International Research Journal of Advanced Engineering and Science
ISSN (Online): 2455-9024

Knowledge Management Mapping from Helpdesk Application of Core System State Institutions Social Security in Indonesia

Muhamad Iqbal
Business Information System, Gunadarma University, Depok, West Java, Indonesia-16424
Email address: muhamadiqbal019@gmail.com

***Abstract*–** *The purpose of this research was to build Knowledge Management from helpdesk application at State institutions social security in Indonesia in the right way. There are solutions related to knowledge management that are used such as media and how to answer questions submitted to all branches.*

***Keywords*–** *Knowledge, Management, Helpdesk, Social Security.*

I. INTRODUCTION

According to Karl-Eric Sveiby (1997), Knowledge Management is an art to create value by increasing intangible assets (leveraging intangible assets).

Intangible assets in this topic can be classified into 3 (three) categories, that is:

1. Individual competence, that is intangible assets in the form of knowledge from people in the organization / company.
2. Internal structure, that is intangible assets that exist or are inherent in the internal structure of the organization / company such as brands, procedures, patents, other systems, and others.
3. External Structure, that is intangible assets that are outside the organizational structure / company such as customers, suppliers, partners and others.

The three types of assets above will be optimized to create added value for the organization by using the knowledge created in the knowledge management process. The successful use of intangible assets will significantly increase the value of the organization or company. The value of the company can increase with the innovations that are generated through the knowledge management process which can eventually lead the company to become a winner in the business competencies that occur.

1.1 Kind of Knowledge Management

1.1.1. Explicit

Explicit knowledge can be codified into systematic, formal and structured form. It can be achieved, collected, transformed, shared, communicated with ease and be accessible to people. This kind of knowledge is typically more common in organizations (Joia & Lemos, 2010; Huang et al., 2011).

1.1.2. Tacit

Tacit knowledge is different from explicit knowledge as it is usually delivered and shared in drawings or writing. Compared to explicit knowledge, it usually comes in the form of books, journals, papers, documents, databases, etc. (Herschel & Jones, 2005; Nonaka & Krogh, 2009).

Sabri (2014) and Szmodics (2015) summarized tacit and explicit knowledge as follows:

a. Tacit Knowledge
- Can be documented, codified, shared
- Can be stored in technological ways and digital systems
- Transferable

b. Explicit Knowledge
- What people think in their mind
- Difficult to be accessed and evaluated
- Not transferable

1.2. Knowledge Management Model

a. Nonaka and Takeuchi Knowledge Conversion Models

The Nonaka and Takeuchi models are one of the knowledge management models that can be used in preparation and conversion of knowledge.

Explicit knowledge is a type of written knowledge that can be used by others, but not all knowledge is transferred in writing. Therefore, the Nonaka and Takeuchi models are one model that can represent the conversion of knowledge, whether it is from tacit to explicit or vice versa.

b. The Choo Model of Knowledge Management

Choo Sense-Making KM Model (1998) emphasizes mind making, knowledge creation, and decision making. Choo (1998) asserts that "understanding organizations" are those who use information strategically in the context of three areas, such as: (a) making sense, (b) knowledge creation and (c) decision making. These three highly interconnected processes play a strategic role in developing the vision in organizational knowledge, this has the potential for knowledge creation and commitment in bringing knowledge creation to maximum consequences (Neto et al., 2009, p. 955).

c. Wiig model

The Karl Wiig KM (1993) model reviews the following principle: for knowledge to be useful and valuable, that knowledge must be organized. Knowledge must be arranged differently depending on where the knowledge will be used. Some dimensions used in the Wiigs KM model are:

1. Completeness

Completeness refers to how much relevant knowledge is available from the source provided. Sources can vary, such as

Muhamad Iqbal, "Knowledge Management Mapping from Helpdesk Application of Core System State Institutions Social Security in Indonesia," *International Research Journal of Advanced Engineering and Science*, Volume 4, Issue 3, pp. 202-205, 2019.

through human thought to the knowledge base (ie, tactics or explicit knowledge). First of all it is necessary to ensure that knowledge is out there, that knowledge may be complete if all available information about the subject exists but if no one knows its existence, we cannot use this knowledge (Dalkir, 2011, p.77).

2. Connectivity

Connectivity refers to relationships that are well understood and well defined between various objects of knowledge. Most knowledge objects are connected to each other, the more knowledge bases that are connected, the more coherent the content and the greater the value (Dalkir, 2011, p.77).

3. Congruence

The knowledge base is said to be congruent when all facts, concepts, perspectives, values, judgments, and relational relationships between objects are consistent. Most knowledge content will not meet these objectives (Dalkir, 2011, p.77).

4. Perspectives and Objectives

Perspectives and goals are phenomena that are traversed in order to know something, but from a certain point of view and for a particular purpose. To organize a lot of knowledge, two dimensions are used, that is perspective and purpose (Dalkir, 2011, p.77).

d. The Boisot I-Space KM Model

The Boisot KM model is based on the key concept of "good information", which is different from physical assets. Boisot distinguishes information from data by emphasizing that information is what the observer will take from data as a function of his expectations or prior knowledge. Boisot (1998) proposes the following two main points:

- The easier the data is structured and converted into information, the more diffuse it will become.
- The less structured data requires a shared context for diffusion, the more diffuse it becomes (Dalkir, 2011, p.82).

II. RESEARCH METHOD

2.1 Variable Determination

The study was conducted using a quantitative approach as a material for research analysis in the form of questionnaires, while the variables developed into questions related to Knowledge Management effectiveness in State institutions social security in Indonesia within the scope of the Use of Core Systems will be distributed to IT Administrators in each work unit as responder from the questionnaire given by the researcher.

Determination of variables in this study is based on the SECI approach which is divided into four categories, such as:

1. Socialization (K1)
2. Externalization (K2)
3. Internalization (K3)
4. Combination (K4)

2.2 Collection of Research Instruments

The research instrument used in this study was a questionnaire. Data collection techniques used are primary data and secondary data. Primary data can be obtained through questionnaires, literature studies and direct observation on location (observation) and interviews.

TABLE 1. The questions that will be distributed to all respondents

No.	Variabel	Questions
1	K1	1. Are routine activities such as the technical coordination meeting being followed quite helpful in overcoming the problems that exist in each work unit?
		2. Is the socialization activity about the application to be used in each work unit easy to follow?
		3. Are the dissemination activities related to the new application features clear enough?
2	K2	1. Is the current User Guide application system easy to understand and detailed?
		2. Is the helpdesk answer guide related to the application system currently available quite helpful?
3	K3	1. Has the Presidential Regulation been considered easy to understand?
		2. Have Ministerial Regulations been considered easy to understand?
		3. Have the Directors Regulations been considered easy to understand?
		4. Has the Division Regulation been considered easy to understand?
4	K4	1. Are Baby Sitting activities / Assistance in related work units felt sufficient?
		2. Can the Consignment activities be carried out properly?

2.3 Variable Measurement Methods

Variable measurements in this research used the x and y variables using the Likert scale (Sugiyono), along with the arrangement of statements:

- Strongly Disagree: 1
- Disagree: 2
- Agree: 3
- Strongly Agree: 4

TABLE 2. Category scale

Catergory	Limit
Very Low	1,00 – 1,75
Low	1,76 – 2,70
High	2,51 – 3,25
Very High	3,26 – 4,00

2.4. Research Respondents

Population and sample in this study reached 122 employees with positions as staff IT. IT Staff have the duty to monitor, support the staff of social security participant, social security service staff, marketing, and officials in the work unit. That personnel are staff with IT Administration (PMTI), IT Services, Finance and IT (PMPKTI), Branch Administrators (ADMC), and also Regional Administrators (ADMW).

2.5 Data Collection

The distribution of questionnaires in this research involved IT Administration Staff with the role of Regional Admin, Branch Admin, or Intermediate Financial Manager and IT who acted as users as well as liaison for other work units.

The questions that deliver on the questionnaire are classified from other job positions and use a Likert scale where the Likert scale is the psychometric scale used for

Muhamad Iqbal, "Knowledge Management Mapping from Helpdesk Application of Core System State Institutions Social Security in Indonesia," *International Research Journal of Advanced Engineering and Science*, Volume 4, Issue 3, pp. 202-205, 2019.

survey, using points 1 to 6 that have "very low" to "very high" meanings. This aims to avoid the midpoint, which can prevent respondents from being neutral towards questions (Amabile, Conti, Coon, Lazenby, & Herron, 1996).

The questionnaire was formed in a Likert scale with the purpose of being able to show the level of respondents approval of a statement by making selections on choices 1 to 6.

2.6 Data Analysis Methods

2.6.1 Analytic Hierarchy Process (AHP) Method

AHP is a mathematically-based procedure that is very good and suitable for the conditions of evaluating qualitative attributes. These attributes are mathematically quantified in 1 set of paired comparisons. AHP advantages than the others because of the hierarchical structure, as a consequence of the criteria chosen, to the most detailed sub-criteria. Consider the validity up to the tolerance limits of inconsistencies in various criteria and alternatives chosen by decision makers (Saaty, 1990).

Because it uses human perception input, this model can process qualitative and quantitative data. So the complexity of the problems around us can be well approached by this AHP model. In addition AHP has the ability to solve multi-objective and multi-criteria problems based on preference comparisons of each element in the hierarchy. So this model is a model of comprehensive decision making. The ability of the AHP method used here is in the analysis of consistency and sensitivity analysis. Consistency analysis is aimed at the priority hierarchy that is built. While sensitivity analysis is intended to see the effect of each element on the priority hierarchy that is built.

One tool (aids) that is suitable for candidate selection or prioritization is Analytic Hierarchy Process (AHP) (Thomas L. Saaty, 1990).

Previous research conducted by Desita Mustikaningrum (2018) stated that to determine the ranking of the influence of the four SECI processes in their research related to Knowledge Management of PT Telekomunikasi Indonesia (Persero) Tbk, using AHP as the method of analysis. The AHP components that will be used in this research are listed in picture below.

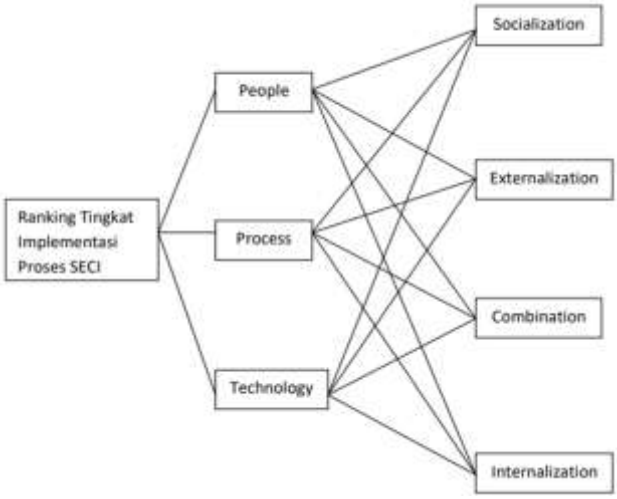

Fig. 1. Ranking Level of Implementation SECI Process

The analysis was carried out with the aim of "ranking the level of implementation of the SECI process", with the criteria of People, Process, and Technology, and four SECI processes (Socialization, Externalization, Combination, Internalization) as the alternative.

Following are the steps of AHP calculation:

1. Determination of criteria In this study, the criteria used are people, processes,technology.

2. Criteria for setting priority values

It takes a criteria-taking matrix between pairs. Used saaty scale to compare pairs criteria. Numbers in i-rows and j-column are importance relative criteria of Ai than the Aj criteria.

Furthermore, the obtained table is in pairs, as below:

TABLE 3. Criteria for setting priority values

	People	Process	Technology
People	A11	A12	A13
Process	A21	A22	A23
Technology	A31	A32	A33

Then the pairwise comparison matrix is obtained as below:

$$\begin{bmatrix} a11 & a12 & a13 \\ a21 & a22 & a23 \\ a31 & a32 & a33 \end{bmatrix}$$

Weighting factors for each criteria are determined by calculate the eigen vector from the pairwise comparison matrix, in the following way:

Step 1. Normalize the comparison matrix in pairs in a way divides each entry into a sum of column

$$\begin{bmatrix} a11/\sum 1 & a12/\sum 2 & a13/\sum 2 \\ a21/\sum 1 & a22/\sum 2 & a23/\sum 2 \\ a31/\sum 1 & a32/\sum 2 & a33/\sum 2 \end{bmatrix} = \begin{bmatrix} b11 & b12 & b13 \\ b21 & b22 & b23 \\ b31 & b32 & b33 \end{bmatrix}$$

Step 2. Calculate row average from every rows as a vector priority

$$\text{Vector priority} = \begin{bmatrix} (b11+b12+b13)/3 \\ (b21+b22+b23)/3 \\ (b31+b32+b33)/3 \end{bmatrix} = \begin{bmatrix} c1 \\ c2 \\ c3 \end{bmatrix}$$

Step 3. Vector priority is the weight for each criterion

3. Calculation of the consistency ratio Logical consistency is checked by calculating the consistency ratio or Consistency Ratio (CR) of pairwise comparison matrix. If Consistency ratio (CI / CR) is less or equal to 10%, then the result calculations can be stated correctly.

To calculate CR, a weighted sum vector is needed, consistency vector, lambda, and consistency index. Weighted sum vector is obtained from multiplying pairwise comparison matrix with row average matrix as follows:

Muhamad Iqbal, "Knowledge Management Mapping from Helpdesk Application of Core System State Institutions Social Security in Indonesia," *International Research Journal of Advanced Engineering and Science*, Volume 4, Issue 3, pp. 202-205, 2019.

$$\begin{bmatrix} a11 & a12 & a13 \\ a21 & a22 & a23 \\ a31 & a32 & a33 \end{bmatrix} \mathrm{X} \begin{bmatrix} c1 \\ c2 \\ c3 \end{bmatrix} = \begin{bmatrix} d1 \\ d2 \\ d3 \end{bmatrix}$$

Consistency vector is obtained from the division between weighted sum vector with row averaging. Whereas lambda and CI are obtained with the following formula

$$\lambda = \frac{\sum Consistency\ vector}{n}$$

$$CI = \frac{\lambda - n}{n - 1}$$

$$CR = CI/IR$$

Dimana $CR = Consistency\ Ratio$

$CI = Consistency\ Index$

$IR = Indeks\ Random\ Consistency$

4. Determination of alternative priority values

The priority values of each alternative are calculated in a way calculate vector priority from pairwise comparison matrix each alternative. Total alternative priority values obtained by multiplying the alternative vector priority matrix with the matrix vector priority criteria.

After the ranking is determined, it can also be concluded whether the implementation the four processes are balanced or not.

2.7 Validity and Reliability

The validity test aims to determine the validity of the questionnaire used. Validity here means that the questionnaire used is capable to measure what should be measured (Santoso, 2000). Validity of content from the research instrument has been proven by adapting the construct that has been validated by previous research (Choi, 2002). Instrument validity means that the instrument used is the right measuring instrument for measure in this study. In this study, a test was conducted with measure Pearson product moment. If the value of r count > r table, then item declared valid.

Reliability is assessed by calculating the cronbach's alpha value. Some questions are considered reliable if the alpha coefficient value is> 0.7 (Ghozali, 2014).

Reliability of the instrument means that this instrument is reliable for use at other places and in the future. Reliability is basically knowing the extent to which measurement results can be trusted. If results repetitive measurements are relatively the same, then these measurements are considered to have a good level of reliability.

REFERENCES

[1] Nonaka, I., 'A Dynamic Theory of Organizational Knowledge creation', *Organization Science*, 5 (1): 14-37, 1994.
[2] Nonaka, I. and Takeuchi, H., *The knowledge creating company*, Oxford University Press, New York, 1995.
[3] K Erik Sveiby, *The Intangible Assets Monitor*, 1997.
[4] Herschel, R. & Jones, N, Knowledge Management and Business Intelligence: *The Importance of Integration*. Journal of Knowledge Management, 9(4), 45-55, 2005.
[5] Sabri, A., *Applying DeLone and McLean IS Success Model on Sociotechno Knowledge Management System*. International Journal of Computer Science Issues, 11(6), 160-166, 2014.
[6] Dalkir, Kimiz, *Knowledge Management in Theory and Practice*, Elsevier Butterworth–Heinemann, 2011.
[7] Boisot, Max, Knowledge Assets: *Securing Competitive Advantage in the Information Economy*, 1998.
[8] Amabile, T. M., Conti, R., Coon, H., Lazenby, J., & Herron, M., *Assessing the work environment for creativity*. Academy of Management Journal, 39, 1154-1184. doi:10.2307/256995, 1996.
[9] Thomas L. Saaty, *European Journal of Operational Research*, vol. 48, issue 1, 9-26, 1990.
[10] Sugiyono, *Metode Penelitian Kuantitatif dan Kualitatif R & D*. Cetakkan Ke-22 Bandung : ALFABETA, 2015.
[11] Choi, B., & Lee, H., *Knowledge management strategy and its link to knowledge creation process*. Expert Sistems with Applications, 23, 173–187, 2002.
[12] Ghozali, I., *Structural Equation Modeling Edisi 4, Metode Alternatif Dengan Partial Least Square (PLS)*. Semarang: Badan Penerbit Universitas Diponegoro Semarang, 2014.