

Measuring Knowledge Management System Implementation Readiness

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ABSTRACT

Knowledge Management (KM) has been considered to be an integral and essential part of an organisation. KM holds a role in making tacit knowledge explicit knowledge. An organisation needs to implement KM system (KMS) to accommodate the needs of knowledge sharing in an organisation. Many kinds of facilitating factors are required when implementing knowledge management system. KMS readiness measurement allows an organisation to evaluate its capability for effective knowledge sharing before KMS is implemented. This research aims to elaborate the readiness of KMS model based on people, organisational structure, culture, process and information technology.

Keywords: Implementation, knowledge management, knowledge management system, readiness

INTRODUCTION

Knowledge Management (KM) has become an important and integral part of an organisation. Knowledge cannot be

seen and quantified (Salwa & Susanty, 2016) but have a big role in competitive advantage. Beccara-Fernandez, Gonzalez and Sabherwal (2004) went on to say that KM holds a role to make tacit knowledge explicit knowledge within an organisation in order to allow the organisation to continue learning and innovating. Shifting paradigm of industrial economy to a knowledge economy brings KM to the forefront of industry (Kristin & Ekawati, 2016). Nowadays, to gain competitive advantage, organisations need to exploit

ARTICLE INFO

Article history:

Received: 06 October 2017

Accepted: 28 March 2018

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current knowledge and combine them into organisational knowledge (Jones & Leonard, 2009; Malhotra, 2000). Frost (2010) stated that it becomes necessary for KM system to be implemented in an organisation with the aim of accommodating the activity of knowledge sharing in an organisation. KM system is a system containing a collection of IT-based knowledge repository that everyone working in the organisation are able to access. It aims to create knowledge sharing, where knowledge can be disseminated and implemented by everyone throughout the process within an organisation. Alavi and Leidner (1999) define Knowledge Management System (KMS) as an information system applied to manage organisational knowledge in a way that supports and enhances organisational process at creating knowledge, storage/retrieval, transfer, and application. This type of information system major purpose is to facilitate the sharing and integration of knowledge.

Many kinds of facilitating factors are required to succeed in implementing knowledge management system. Even though there might be no perfect measure, there must be some effort to identify the readiness of knowledge assets of an organization. It is very important to do readiness identification for implementing KMS in an organization (Tiwana, 1999) to see if it is ready to implement KM system. According to Keith, Goul, Demirkan and Nichols (2006), KMS readiness measurement can help an organisation to

analyse whether it is capable of effective knowledge sharing.

The purpose of this research is to elaborate the readiness of knowledge management system. The model is based on t (Pradana, Kurniawati, & Ambarsari, 2015). Holt, Bartczak, Clark and Trent (2004) stated that there is KM Triad term to measure if the organisation's people, process, and technological infrastructure is ready. In this research the perspective is widened by adding the culture, process, and information technology from Ramadhan and Andrawina (2015).

Previous researches regarding knowledge management system readiness are Afifah, Andrawina and Kurniawati (2011); Agung (2014); Burke and Litwin (1992); Lee and Choi (2003); Razi and Karim (2010). Burke and Litwin (1992) focused on people, process, and technology factors. Lee and Choi (2003) focused on organisational structure, culture and IT infrastructure. Razi and Karim (2010) focused on culture, structure, people and Information Technology. Afifah, Andrawina and Kurniawati (2011) focused on KMS implementation by using three perspective which is people, process, and technology. Agung (2014) focused on KMS readiness for human resource consulting company.

In knowledge management, there are at least 3 perspectives that must be included in measuring readiness: people, process, and technology (Afifah et al., 2011). Previous research regarding the knowledge management system readiness

does not completely include the three main perspectives. This research aims to elaborate previous research by adding the model from Ramadhan and Andrawina (2015) and including culture, process, and information technology.

LITERATURE REVIEW

Knowledge Management

Knowledge can exist with or without data as a competitive advantage for the organisation, and it is become important to understand the relation of data, information, and knowledge. Prusak and Davenport (1998) define knowledge as a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. According to Frost (2013), knowledge is divided into: tacit knowledge and explicit knowledge. Tacit knowledge is knowledge which is intuitive, hard to codified, and mostly based on someone's experience and stored in someone's mind. Explicit knowledge is knowledge which has been codified into documents or other media, so the knowledge is easy to be transferred and disseminated by someone or organisation. Knowledge management (KM) is about making sure that an organisation can learn, can share tacit knowledge and explicit knowledge, and that it will be able to retrieve and use its knowledge assets in current applications.

Knowledge Management System

According to Frost (2013), Knowledge Management System (KMS) is an IT-based system, which is aimed to be able to cache and retrieve knowledge, locate knowledge sources, develop collaboration among people, mine repositories for hidden knowledge, and capture and use knowledge. The major purpose is to facilitate the sharing and integration of knowledge. It can support many kinds of function including store, retrieve, calculate, capture and uses knowledge and anything that could enhance knowledge management process in all level of organisation.

Aydin-Tasci Readiness Scale

Aydin and Tasci (2005) developed a measurement scale to see if the organisation is ready. This scale uses data from questionnaires t and matched with the level of readiness provided by Aydin-Tasci. The questionnaire is coded from a scale of 1 to 5 from strongly disagree to strongly agree. The level of readiness by Aydin-Tasci are:

1. Index (1-2,59)

The organisation is not ready to implement KM system thus organisation needs to do a lot of works.

2. Index (2,6-3,39)

The organisation is readier to implement KM system but still needs to do some works.

3. Index (3,4-4,19)

The organisation is ready to implement KM system but still requires a few improvements.

4. Index (4,2-5)

The organisation is fully ready to implement KM system.

model. The model is based on the research from Pradana et al. (2015) that focused on the two perspective which is organisational structure and people. The perspective is widened by adding the model from Ramadhan and Andrawina (2015) which include culture, process, and information technology. Figure 1 shows the elaborate model of this research.

MATERIALS AND METHODS

The purpose of this research is to develop a knowledge management system readiness

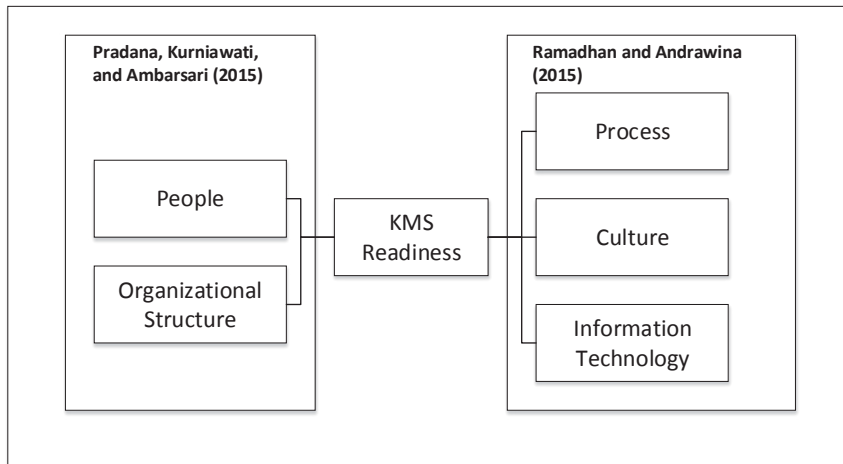


Figure 1. KMS readiness model

Previous research from Pradana et al. (2015); Ramadhan and Andrawina (2015) focused on research institutions, therefore both previous research can be combined to widen the perspective for this research. Questionnaires are used for data collection. The responses from questionnaires are measured using the 6-point Likert Scale to obtain the value of readiness to implement KMS based on a scale of Aydin and Tasci. The Likert scale then converted into interval

data using mean successive interval. The result of the mean successive interval then matched with the Aydin-Tasci scale to give the organisation level of readiness for each dimension from a different perspective.

Organisational Structure

Organisational Structure defines an organized way to divide and manage tasks that supports knowledge management.

Organisational structure consists of decentralization and informal (Razi & Karim, 2010). Decentralization is defined as the degree of distribution of authority

and control over the decision. Informal is defined as the degree of flexibility in formal rules, procedures, and standard policies.

Table 1
Dimension of organisational structure

Dimension	Definition
Decentralization	Degree of distribution of authority and control over decision
Informal	The degree of flexibility in formal rules, procedures and standard policies

People

People defined as a concept that define human, which are the main element of knowledge creation within organisation (Razi and Karim, 2010). T-Shaped Skills is defined as the diverse knowledge, skills, and competencies owned by a person Skills and competencies from a person can be combined with other disciplines and can create a new knowledge, this kind of person then will share the new knowledge to others within organisation (Lee & Choi, 2003). Task Requirements Individual Skills and Ability is defined as the compatibility between the skill and individual knowledge with the needs that must be possessed to complete the task especially to do knowledge management cycle (Burke & Lithwin, 1992).

According to (Razi & Karim, 2010) Effort Expectancy is dimension within the people, and it is is defined as the KM Degree

of ease associated with the involvement in KM process. Performance expectancy is defined as the dimension which an individual believes that involving in KM process will help him/her to attain gains in job performance (Razi & Karim, 2010). Work unit climate is defined as a dimension of people which hope and relationship among the work unit that involves in knowledge management cycle and affects it (Burke & Lithwin, 1992). Motivation is defined as a Trend in the behavior of people within an organisation to take action to achieve particular goals. Such behavior can cause, direct, and organize behavior in an organisation, especially in carrying out the process of KM in daily activities (Burke & Lithwin, 1992). Leadership is defined as providing direction to employees and encourage implementation of KM (Burke & Lithwin, 1992).

Table 2
Dimension of organisational people

Dimension	Definition
T-shaped skill	Diverse knowledge, skills, and competencies owned by a person, where this knowledge, skills, and competencies can be combined with other disciplines, so it will result in new knowledge, and this kind of person will share the knowledge to other people within an organisation
Task requirements individual skills and ability	The compatibility between the skill and individual knowledge with the needs that must be possessed to complete the task especially to do knowledge management cycle
Effort expectancy	Degree of ease associated with the involvement in KM process
Performance expectancy	Degree to which an individual believes that involving in KM process will help him/her to attain gains in job performance
Work unit climate	The hope and relationship among the work unit that involves in knowledge management cycle and affects it
Motivation	The trend in the behavior of people within an organisation to take the necessary action to achieve particular goals. Such behavior can cause, direct, and organize behavior of people in the organisation, especially in carrying out the process of km in daily activities
Leadership	Leaders' behavior in an organisation in providing direction to the rest of the people in the organisation and encourage them to implement the KM process

Culture

Culture is defined as values espoused by an organisation to achieve a sustainable competitive advantage (Lee & Choi, 2003). Table 3 shows the operational definition of the cultural perspective. Collaboration is defined as the degree to which people in a group actively help each other in their works (Lee & Choi, 2003). Mutual Trust is defined as the degree of Trust among people within an organisation. Lee and Choi (2003) went on to say that mutual trust can be established in an organisation when every single person has a belief in integrity, capability, and other people's

characters. Lee and Choi (2003) defined learning as a relatively permanent change in someone's behavior as a result of experience obtained. Management Support is defined as the support given by top managers for Knowledge Management by providing direction or instruction and resources (Razi & Karim, 2010). Organisation Strategy is defined as the degree of the link between organisational strategy and KM strategy (Razi & Karim, 2010). The reward is defined as the degree of relevancy between the rewarding system and the involvement in KM process (Razi & Karim, 2010).

Table 3
Dimension of culture

Dimension	Definition
Collaboration	The degree to which every individual contributes in helping others to finish their works in a group.
Mutual trust	The degree of trust among people within an organisation. Mutual trust will be able to grow when every single individual in the organisation has such belief in integrity, capability, and other people's characters.
Learning	A relatively permanent change in someone's behavior as a result of experience gained by someone
Management support	The degree of support from top managers for KM process through providing guidance and necessary resources
Organisation strategy	The degree of link between organisational strategy and KM strategy

Process

The process is defined as something that embodies the essence of the organisation (Bateson, 1979). Vision, Mission, And Strategy are defined as the vision of Documentation Center of Scientific Information and the approach used to achieve the vision, which can be the purpose

of KM implementation (Burke & Lithwin, 1992). Policies and Procedures System is defined as the degree of match between the skills and knowledge of employees which are needed to complete a job, especially related to the implementation of KM (Burke & Lithwin, 1992).

Table 4
Dimension of process

Dimension	Definition
Reward	The degree of relevancy between the rewarding system and the involvement in KM process
Vision, mission, and strategy	The vision of PDII and the approach used to achieve the vision, which can be the purpose of KM implementation
Policies and procedures system	The degree of match between the skills and knowledge of employees which are needed to complete a job, especially related to the implementation of KM

Information Technology

Gold, Malhotra and Segars (2001) defined Information Technology as elements of the structural dimensions based in IT. It is required to enable knowledge sharing and knowledge creation for people working in an organisation. IT Support is defined as the

degree to which knowledge management is supported by the use of IT (Lee & Choi, 2003). ICT Use is defined as the degree of extensive use of information and communication technology by the individuals in the organisation for KM initiatives (Razi & Karim, 2010).

Table 5
Dimension of information technology

Dimension	Definition
IT Support	The degree to which knowledge management is supported by the use of IT. IT facilitates rapid collection, storage, and exchange of knowledge on a scale not practicable in the past, thereby assisting the knowledge creation process
IT Use	The degree of extensive use of information and communication technology by the individuals in the organisation for KM initiatives

RESULTS AND DISCUSSION

The questionnaire is collected from 82 employees. In order to be a good measuring instrument, the validity and reliability test was done. The function of the validation test is ascertain if the questionnaires can serve as an instrument of measurement. Validity and reliability test result shows that all the dimension of the model are valid and can be used to measure readiness.

Valid and reliable questionnaire of KMS implementation readiness in research institution with 38 indicator questions is transformed into interval data using

successive interval method. The average of each indicator will serve as the value of KMS implementation readiness. Figure 2 shows the highest perspective from the questionnaire is the people perspective with 3.27 and the lowest perspective from the result is the process perspective with 2.58. From the process perspective it can be seen a lot of work has to be done to achieve the desired readiness level. The organisational structure and culture perspective is at the desired level but needs an improvement in order to gain better level of readiness.

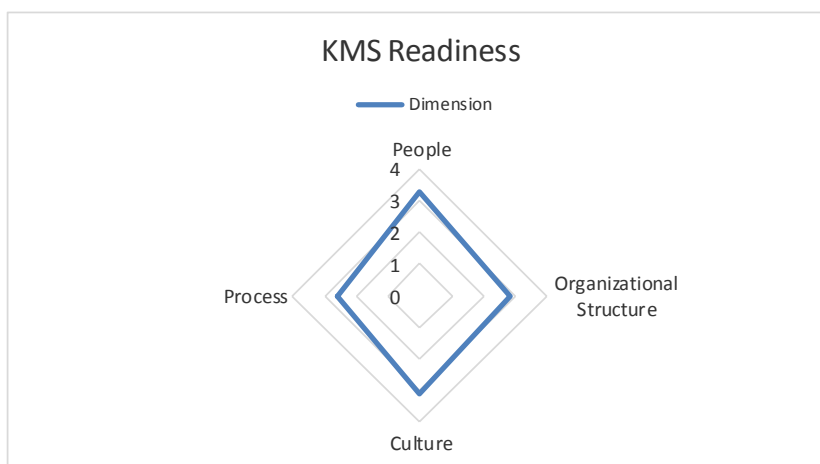


Figure 2. KMS readiness for the object study

Table 6 shows the questionnaire result for each dimension, from the table it is known that the lowest dimension is a reward. The result indicates that the object study is not ready to implement the KMS. Existing

reward system is not capable of supporting the KM activities. The object study needs to make a reward system for the usage of KMS and KM activities.

Table 6
Average indicator per dimensions

Perspective	Dimension	Average of Indicator
People	T-shaped skill	3.246
	Task requirements individual skills and ability	2.886
	Effort expectancy	3.475
	Performance expectancy	3.598
	work unit climate	3.537
	Motivation	3.623
	Leadership	2.561
Organisational structure	Decentralization	2.786
	Informal	2.850
Culture	Collaboration	3.227
	Mutual trust	3.355
	Learning	2.796
	Management support	2.877
	Organisation strategy	3.2
Process	Reward	2.264
	Vision, mission, strategy	2.904
	Policies and procedures	2.683
Information technology	IT support	3.33
	IT use	3.565

The highest dimension is motivation, the eagerness of the employee to share the knowledge is relatively high. Innovation is the core process of learning and knowledge generation. With sharing and innovating eagerness, there is higher chance to get best practice to do organisation work from the learning process and to make that best-practice spread among employees. The

motivation of employees to implement KMS is at the ready level while needed further improvements.

From the people perspective, the highest dimension is motivation to implement the knowledge management system is relatively good. organisation from the organisational structure, the highest dimension is informal, meaning that the procedure and informal

communication while good needs to be improved. From a culture perspective, the highest dimension is mutual trust, trust is important in implementing a system and necessary to reach optimal levels. From a process perspective, the highest dimension is Vision, Mission, and Strategy. It is clear that the organisation needs to have a clear statement about the vision, mission, and strategy. From an information and technology perspective, the highest dimension is IT use. The use of IT in organisation needed to be improved, it can be done by using IT for operational activity such as shared document and generating a report by using a system.

From the overall assessment on KMS readiness, it is known that the organisation is not ready to implement KMS, In order to do so a Chief Knowledge Officer has to be appointed with responsibilities for promoting and introducing knowledge management system, coordinating knowledge management training, connecting and motivating employees to contribute to the knowledge management project. In addition a rewarding mechanism for those who are outstanding is also needed.

CONCLUSION

The purpose of this research is to elaborate on the readiness of knowledge management system. From the result, it is known that the lowest dimension is a reward (2.264) and the highest dimension is motivation (3.623). The overall average score of each perspective is 2.9 indicating that the object study is not ready to implement the

KMS. To do so a Chief Knowledge Officer with responsibilities for promoting and introducing knowledge management system, coordinating knowledge management training, and connecting management and employees, needs to be appointed.. In addition there has to be a rewarding mechanism for outstanding performers.

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