisition as the process of the development and creation of insights, skills and relationships. It is a process that IT components need to focus on. Data-capture tools with filtering abilities, intelligent databases, keyboard scanners, note-capture tools and electronic whiteboards are examples of information technology components that can support knowledge acquisition.

b) Knowledge Creation

Knowledge creation is at the heart of innovation and developing competitive advantages, and it is a key concern for managers in the business world (Ichijo & Nonaka, 2007). The difficulties of managing the process are due to the tacit nature of knowledge and the inability to understand knowledge because it is frequently tied to a particular context. According to Nonaka & Takeuchi (1995), the interaction between tacit knowledge and explicit knowledge brought about *knowledge creation* - another way of classifying knowledge processes via the classic "knowledge spiral" model of Nonaka. Nonaka traces the continual evolution of organizational knowledge, both tacit and explicit, via a set of interactions of four kinds of processes: socialization, externalization, combination and internalization (Rao, 2005). The popular model

called "SECI" is involved with the organizational members' interaction – especially on micro-level members. In this model, knowledge originates in individuals who convert it into explicit knowledge and turn it into organizational knowledge through the four knowledge conversion phases: a) from tacit knowledge to explicit knowledge, called socialization; b) from tacit knowledge to explicit knowledge, called externalization; c) from explicit knowledge to explicit knowledge, called combination; and d) from explicit knowledge to tacit knowledge, called internalization (Ichijo & Nonaka, 2007).

c) Knowledge Storage

Knowledge that is transferred among organizational members is likely to be more useful than that retained by an individual. Moreover, if it is a repository so that the other members can access or retrieve it for future use, then it is more useful. Accordingly, knowledge storage is a major block of KM implementation, which will provide organizational knowledge to create new knowledge and re-use it (Jasimuddin, 2012). However, if irrelevant knowledge is stored, the repository will be filled with trash. Hence, the important thing is the effort to ensure that the relevant and correct knowledge is stored, and can be accessed by organizational members. In the meantime, the irrelevant knowledge should be removed from time to time from the knowledge repository (Karadsheh, 2009). If stored knowledge is not utilized correctly, it spells a huge loss to the organization. In short, it is an important stage to put and utilize the "right" knowledge in the right place at the right time, after getting it from the right sources.

d) Knowledge Transfer/Sharing

According to Thomas (2005), many public organizations paid attention to the importance of KM in drafting policies and enhancing service delivery. Many scholars mentioned knowledge sharing or knowledge transfer in their works (Wiig, 1993; Gilbert & Cordey-Hayes (1996); Disterer, 2001; Tiwana, 2002b; Lee & Al-Hawamdeh, 2002, van den Hooff, B. et al., 2003; Barrett et al., 2004; Dalkir, 2005; Yang, 2004; Ichijo & Nonaka, 2007). Generally, "knowledge transfer" is the same as "knowledge sharing". In term of knowledge transfer, Hult (2003)

stated that a critical part of KM is the "transformation of information into knowledge". There might be various stages of KM processes, but the "shared" understanding is still the most important stage. There are two important perspectives on knowledge transfer; that is, "an act of transmission and reception" and "a think of process of reconstruction" (Barrett et al., 2004). This stage means sharing between individuals and groups in an organization (Disterer, 2001). This idea was supported by Gilbert & Cordey-Hayes (1996), as they stated that knowledge sharing is the willingness of employees in an organization to share with their colleagues the knowledge they have acquired or created. Yang (2004) asserted that knowledge sharing is a dissemination of information and knowledge to the entire organization. The two best described definitions are: knowledge sharing is a process where individuals exchange both tacit and explicit knowledge and together create a new knowledge (van den Hooff et al., 2003) and knowledge sharing is an deliberate act that makes knowledge reusable by other people through knowledge transfer (Lee & Al-Hawamdeh, 2002).

e) Knowledge Application

As demonstrated above, many scholars purposed that knowledge application is one of the different activities of KM process (Webb, 1998; Beckman, 1999; Tiwana, 2002a; Dalkir, 2005; Watson, 2003 cited in Jasimuddin, 2012). The main point is that the initiatives of investment made by pubic-sector organizations for KM is huge, so it is important to utilize knowledge in the organization at the right time. Tiwana (2002a) concluded that this knowledge application is whatever is broadly available throughout the company and can be generalized and applied to new situations, at least in some parts.

KM Outcomes

Jasimuddin et al. (2006) viewed KM as a discipline that promotes an integrated approach to identify, capture, store, retrieve and transfer an organization's knowledge in order to enhance its *competitive advantages* as its KM outcomes. Ichijo & Nonaka (2007) viewed knowledge creation as a KM process at the heart of innovation and developing *competitive advantages* as its outcomes. To connect with this, Hult (2003) viewed KM

processes in terms of *inbound* process as the transformation of information into knowledge (knowledge creation) and *outbound* process as the deployment of organizational knowledge to achieve the goals of sustainable competitive advantages as its KM outcomes. In this respect, it is worth noting that it is not the knowledge itself which is value for the organization, but it is KM activities (KM processes) that provide the organizations with its *competitive advantages*. In other words, the organization's *competitive advantage* is the KM outcome. It can be seen in terms of newly acquired knowledge, i.e. new product success, performance of work and workers' satisfaction.

A number of scholars have mentioned that KM brings about necessity outcomes; that is, helping the organization to improve sustainable competitive advantages (Nonaka, 1991; Davenport & Prusak, 1998; Jasimuddin et al., 2005). According to Debowski (2006), the KM performance outcomes of the organization were the outputs related to evidences in the knowledge communities and the organizations. For example, most parliamentary staff viewed the *LO Day* as the KM outcome of the KM processes (knowledge transfer/sharing) at the Secretariat of the House of Representatives at the Thai parliament, according to Mingmitr (2016b). In this respect, the *LO Day* is "newly acquired knowledge" that all staff have learned together at this annual event so that they can perform their work in a better way. Another example is that KM outcome refers to the changes that result from KM processes (knowledge transfer/sharing). It is the value for the recipient of knowledge and ultimately for the organization – the Asia-Pacific International Labor Organization, such as the performance of work that can be seen in terms of effectiveness, efficiency and timeless, according to Anongkhanatrakul (2004). According to Lorsuwannarat (2005), having more organizational members to contribute to KM activities can be seen as a KM outcome at Siriraj Hospital, in terms of workers' satisfaction.

Critical Success Factors (CSFs)

It is a fact that the concept of KM stemming from private-sector organizations can be adopted in public-sector organizations, but the success or failure of the organization depends on how KM is adopted. To gain an understanding of the role of organization in shaping success or failure of KM in public-sector organizations, on a number of controllable and uncontrollable factors need to be analyzed, i.e. organizational culture, climate, policies and leadership. This conceptual paper presents a number of CSFs as follows:

a) Organizational Strategy/KM Strategy

Quinn (1980) defined organizational strategy as the pattern or plan that integrates an organization's major goals, policies and action sequences into a cohesive whole. Tiwana (2002b) viewed KM strategy as what challenges of business and KM is set to address the three-way strategic alignment between organization, knowledge, and technology used to support the first two.

b) Organizational Structure

Hall (1996) stated that organizational structure functions to control variations in behavior among individuals, to determine positions that have decision-making authority and to direct the flow of information among these positions. It implied establishing a set of roles and teams to perform knowledge-related tasks, according to Davenport et al. (1998).

c) Leadership

Leadership is a subject that has long excited interest among people, as it represents images of powerful, dynamic individuals (Yukl, 1989). KM requires strong leadership. Leadership has a fundamental role in directing and shaping an organization by providing a sense of direction, vision and purposes for all members (Debowski, 2006). The characteristics of good leaderships tend to reflect four key themes: a) capacity to explain with clarity the organizations' purposes and priorities; b) development of the culture within which workers operate; c) creation and maintenance of good people practices to facilitate effective work; and d) encouragement of high standard and high performance in the work setting (Debowski, 2006). Leadership helps to construct the 'knowledge vision' and translate it into practice.

Some organizations allocate responsibility for coordinating and leading KM to a person – Chief Knowledge Officers (CKO). Frappaolo (2002) stated that most CKOs have little in the way of staffing or line management responsibility. Tiwana (2002b) also points out that CKOs focused on correcting knowledge flow and eliminating related deficiencies and inefficiencies that exist within the organization, and also states that the CKOs job descriptions are: a) optimizing

process design for KM; b) creating channels for leveraging untapped knowledge and competencies within the organization; c) integrating KM; d) breaking barriers and eliminating impediments; e) watching the learning loop; f) creating financial and competitive value; and g) supporting IT and eliminating knowledge flow gaps. In the meantime, some organizations integrate *knowledge leadership* responsibility into many strategic roles, which brings about Strategic Knowledge Leaders (SKLs). They may operate across many different levels of the organizations and fulfill a range of roles, depending on their placement in the organizational hierarchy (Debowski, 2006). Whilst the SKLs may provide a strategic picture and a vision of where the organization should focus, the responsibility for putting that vision into practice lies in the hands of *core leaders* (Blumentriff & Hardie, 2000). Wood et al. (2002) defined *core leaders* as a group of persons who are at the hub of the KM process in that they act as gatekeepers to new processes and strategies. Davenport & Probst (2002) pointed out the difference between *SKLs* and *core leaders*: the *core leaders* loyalty may focus more on their units needs than on those deemed to be important by the organization.

d) Culture

The culture within the organization influences the success of KM (Brown & Woodland, 1999; Tiwana, 2002a; Dalkir, 2005) suggested that the first thing to do is to change the organizational culture to one of learning. KM Implementation almost always requires a cultural change, which is a significant influence on knowledge adoption in the organization (Dalkir, 2005), and a number of scholars have focused on organizational culture (Alter, 1999; Schein, 1999; Dalkir, 2005). For example, Alter (1999) defined organizational culture as shared understanding about relationship and work practices that determine how things are done in a workplace. Schein (1999) viewed culture as a pattern of basic assumptions - invited, discovered, developed by a given group as they learn to cope with problems of external adaptation and internal integration, which has worked well enough to be valid and taught to new members as the collective way to think, perceive and feel in relation to those problems. Dalkir (2005) viewed organizational culture as the underlying values, beliefs,

and codes of practice that make a community what it is, and it becomes one of the foundations of KM in the organizations.

Interestingly, Morgan (1977) presented some key elements of organizational culture as: 1) stated and unstated values; 2) overt and implicit expectations for member behavior; 3) customs and rituals; 4) the stories and myths of the group; 5) shop talk – typical language used in and about the group; 6) climate – feelings evoked by the way members interact with one another, with outsiders, and with their environment, including the physical space they occupy; and 7) metaphors and symbols – which may be unconscious or embodied in other cultural elements.

e) Social Networking/Communities of Practice (CoPs)

KM network is a communication system that transmits information between nodes. Managing a successful KM network requires making sure that all of the major components of the networks are functioning at their best (Groff & Jones, 2003). The network can constitute both the technological network and the underlying social and organizational network; in terms of the technology they operate (Tiwana, 2002b). The social networking tools are used to analyze groups and find how members interact will each other, whilst CoPs refer to the process of social learning that occurs when people who have a common interest in some subject or problem collaborate over an extended period to share ideas, find solutions and build in innovations. Recently, CoPs have become associated with KM as people have begun to see them as ways of developing social capital, nurturing new knowledge, simulating innovation or sharing existing tacit knowledge within an organization. Now it is an accepted part of organizational development (Dalkir, 2005).

f) Information, communication and Technology (ICT)/KMS

ICT can support KM and it influences the users' acceptance of the knowledge philosophy; whilst KMS provides the technological basis for efficient KM. Although KM may operate without a formal-technology based process, particularly in small organizations, a well-planned and relevant system greatly helps users to contribute to KM (Debowski, 2006). Thus, a good KMS can be

a major contributor to successful KM implementation. Lytras et al. (2008) stated that the foundations of KM are the KMS. KMS is a class of applied information, which is managed through organizational knowledge (Bock & Qian, 2005). KMS can be viewed as a networked whole, comprising data sources, information exchange-enabling networks, knowledge flow channels, static and mobile intelligent agents and integrative technologies that bind them all together (Tiwana, 2002a). Networking issues among employees in any organization are more complex than the hardware issues in information systems networking. However, if networking does not always provide an effective framework for developing KM strategy, it provides a place to start.

These above-mentioned CSFs can be simply integrated into a constructive model as shown in Figure 2 below.

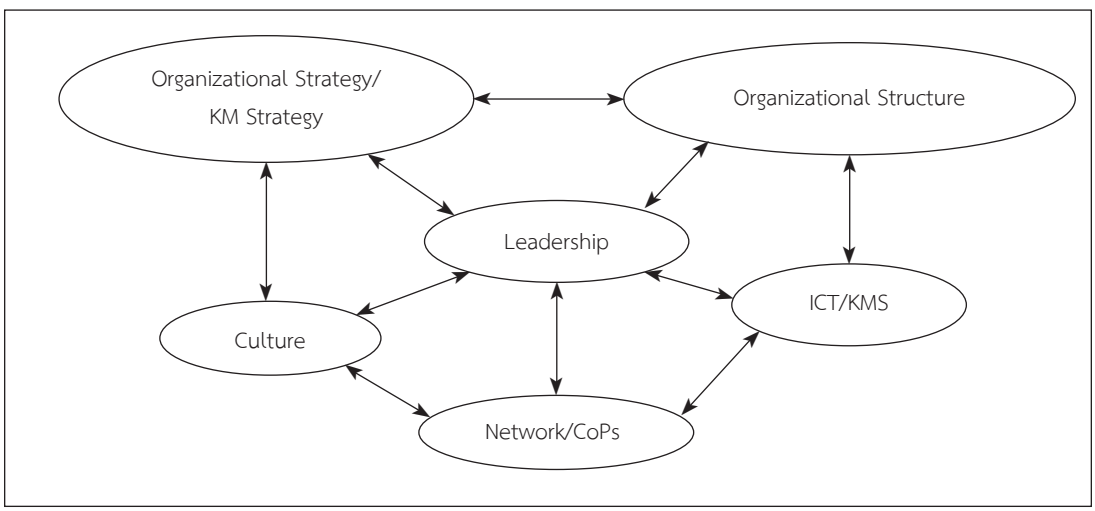

Figure 2: Relationship among the CSFs on KM Success and Organizational Effectiveness

According to Figure 2, two points can be presented as follows:

Firstly, leadership is a special form of power, one that involves *the ability*, based on the personal qualities of the leader, to elicit the followers' voluntary compliance in a broad range of matters. "It is distinguished from the concept of power in that it entails influence; that is, change of preferences, while power implies only that subjects' preferences are held in abeyance" (Etzioni, 1965: 690). In this respect, leadership entails motivating

followers to achieve outcomes that the leader seeks, and the important thing to note is that the followers alter their preferences to coincide with those of the leader. One of formal leaders' major functions is to maintain a focus on the institutional embodiment of purpose, which involves choosing the means to achieve the ends desired, or ensuring that the structure reflects and is designed to accomplish the mission effectively (Selznick, 1957). Therefore, leaders should consider and evaluate means (KM processes) and ends (KM outcomes) to accomplish KM success and organizational effectiveness, respectively.

Secondly, it is apparent that the relationships among the CSFs on KM success and organizational effectiveness are, to some degree, reciprocal. The CSFs like organizational strategy/KM strategy, organizational structure, ICT/KMS, network and culture, are necessary conditions for organizational effectiveness. For example, the CKOs (and SKLs) in the organizations – who set KM strategy connected to knowledge and IT (Tiwana, 2002a) and change organizational culture (Dalkir, 2005) – must ensure that all of the major components of the networks are functioning at their best (Groff & Jones, 2003). In the meantime, leaders must ensure that ICT can support KM and it influences organizational members' acceptance of the knowledge philosophy; whilst KMS provides the technological basis for efficient KM. Based on this ground, it is apparent that a well-planned and relevant system greatly helps organizational members to contribute to KM (Debowski, 2006).

Organizational Effectiveness

The term 'organizational effectiveness' is obviously a broad concept and in this section, KM options – characteristics, processes, outcomes and the CSFs – are studied in order to understand how and why these KM options are effective (or ineffective) to the organizations. Accordingly, the objective is to find ways to adjust organizations to enhance effectiveness. Based on this ground, it is useful to define what organizational effectiveness is. Organizational effectiveness has been described as the degree to which the organization 'realizes' (Etzioni, 1964) or 'attains' (Robbins, 1990) its goals. This is still an unclear concept because all organizations have many goals, some of which are conflicting. Based on this ground, there are no such criteria to evaluate organizational effectiveness. Therefore, in this conceptual paper, organizational effectiveness should be considered and evaluated by the integration of KM *characteristics, KM processes* (means), KM *outcomes* (ends) and the *CSFs* in order to achieve its goal of KM success.

In essence, organizational effectiveness can take place when people are effortlessly able to *share* their individual mental models with multitudes of people. According to Hult (2003), *knowledge sharing* was viewed as the transformation of information into knowledge. There might be various stages of KM processes, but *shared* understanding is still the most important stage. Also, a number of scholars study KM and KMS in terms of KM success. Turban & Aronson (2001) identified three measurements for KMS success: a) basic valuation; b) important management; and c) KM activities. To respond this, KM success is a combination of satisfaction with KMS (and other CSFs) and KM processes. Based on this ground, the proposed model of the study is simply designed to contribute to KM success and organizational effectiveness (See Figure 3).

Conclusions

According to the review of the related literatures, this conceptual paper has proposed a conceptual framework, which aims to describe the effect of KM characteristics, processes, outcomes and CSFs on the effectiveness of KM implementation. Table 2, below, is summary of the review of related literatures between KM characteristics, processes, outcomes and CSFs and the effectiveness of KM implementation.

Table 2: Summary of the Review of Related Literatures on KM Elements – Characteristics, Processes, Outcomes, CSFs, and Organizational Effectiveness

Elements	Scholars
KM	Nonaka & Takeuchi (1995); DeJarnett (1996); Wiig (1997); Hibbard (1997); Davenport et al. (1998); Beckman (1999); Laudon & Laudon (2000); Alavi & Leidner (2001); Tiwana (2002a); Al-Hawamdeh (2003); Hult (2003); Joch (2004); Murray (2005); Dalkir (2005); Jasimuddin et al. (2006); Grudin (2006); Debowski (2006); Wallace (2007)
KM Characteristics	Nonaka & Takeuchi (1995); Davenport & Prusak (1998); Barclay & Murray (1999); Alavi & Leidner (1999); Binney (2001)
KM Processes	Nonaka & Takeuchi (1995); Davenport et al. (1996); Alavi (1997), Ruggles (1998); Tiwana (2002a); Hult (2003);

Table 2: Summary of the Review of Related Literatures on KM Elements – Characteristics, Processes, Outcomes, CSFs, and Organizational Effectiveness (continued)

Elements	Scholars
	Joch (2004); Dalkir (2005); Grudin (2006); Debowski (2006); Karadsheh (2009); O'Dell & Hubert (2011)
- Knowledge Acquisition	Alavi (1997); Tiwana (2002a); Dalkir (2005); McCall et al. (2008)
- Knowledge Creation	Wiig (1993); Nonaka & Takeuchi (1995); Dalkir (2005); Rao (2005); Ichijo & Nonaka (2007); O'Dell & Hubert (2011)
- Knowledge Storage/Repositories	Jasimuddin (2012); Karadsheh (2009); Dalkir (2005); O'Dell & Hubert (2011)
- Knowledge Transfer/Sharing	Wiig (1993); Tiwana (2002b); Thomas (2005); Dalkir (2005); Ichijo & Nonaka (2007); Hult (2003); Barrett et al. (2004); Disterer, (2001); Gilbert & Cordey-Hayes (1996); Yang (2004); van den Hooff et al. (2003); Lee & Al-Hawamdeh (2002); O'Dell & Hubert (2011)
- Knowledge Application	Webb (1998); Beckman (1999); Watson (2003); Tiwana (2002a); Dalkir (2005); O'Dell & Hubert (2011); Jasimuddin (2012)
KM Outcomes	Nonaka (1991); Davenport & Prusak (1998); Jasimuddin et al. (2005); Anongkhanatrakul (2004); Debowski (2006)
CSFs	
- Organizational Strategy	Quinn (1980); Tiwana (2002b)
- Organizational Structure	Hall (1996); Davenport et al. (1998)
- Leadership	Yukl (1989); Tiwana (2002b); Davenport & Probst (2002); Wood et al. (2002); Frappaolo (2002); Blumentriff & Hardie (2000); Stankosky (2005); Debowski (2006)
- Culture	Morgan (1977); Alter (1999); Schein (1999); Dalkir (2005); Tiwana (2002b)
- Networks/CoP	Groff & Jones (2003); Dalkir (2005); Tiwana (2002b)
- ICT/KMS	Lytras et al. (2008); Bock & Qian (2005); Stankosky (2005)
Organizational Effectiveness	Etzioni (1964); Robbins (1990); Turban & Aronson (2001)

Intrinsically, the review of related literatures above provides the relationships between KM characteristics, KM processes, KM outcomes, and the CSFs have been established and modelled in Figure 3 below.

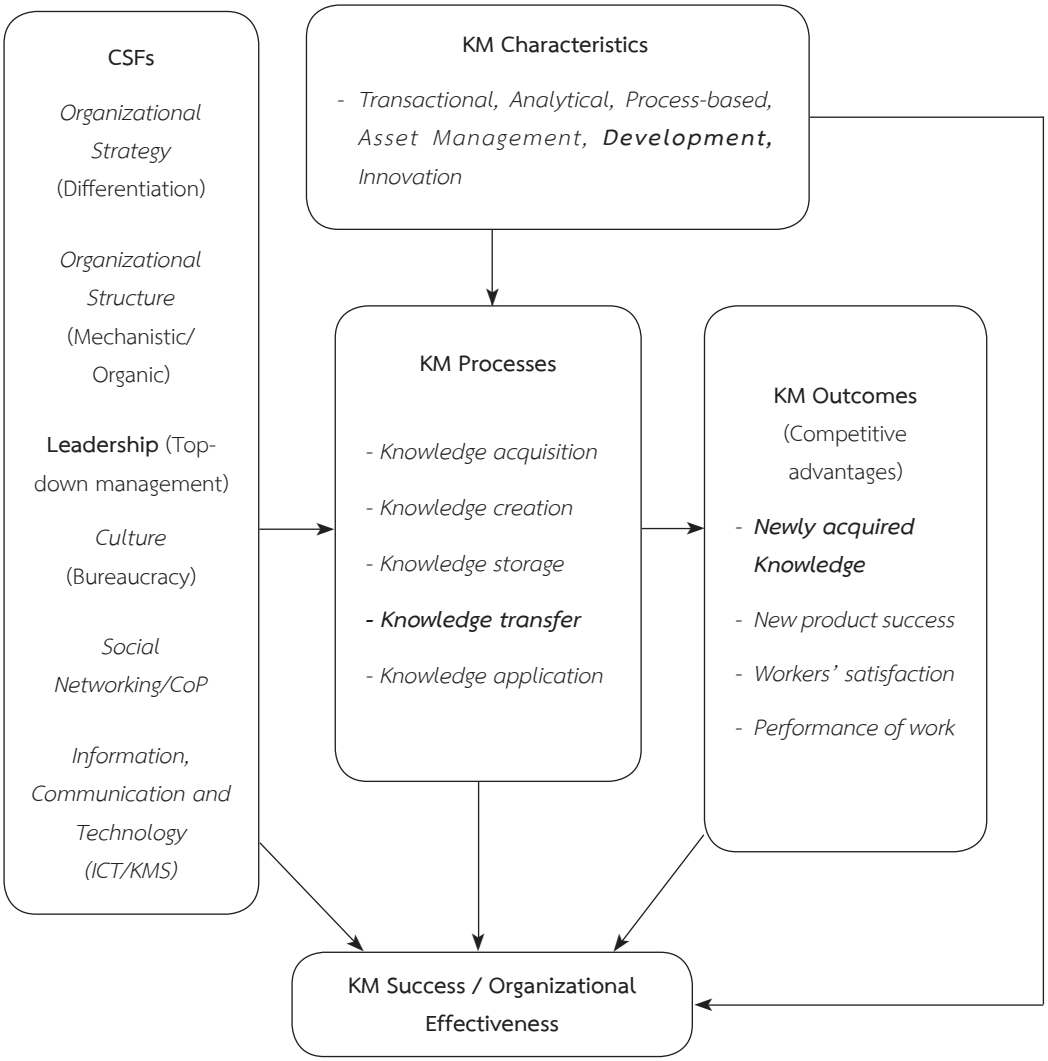

Figure 3: The Proposed Model for the Study

According to Figure 3, the relationship among the KM elements towards its successful implementation can be presented in a relatively simple manner. According to McNabb (2007), administrators in all government agencies agreed that KM's blend of *people*, *processes* and *technology* holds the key to organizational improvement and effectiveness. In this respect, the crucial points are that *people* can be interpreted as all organizational members who are knowledge workers in the government agencies, including the CKOs. Furthermore, the CKOs' views must intrinsically affect the KM *processes* that have been developed to enable and enhance knowledge capture and knowledge sharing. To do so, clearly the KM characteristics are needed here to support the KM *processes* to ensure that the KM *processes* themselves are not just derived from the leaders' justification alone, but have also been characterized by the organization's KM characteristic. And finally, *technology* can support KM and influence the organizational members' acceptance of the knowledge philosophy, and KMS provides the technological basis for efficient KM. To connect with this, KM processes systematically bring about KM outcomes. Hence, the leaders should consider and evaluate KM processes (means) and KM outcomes (ends) to accomplish KM success and organizational effectiveness, respectively. Based on this ground, it is useful to propose a model for successful KM implementation to gain organizational effectiveness for any public-sector organizations.

The following example of KM implementation at the Thai parliament, as one of the most important institutions amongst public-sector organizations, is used to illustrate KM success and organizational effectiveness:

Firstly, according to Mingmitr (2016b), KM implementation effectiveness is governed and facilitated by a number of certain factors. He has proposed a group of 11 CSFs which is believed that it is much more suitable for KM implementation at the Thai parliament. Among these 11 CSFs, the most important factor for KM success and organizational effectiveness is *leadership*. That is, the CKOs should demonstrate their *leadership* through KM so that the parliamentary staff can learn from them. In other words, leaders are important in acting as 'role models' to illustrate the behavior for KM. Also, the study shows that *technology* (i.e. ICT, KMS) is another important factor for KM success. However, most parliamentary staff are still confused with what ICT is and what KMS is. The fact is, ICT supports KM and influences staff's acceptance of the knowledge philosophy, whilst KMS provides technological basis for efficient KM. To connect with this,

Stankosky (2005) points out that *leadership* and *technology* are two fundamental tenets of KM to form the core of KM applications. In this respect, "leadership" will frame organizational culture, vision, strategic planning, and communication, whilst *technology* (which means ICTs) will make knowledge sharing possible in the organizations (i.e. tools such as email, data warehousing, search engines and content management programs). Other CSFs, like organizational strategy, culture and ICT/KMS, can be appropriately applied to KM applications as well, according to the model presented in Figure 3.

Secondly, the leaders' view must intrinsically affect the KM processes that have been developed to enable and enhance knowledge capture and knowledge sharing. In this respect, KM processes are the process of collecting, distributing and efficiently using the knowledge resource (Davenport et al., 1998). In regard to KM processes, Hult (2003) refers to the inbound side and outbound side of KM processes. The inbound side means knowledge creation, which focuses on developing a shared understanding of the information and filtering that shared understanding into degrees of potential values, and the outbound side refers to the deployment of organizational knowledge so as to achieve the goal of sustainable competitive advantage – the KM outcomes. It should be noted here that most parliamentary staff do not have a good understanding of what the KM processes are or how they work (Mingmitr, 2016b). Hence, leaders should be seriously concerned with this complex issue of KM processes through KM activities (i.e. the *LO Day*) that reflects parliamentary staff's behavior in the Thai parliament. According to Figure 3, such actions through the five steps of the KM processes will eventually lead to the optimal outcomes – competitive advantages.

Thirdly, the KM characteristic is needed to support the KM processes to ensure that the KM processes themselves are not just derived from the leaders' justification. Also, the KM characteristics can play a crucial role in KM success. For example, according to Mingmitr (2016a), the Thai parliament employs *developmental* KM for KM success and organizational effectiveness. The *developmental* KM applications focus on increasing the parliamentary staff's capabilities or competencies. To connect this with KM processes, investing in the development of knowledge and capabilities of all staff is becoming a measure of the value of the Thai parliament, because the investment is currently seen as increasing the knowledge content (which means the knowledge acquisition/creation in KM processes) and the capability of the organization. In other cases, if the leaders of the

Thai parliament makes the decision to employ another KM characteristic, like *innovation/ creation* KM (instead of the *developmental* KM), the organization will provide an environment in which parliamentary staff can come together in teams to collaborate in the creation of new knowledge (which means knowledge creation in KM processes) (Binney, 2001). In this respect, knowledge creation will embrace a continual dialogue between tacit knowledge and explicit knowledge, which eventually boosts the creation of new ideas and knowledge in the organization. This relationship shows that knowledge is manageable only insofar as leaders embrace and foster a dynamism for knowledge creation (Nonaka & Konno, 1999). According to Figure 3, this KM characteristic application will be generated into KM processes that will eventually lead to the optimal outcomes – competitive advantages.

Fourthly, KM processes systematically bring about KM outcomes. The KM performance outcomes are the outputs that related to evidences in the knowledge community (Debowski, 2006). The interaction between various types of knowledge available in the organizations leads to the creation of new knowledge (Nonaka and Takeuchi, 1995). To connect with this, most parliamentary staff have the perception that the KM outcome of the Thai parliament is the *LO Day*, which is an annual event for all parliamentary staff to gather at the hall of the main building of the Thai parliament to exchange their invaluable experiences (Mingmitr, 2016a). This can be seen as *newly acquired knowledge*, which is one of the competitive advantages.

Lastly, According to Robbins (1990), organizational effectiveness referred to the degree to which the organization attains its goals. Also, Etzioni (1964) viewed the organizational effectiveness as the degree to which the organization realizes about its goals. The fact is, not everyone is concerned with organizational effectiveness in this manner. Therefore, leadership should consider, evaluate and integrate KM characteristics, KM processes and KM outcomes to accomplish KM success and organizational effectiveness, as shown in the proposed model, Figure 3. In this conceptual paper, the KM characteristics, KM processes, KM outcomes and the CSFs are designed by the author to contribute to organizational effectiveness – to attain the goal of KM success, accordingly.

Delimitations and Limitations

This conceptual paper is delimited by a number of elements. First, it reviews three

important areas of KM – *characteristics, processes* and *outcomes*. This is delimiting because it helps to integrate the important KM elements by drawing a linkage between KM characteristic, processes and outcomes to KM success and organizational effectiveness. Second, it reviews a number of CSFs – organizational strategy, organizational structure, leadership, culture, networks and information technology, in order to explore and understand KM success and organizational effectiveness in public-sector organizations. This is delimiting because when understanding how those CSFs affect the public-sector organizational effectiveness in terms of KM implementation, it helps to set a framework of a number of CSFs by grouping a number of dominant factors presented in the literature to provide a better understand for organizational effectiveness - KM implementation in particular.

This conceptual paper has its analytical constraints. It solely attempts to draw a conceptual framework based on four specific areas – *characteristics, processes, outcomes and CSFs.* This paper will not include other areas, such as KM practices and KM strategies (in terms of applied technologies).

Future Research

Knowledge is seen as *virtual truth* - it might be effective in one environment but not work in another, and it might be effective in one moment but not work later (Sigurdson, 2002). KM has been around for more than ten years now, and so it is no longer considered purely as a fad. Rather, it is establishing itself as a new aspect of management and organization, and as a new form of expertise (Morey et al., 2000; Stankosky, 2005; Alvesson & Karreman, 2001). The evidence shows that KM has passed its ten-year mark and become a dominant part of the wider management and information systems discourse (Stankosky, 2005). Therefore, the KM field has been receiving much attention from scholars. For further study, researchers should consider other elements of KM options, i.e. developing KM strategies – top-down, bottom-up, and middle-up-down KM (Groff & Jones, 2003), KM strategy, in terms of applied technologies (Lytras et al., 2008), knowledge management system (KMS) (Tiwana, 2002b; Coakes, 2003; Dalkir, 2005), KM and Chief Knowledge Officer (CKO) (Tiwana, 2002b; McNabb, 2007) and Human Resources in KM (Evans, 2003). As such, those areas of KM can provide a more exhaustive list of the KM elements to form a conceptual framework.

In the meantime, the interaction of the various KM elements in this proposed framework can increase our understanding of the effectiveness of KM implementation, in the public sector in particular. Moreover, to some degree, this nascent study might be an initial practical guideline for improving KM success and organizational effectiveness in the public organizations in the future.

Recommendation for Public-Sector Organizations

As described in the preceding sections, three essential aspects for the public-sector organizations are recommended as:

Firstly, being a *learning organization* involves developing innovative solutions to the constantly changing legal, political, economic and social environment. According to Senge (1990), a *learning organization* is a template for an organization that continually creates its future by adapting to its environmental changes and proactively shaping its environment. In this respect, public-sector organizations should encourage organizational members to quickly learn through a number of ways (i.e. training and management development, CoPs, intranets) and to identify and apply the lessons learned in its environment. Based on this, leadership must form and maintain a culture that honors and rewards the entire collectively KM implementation.

Secondly, the most popular KM characteristic is *innovation/creation of new knowledge* in today's management literature (Binney, 2001). In this respect, public-sector organizations should focus on *innovation/creation* KM applications by providing an environment in which knowledge workers of various disciplines can come together to create new knowledge.

Lastly, for the CSFs, public-sector organizations should pay more attention to *leadership*, as it is not just confined to any particular group or any level within an organization, but the hierarchical level occupied by a person who has their own formal authority, which is significantly related to the kinds of responsibilities and tasks that are required for him or her. Based on this ground, leaders must be able to consider the effectiveness of CSFs, i.e. organizational strategy, culture, ICT/KMS, to KM implementation and to integrate such selective CSFs with KM processes (means) and KM outcomes (ends) to eventually gain KM success and organizational effectiveness.

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