

# A Case Study Of Knowledge Management Factors And Information Technology In Government Funded Universities In Thailand

Somkiat Tuntiwongwanich, King Mongkut's University of Technology Thonburi, Thailand  
Jariya Neanchaleay, King Mongkut's University of Technology Thonburi, Thailand  
Surapon Boonlue, King Mongkut's University of Technology Thonburi, Thailand

## ABSTRACT

*The objective of this research is to study and analyze the components of knowledge management, principles, concept and theory on the learning format of knowledge management in government funded universities in Thailand in order to determine the knowledge management factors through an information technology system. From the analysis of the knowledge management factors, it is determined that essential knowledge management factors have 11 components and that the components for information technology system have 12 components. Regarding the opinion of evaluation experts, it is concluded that the components analyzed can be divided into preliminary and necessary components of the knowledge management for government funded universities of Thailand.*

**Keywords:** Knowledge Management; Information Technology; Lifelong Learning; Thai Universities

## INTRODUCTION

Knowledge management (KM) is the collection, creation, arrangement, exchange and application of knowledge in organizations by developing a system of data to information technology in order to create knowledge and intelligence. Furthermore, knowledge management is considered a very important system in every organization. The result is that organizations become learning organizations with lifelong learning and utilization of knowledge and new innovation in organizational activity. Web technology and knowledge sharing by using modern learning technology media is the main tool in learning activity and knowledge management that results in a knowledge base that results in inside and outside knowledge sharing. The result is that people share knowledge with one another. The fact that learners have met face to face with social interaction makes them trust one another more and exchange knowledge. Without face to face and social interaction, the lack of trust prevents people from exchanging the knowledge and working together. From the problem and the restriction of the web-based learning management needs to find the solution by using the concept or the various methods to help present the content and the activity arrangement through the web in order to develop the learning format of web-based learning efficiently and can develop the learners to have the ability in finding knowledge and develop themselves.

## LITERATURE REVIEW

### Definition of KM

According to (Nonaka and Hirotaka Takeuchi, 1995), KM theory consists of 7 important activities in the operation to manage the knowledge in an organization which are: (1) create the vision on learning, (2) create knowledge management team, (3) create the learning exchange atmosphere intensely in lower level employees, (4)

manage along with goods development product/new methods or develop the work format, (5) emphasize on organizational management of "middle-up-down management), (6) change the organization to (hypertext), and (7) create the knowledge network to the outside world. Socialization is the tacit knowledge exchange process through experience sharing from observation, imitation, and/or practice.

Externalization is the process where tacit knowledge is made clear by the comparison of samples or determines the hypothesis until the tacit knowledge is changed to explicit knowledge. Combination is the process where explicit knowledge is made systematic until it is a knowledge which would be made into categorization of the clear knowledge. Internalization is the change of the explicit knowledge into tacit knowledge as a skill built into that person again.

According to (Panit, 2005), knowledge management has important factors as follows: (1) to create the knowledge vision, (2) to create the knowledge management team of the organization, (3) to start from existing intelligence or that can be found from the outside easily, (4) to create the knowledge exchange atmosphere in lower level employees, (5) knowledge management along with goods development activity or new work formats, (6) to emphasize on organizational management of using middle-up-down management, (7) to change the organizational structure to hypertext, (8) to create the knowledge network with the outside world, (9) to create horizontal culture and independent communication in every direction, (10) to create recording culture, and (11) to evaluate the knowledge management result.

According to (Nour-Mohammad Yaghoubi, 2011), knowledge is not easily measured or audited so organizations must manage knowledge effectively in order to take full advantage of the skills and experience inherent in their systems and structures as well as the tacit knowledge belonging to the employees of the firm. Knowledge management (KM) is a process that helps organizations identify, select, organize, disseminate, and transfer important information and expertise that are part of the organization's memory and that typically reside within the organization in an unstructured manner. This structuring of knowledge enables effective and efficient problem solving, dynamic learning, strategic planning, and decision making. Knowledge management initiatives focus on identifying knowledge, explicating it in such a way that it can be shared in a formal manner, and leveraging its value through reuse.

### **Definition of technology in education**

According to (Zorkoczy, 1984), the meaning of IT does not include only hardware and software but also includes the importance of people and the targets they have laid down or set up for using those technologies. This includes the value of choosing technology and the criteria in the evaluation used in decision making in the utilization of the various technologies.

According to (Namprasertkul.S, 2003), knowledge management includes a sufficient amount of research that tries to explain the relationship and the role of information technology and knowledge management. There are many stories that show knowledge management of organization through information technology even though the knowledge management process is a process that does not use technology but the technology is anticipated to be an important tool that would help the knowledge management successful. Most of information would arrange for the budget in using appropriate technology as a tool in helping knowledge management of organization.

According to (Kebao and Junxun, 2008), global education resources get linked and make resources global. With hypermedia technology, the expression of teaching content becomes more construal, dynamical, and visualize. The teaching and studying is different from traditional one. The characteristics of modern education is based on digital, network, aptitude, and media. With digital teaching tools, students can study independently.

### **OBJECTIVE OF THE STUDY**

In order to study and analyze knowledge management, we would study the concept and theory in the knowledge management theory and the connection for applying information technology as a tool for knowledge management of universities in Thailand.

## **OUTCOMES OF THE STUDY**

Based on the study of the principles, concepts, and related theory of learning management factors and tools of information technology, we know of the components of knowledge management and the characteristics of the tools of information technology used for creating knowledge of information technology system for state universities in Thailand.

## **CONCEPTUAL FRAMEWORK (THEORY): KNOWLEDGE MANAGEMENT COMPONENTS**

General knowledge management has 3 important components: people, information technology, and knowledge management processes.

First, in knowledge management people are an important component because personal knowledge management (PKM) refers to individuals who want to manage knowledge for their own use. Knowledge management teams in an organization can be divided into two sub-teams, which are the core team or permanent team and the temporary team.

The organization must always realize the importance people. Who involved in the knowledge management of an organization or the group uses the products and service of the organization? Should those people be partners and join hands to plan for the organization? (Rumizen, 2002) states that apart from the two work teams, the people who have important roles in supporting the knowledge management project of the organization. The Chief Executive Officer normally would be in the advising position of the knowledge management project.

Second, information technology (IT) according to (Namprasertchai, 2003), information technology has the role of managing knowledge including communication technology, collaboration technology, and storage technology.

- Communication technology helps people to access knowledge more easily and more conveniently. People can contact experts in various fields by searching for information technology through the network via the Internet, Intranet, or Social Media.
- Technology that promotes working together can help people to work efficiently and reduce the obstacles of the distance such as program in groupware or video conference systems.
- Technology that assists in storage and management of knowledge. Information technology can coordinate, support, and provide convenience to the knowledge management in the three aspects of:
  - Finding knowledge refers to finding tacit knowledge, relationship skills between people, people with high experience who will see the trend or direction of the necessity to use the knowledge and find that knowledge by using information technology.
  - The exchange of the knowledge pertains to the promulgation and distribution of the knowledge. In this regard, learning from experts would be helpful for the amateur of knowledge management.
  - The utilization of knowledge includes the integration of knowledge within the organization and apply knowledge to new circumstances.

Third, the knowledge management process is a process that assists in knowledge development and / or knowledge management inside an organization and includes seven processes:

- Knowledge identification is the idea that an organization has the bond, vision, and targets. In order to achieve the target, people must use what knowledge they have and in what format it is in.
- Knowledge creation and acquisition includes creating new knowledge and finding existing knowledge and maintain the old knowledge and getting rid of unused knowledge.
- Knowledge organization pertains to implementing a knowledge structure to maintain the knowledge into the future.
- Knowledge codification and refinement refers to changing documents into a standard form by using the same communicating language and adjust the knowledge content so that it is complete.

- Knowledge dissemination and access refers to making knowledge more easily and conveniently distributed to others using an appropriate communicating channel.
- Knowledge sharing and exchange is the exchange of knowledge by the various strategies such as in the case of explicit knowledge where documents, knowledge base, and knowledge warehouse may be used or in the case of tacit knowledge where knowledge involves crossing work line, group activity, learning community, and babysitting systems involving work change, borrowing people, knowledge exchange stage etc.
- Learning and knowledge utilization is the last step of the knowledge management process where people create learning knowledge and use the knowledge based on organizational objectives and make learning a part of their work.

**Table 1 Knowledge management components by synthesis**

<b>Theory of knowledge management (components)</b>		<b>Knowledge management components by synthesis</b>
<b>Nonaka &amp; Takeuchi, (2000)</b>	<b>Vijarn Panit, (2005)</b>	
(1)Create knowledge vision	(1)Create knowledge vision	(1)Create knowledge vision
(2)Create knowledge management team	(2)Create knowledge management team of organization	(2)Create knowledge management team
	(3)Start from existing intelligence or those easily found from the outside	(3)Start from existing intelligence or those easily found from the outside
(3)Create intense knowledge exchange atmosphere for lower level personnel	(4)Create intense knowledge exchange atmosphere for lower level personnel	(4)Create intense knowledge exchange atmosphere for lower level personnel
(4)Manage the knowledge along with goods development activity/new method or work format development	(5)Manage the knowledge along with goods development activity or new work format development	(5)Manage the knowledge along with goods development activity or new work format development
(5)Emphasize on organization management of "middle-up-down management	(6)Emphasize on organization management of "middle-up-down management	(6)Emphasize on organization management of "middle-up-down management
(6)Change the organization to hypertext	(7)Change the organization to hypertext	(7)Change the organization to hypertext
(7)Create the knowledge network with outside world	(8)Create the knowledge network with outside world	(8)Create the knowledge network with outside world
	(9)Create horizontal culture of independent communication in every direction	(9)Create horizontal culture of independent communication in every direction
	(10)Create recording culture	(10)Create recording culture
	(11)Evaluate the knowledge management operation result	(11)Evaluate the knowledge management operation result

**Table 2 Ranking of the components information technology of knowledge management website of government-funded universities in Thailand in the year 2011**

Components information technology of knowledge management website (N=12)	Σf = 123
(1)File download system	18**
(2)Activity system	17*
(3)News system	17*
(4)Website link system that is related to the knowledge management	14
(5)Article categorization system	12
(6)Blog System	11
(7)Member System	9
(8)Webboard System	6*
(9)Forum System	6*
(10)Manual	5
(11)Community System	4*
(12)Calendar	4*
(N=12)	$\bar{X} = \frac{\sum fX}{N} = 10.25$

\* Components are equal rank, \*\* Component is the highest rank.

**Table 3 Components of the knowledge management related the system of information technology and communication**

Components of the knowledge management related the system of information technology and communication		Process of knowledge management
Components information technology of knowledge management website	Knowledge management components by synthesis	
News System , File Download System	(1)Create knowledge vision	Create
Member System	(2)Create organization knowledge management team	
Website link system that is related to the knowledge management	(3)Start from existing intelligence or those easily found from the outside	
Webboard System	(4)Create intense knowledge exchange atmosphere for lower level personnel	
Forum System	(5)Create the knowledge network with outside world	
Webboard System	(6)Create horizontal culture of independent communication in every direction	
Blog System	(7)Create recording culture	
Activity System, Manual, Calendar	(8)Manage the knowledge along with goods development activity/new method or work format development	Management
Blog System	(9)Emphasize on organization management of "middle-up-down management)	
Community System	(10)Change the organization to hypertext	Evaluate
Article categorization system	(11)Evaluate the knowledge management operation result	

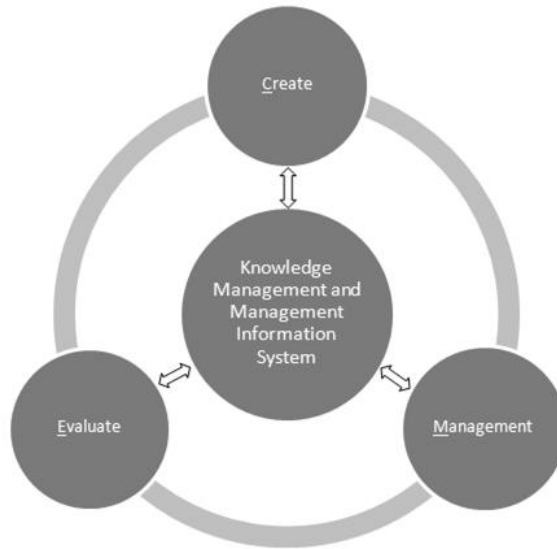
**RESEARCH METHODOLOGY**

The research methodology is a descriptive-survey approach in this study. It is descriptive because it describes and interprets whatever exists in order to determine and depict the characteristics of variables in a certain condition (Danaeifard, et al, 2009).

Data collection is from website knowledge management of government-funded universities in Thailand in the year 2011. (N=29). The data are collected by using website knowledge management of government-funded universities in Thailand that consisted of 29 universities.

Questionnaire for lecturers' perspectives (N=18) are used to investigate from the lecturers' perspectives by using mail posting for their convenience. For the questionnaires, researchers gather the lecturers' perspectives to analyzing and synthesizing mean and standard deviation. (5 points rating scales)

After questionnaire confirmation was examined, the reliability coefficient was calculated by using SPSS software.



**Figure 1 Model of process knowledge management and the system of information technology and communication; (Create, Management, Evaluate; CME Model)**

## CONCLUSIONS

In this paper, an analysis of the knowledge management factors illustrates the roles of knowledge management and information technology in education for government-funded universities in Thailand.

The essential knowledge management factors have eleven components: (1) to create knowledge vision, (2) to create organization knowledge management team, (3) to start from existing intelligence or those easily found from the outside, (4) to create intense knowledge exchange atmosphere for lower level personnel, (5) to create the knowledge network with outside world (6) to create horizontal culture of independent communication in every direction, (7) to create recording culture, (8) to manage the knowledge along with goods development activity/new method or work format development, (9) to emphasize on organization management of "middle-up-down management, (10) to change the organization to hypertext, and (11) to evaluate the knowledge management operation result.

Second, there are 12 components of an information technology system. Based on the opinion of experts in evaluation, it is concluded that the components analyzed can be applied as preliminary and necessary components of the knowledge management. The components are: (1) file download system, (2) activity system, (3) news system, (4) website link system that is related to the knowledge management, (5) article categorization system, (6) blog System, (7) member System, (8) web-board System, (9) forum System, (10) manual, (11) community System, and (12) calendar.

Third, the model for process of knowledge management through information technology system has 3 steps. Regarding the opinion of the experts from the evaluation, it is concluded that the component analyzed can be applied as preliminary and necessary component of the knowledge management format of government-funded universities of Thailand, which is create, management and evaluate

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#### **AUTHOR INFORMATION**

**Somkiat Tuntiwongwanich**, is a doctoral candidate in the Learning Innovation in Technology Program at King Mongkut's University of Technology Thonburi, Thailand. E-mail: somkiat.tuntiwongwanich@gmail.com. Corresponding author.

**Jariya Neanchaleay**, is an Associate Professor in the Department of Educational Communications and Technology, Faculty of Industrial Education and Technology at King Mongkut's University of Technology Thonburi, Thailand. E-mail: jariya.nea@kmutt.ac.th

**Surapon Boonlue**, is an Assistant Professor in the Department of Educational Communications and Technology, Faculty of Industrial Education and Technology at King Mongkut's University of Technology Thonburi, Thailand. E-mail: surapon@hotmail.com

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