

KNOWLEDGE MANAGEMENT ENABLERS FOR THE ASSESSMENT OF KMS READINESS IMPLEMENTATION

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ABSTRACT

Readiness measurement of Documentation Center of Scientific Information in implementing Knowledge Management (KM) System is very important to do. This measurement is intended to overview the extent of the readiness of Documentation Center of Scientific Information in KM system implementation plan within the organization. Measurement of organizational readiness can be seen from the perspective of KM enablers, which are culture, process, and information technology. Priority weighting is done to see which KM enablers are prioritized by Documentation Center of Scientific Information using AHP weighting method. Readiness measurement is done by lowering KM enablers into several dimensions. Dimensions are derived in the form of perception as an indicator of the questionnaire that will be distributed to all employees in Documentation Center of Scientific Information. Readiness scale used is Aydin-Tasci readiness scale. The expected outcome of this research is priority weight for each KM enablers and readiness level of Documentation Center of Scientific Information in KM system implementation plan.

Keywords: *KM system implementation plan, KM enablers, priority weight, Aydin-Tasci readiness scale*

1. INTRODUCTION

Organization which is considered superior and competitive today is an organization that is able to exploit the existing knowledge on each of its human resources and combining them into organizational knowledge, with the aim to achieve excellence and competitiveness at the most optimal level (Malhotra, 2000). Knowledge Management (KM) has now become an important and integral part of an organization. KM plays an important role in an organization. KM plays a role in making tacit knowledge to be explicit knowledge within an organization with the aim that organization itself can continue to learn and innovate (Beccara-Fernandez, Gonzalez, and Sabherwal, 2004). KM is based on capturing and making documentation of individual explicit and tacit knowledge, and its dissemination within the organization (Business Dictionary, 2014).

Based on Research by the Delphi Group Inc. (2000, in Uriarte Jr., 2008), knowledge inside organization as much (42%) is still stored in the human brain, the other is stored in paper documents (26%), electronic

documents (20%) and the knowledge base electronic (12%). Such knowledge would be very useful if it can be captured by the organization, and then transformed into explicit knowledge in the form, then stored, managed, organized, and disseminated to be implemented together. Storage of explicit knowledge in an electronic document that can be accessed by the various stakeholders will facilitate the dissemination of knowledge.

An organization needs to implement a KM system in order to accommodate the needs of knowledge sharing in an organization. KM system is a system that contains a collection of IT-based knowledge repository that can be accessed by everyone in an organization that aims to create knowledge sharing and the knowledge can be implemented and disseminated throughout the process within an organization (Frost, 2010).

Usually, an organization spends more time and effort to implement KM project (Azhdari, Mousavi Madani, and ZareBahramabadi, 2012). A measurement must be performed to measure an organization's readiness to implement KM

system, so after the implementation of KM system is completed; the system implementation will not be in vain (Awad and Ghaziri, 2004). Measurement on organization's people, process, and technological infrastructure (popular to be known as KM Triad term) readiness can serve as a guideline for management to implement KM system (Holt, Bartczak, Clark, and Trent, 2004). KM system readiness measurement can help organization to analyze its capability to have effective knowledge sharing before the organization implements KM system (Keith, Goul, Demirkan, and Nichols, 2006).

2. BACKGROUND

Documentation Center of Scientific Information in Indonesia is in charge to carry out the development and provision of services documentation in accordance with the policies of scientific information that has been designated by chairman of *Lembaga Ilmu Pengetahuan Indonesia* (LIPI). Documentation Center of Scientific Information vision is to become the leading institution in the field of documentation and information in order to participate in building an intelligent, creative, integrative and dynamic knowledge-based and technology-humanistic society. To realize the vision, Documentation Center of Scientific Information performs three main types of activities: documentation services, information services, and training and development, in the field of scientific information documentation. Documentation Center of Scientific Information is supported by 150 employees, 45% of the number are librarians, archivists, studiers, planners, institutions of public relations, analyst staffing and computer administration. The rest 55% are technical field of reprographic, micrographic and telematics as well as administrative personnel. It can be said that main jobs in Documentation Center of Scientific Information are to document and preserve scientific documents, and also converting scientific documents into readings that are easily understood by the public (PDII LIPI, 2011).

A KM process must be managed properly so that tacit knowledge contained in

the employee can be a useful asset for Documentation Center of Scientific Information. KM process in Documentation Center of Scientific Information is directed to a process to obtain: (1) tangible information (documents, textual information) and intangible information (opinion and workers intuition who have been years of working in Documentation Center of Scientific Information, experience, value), (2) the mechanism of knowledge creation to support the new knowledge and innovation, and (3) Documentation Center of Scientific Information strategy to foster a culture of knowledge sharing (Setiarso, Triyono, Satriawahono, and Subagyo, 2007). The way to do by Documentation Center of Scientific Information in order to manage and support the knowledge sharing is to build a KM system. A KM system is built to make knowledge codification, knowledge directory, knowledge sharing system, and the formation of knowledge networks inside an IT-based system to the entire level of Documentation Center of Scientific Information. Measuring Documentation Center of Scientific Information readiness for implementing a KM system is a very important step before PII starts implementing KM system. The measurement is intended to assess Documentation Center of Scientific Information readiness, in terms KM factors or KM enablers related to successful implementation of KM. The problems of this research are as follows.

1. How are the priority weights of KM enablers for KM system implementation readiness assessment in Documentation Center of Scientific Information with AHP weighting method?
2. How is Documentation Center of Scientific Information level of readiness, from the perspective of KM enablers, to implement KM system with Aydin-Tasci readiness scale?

2.1 Knowledge Management System

Knowledge management system (KM system) is IT-based system aimed to store and retrieve knowledge, improve collaboration among people, locate knowledge sources, mine repositories for hidden knowledge, and capture and use knowledge (Frost, 2013).

2.2 KM Enablers

Various KM literatures in the past has stated the precondition for the creation of success of KMS implementation

Table 1 KM Enablers

KM Enablers	Burke and Litwin, (1992)	Lee and Choi (2003)	Ramadhan and Andrawina (2014)
Culture		Collaboration Trust Learning Leadership	Collaboration Mutual trust Learning Management support Organizational Strategy
Structure		Centralization Formalization	-
People		T-shape skill	-
Technology Support		IT Support	IT Support ICT Use
Process	Vision, mission, and strategy Policies and Procedures System		Reward Visio, mission, and strategy Policies and Procedures System

3. RESEARCH MODEL

The figure 1 below shows the process that is being done can be seen in this research. It includes the identification, measurement, and the establishment of readiness. The identification step that is pointed on the knowledge management enablers from the previous research focuses on culture process and information technology.

There are two other KM Enablers: People and Structure. These two enablers are not going to be discussed in this research. People and Structure KM Enablers are discussed on different research and different model.

Measurements are performed to obtain the level of the hierarchy of concepts

measured and readiness index. Then the final stage is the determination of readiness scale for each variable KM enablers.

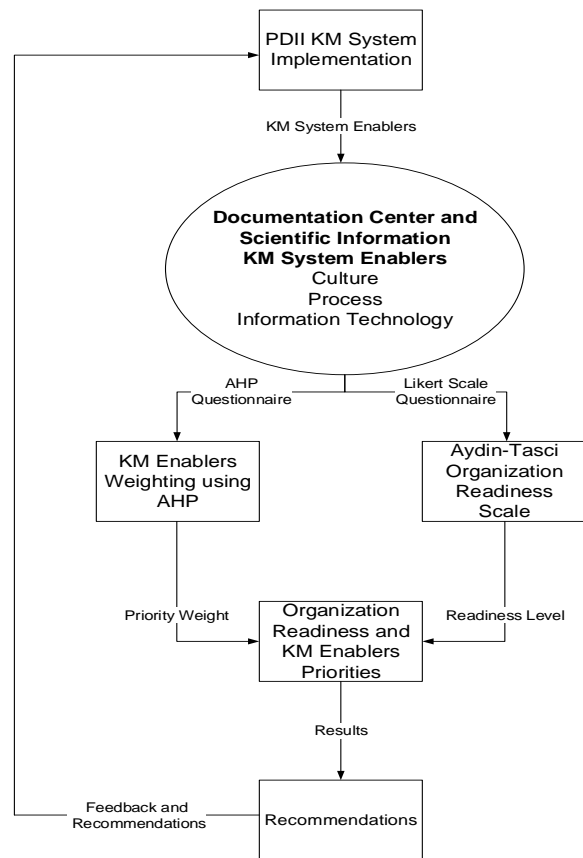


Figure 1. Conceptual Model

4. METHODOLOGY

4.1 Operational Variables

Operational variable constitutes a process of defining a concept in order to make it measurable. There are three KM enablers that affect successful KM implementation inside an organization that will be done in this research. Those factors are culture, process, and information technology. Explanation of those enablers are as follows.

1. **Culture:** defined as values espoused by the organization in order to achieve a sustainable competitive advantage (Lee and Choi, 2003). Appropriate culture needs to be applied within the organization for supporting people in organization in creating new knowledge, so knowledge can be able to be utilized and distributed to the whole organization (Suharti and Hartanto, 2009).

2. **Process:** something involved in the continual embodiment of the system's pattern of organization (Bateson, 1979).
3. **Information technology:** defined as elements of the IT-based structural dimensions needed to enabling knowledge sharing and knowledge creation for all people within the organization (Gold, Malhotra, and Segars, 2001).

Every dimension has indicators which will be used as the questions in questionnaire. The questionnaires in this research are divided into two: AHP questionnaire for priority weighting and Aydin-Tasci readiness questionnaire.

4.2 Analytic Hierarchy Process (AHP)

AHP is a method through pairwise comparisons and relies on the judgments of experts to derive priority scales (Saaty, 2008). This method is able to formulate the problem into a hierarchy of structured and can be easily used to solve problems that are not structured, as in this Research is to determine the priority or weighting of KM enablers. The input to this method is a qualitative opinion of a weighting questionnaire distributed to the experts.

4.3 Aydin-Tasci Readiness Scale

Aydin and Tasci (2005) scale is a scale of measurement used to measure the level of readiness of an organization. The levels of readiness by Aydin-Tasci are categorized into 4 categories as follows.

1. Index (1-2, 59) : Organization is not ready to implement KM system thus organization needs a lot of works.
2. Index (2,6-3.39) : Organization is more ready to implement KM system but still needs some works.
3. Index (3.4-4.19) : Organization is ready to implement KM system but still needs a few improvements.
4. Index (4.2-5) : Organization is ready to implement KM system.

4.4 Measurement

Data used for this research is obtained from the measurement of perception regarding the indicator from each KM enablers. The respondents are all of

employees in Documentation Center of Scientific Information.

AHP questionnaire will be given to experts (employees who have been working at least 10 years, or top management employees) in Documentation Center of Scientific Information in order to establish priority weight for every KM enablers, dimensions, and indicators.

Aydin-Tasci (2005) readiness questionnaire will be given to all employees in Documentation Center of Scientific Information. The scale of this questionnaire is 1 to 6, from strongly disagree to strongly agree. The questionnaire then will be done in successive interval in order to be processed in Aydin-Tasci 5 scale questionnaire and to get Documentation Center of Scientific Information level of readiness.

4.5 KM Enablers, Dimensions, and Indicators Identification

This research adopts the KM enablers and dimensions contained in Lee and Choi (2003), Razi and Karim (2010), and KM Triad's dimensions by Burke and Litwin (1992).

The KM enablers and dimensions by Lee and Choi (2003) are as follows.

1. Culture:
 - **Collaboration:** the degree to which people in a group actively help each other in their works (Hurley and Hult, 1998 in Lee and Choi, 2003).
 - **Mutual Trust:** the degree of trust among people within an organization. Mutual trust will be created in an organization when every person in the organization believe on integrity, capability and character of other person (Lee and Choi, 2003).
 - **Learning:** a relatively permanent change in someone's behavior as a result of experience gained by someone (Robbins, 2001 in Lee and Choi, 2003). To create perfect knowledge creation process, an organization has to be instilled with a strong learning culture, education programs, training, and mentoring to reinforce learning culture (Lee and Choi, 2003).
2. Information Technology:

- **IT Support:** 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 (Lee and Choi, 2003).

The KM enablers and dimensions by Razi and Karim (2010) are as follows.

1. Culture:
 - **Management Support:** the degree of support from top managers for KM through providing guidance and necessary resources (Lin, 2007 in Razi and Karim, 2010).
 - **Organization Strategy:** the degree of link between organizational strategy and KM strategy (Wei et al., 2009 in Razi and Karim, 2010).
2. Information Technology:
 - **ICT Use:** the degree of extensive use of information and communication technology by the individuals in the organization for KM initiatives (Lin, 2007 in Razi and Karim, 2010).
3. Process:
 - **Reward:** the degree of relevancy between the rewarding system and the involvement in KM process (Lin, 2007 in Razi and Karim, 2010).

The KM Triad enabler and dimensions by Burke and Litwin (1992) are as follows.

1. Process:
 - **Vision, Mission, and Strategy:** 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 and Litwin, 1992).
 - **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 (Burke and Litwin, 1992).

The process of determining research indicators is done by translating concepts into dimensions, then dimensions are translated into several research indicators. According to Sekaran (2003) in Fatimah (2009), there are three stages to translate concepts into dimensions, and dimensions are subsequently translated into indicators. The indicators will be questions which are addressed to the respondent for KM system implementation readiness measurement.

Table 2. Variables, Dimensions, and Indicators

Variables	Dimension	Indicator
Culture	Collaboration	5 Indicators
	Mutual Trust	3 Indicators
	Learning	5 Indicators
	Management Support	4 Indicators
	Organization Strategy	4 Indicators
Process	Reward	4 Indicators
	Vision, Mission, and Strategy	3 Indicators
	Policies and Procedures System	4 Indicators
Information Technology	IT Support	4 Indicators
	ICT Use	4 Indicators

There are 40 indicators which will be used in this Research. These indicators will be used as questionnaires for experts (AHP Questionnaire) and employees (Likert Scale Questionnaire).

Validity test is to test each indicators if it is valid or not. Validity test is the extent to which a test accurately measures what it purports to measure. Validity test is done before spreading the questionnaire to respondents. Validity test is done by discussing every indicators with experts in Documentation Center of Scientific Information, whether the indicators are suitable with the condition in Documentation Center of Scientific Information or not.

5. DISCUSSION

This research is being run on the step of data respondent identification and the operations that is going to be measured by

structuring a questionnaire for each dimension.

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