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Knowledge Management Implementation Readiness Assessment: Case Study of PT PELNI (Persero)

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Abstract

This study aims to identify Knowledge Management (KM) implementation factors, highlight KM implementation elements, and assess PT PELNI (Persero)'s readiness for KM implementation. The investigation employs the Analytical Hierarchy Process (AHP) and Likert Summated Ratings (LSR) techniques. For readiness evaluation respondents, there were 23 respondents who served as human capital staff. According to the findings of this study, PT PELNI (Persero) has eight factors with a total of 38 indicators. Furthermore, the factor related such as Top Management Factor, Executive Management Factor, Culture Factor, Organizational Infrastructure Factor, Human Resource Management Factor, Continuous Improvement Factor KM Architecture Factor, Technical Infrastructure Factor are listed in order based on their relative significance. By then, based on the level of readiness, the results of the overall evaluation of readiness are unprepared. On the other hand, based on the results of the respondent's summary, the majority of the indicators are considered ready for implementation. This signifies that employee are prepared to adopt the KM program, but the KM team believes that there is room for development in each KM implementation indication before the program can be implemented.

Keywords

human resources; knowledge management; readiness evaluation



I. Introduction

A new era in the history of organizations began with the turn of the 21st century, corresponding with significant shifts in the political, economic, and technological conditions. Because of this fundamental shift, numerous businesses now believe that the only way to achieve sustainable success and preserve their edge over the competition is to develop innovative new solutions. Because of these issues, companies are being forced to adjust to the modern environment. Modern enterprises are under increasing pressure to make efficient use of their information and intellectual property in order to acquire and keep a competitive advantage in today's global economy.

As knowledge plays a significant and strategic function, as well as for its potential for power and influence, a large number of organizations have successfully implemented knowledge management. Knowledge management serves numerous purposes within a company, including enhancing organizational capabilities in a competitive setting. Implementing a Knowledge management project within a company necessitates substantial change, which is frequently a challenging endeavour for the firm. Even so, it has been noted that managers must assess the organization's readiness for knowledge management before to implementing it. Managers are responsible for proactively preparing their companies and their personnel prior to initiating Knowledge management programs. Consequently, they should investigate their organization's readiness to accept this initiative as the initial stage in this process. Organization must have a goal to be achieved by the organizational members (Niati et al., 2021).

The PT PELNI (Persero) is a state-owned port facilities service provider. PT PELNI (Persero) plays a critical role in ensuring the survival and efficiency of sea transportation in its daily operations. The importance of Human Resources for the survival of PT PELNI (Persero) is well acknowledged. As a result, PT PELNI (Persero) works hard to strengthen the capabilities and skills of its Human Resources on a regular basis. PT PELNI (Persero) provides education and training programs to its employees in order to achieve the company's vision and goal. To achieve the best outcomes, the company examines the competence of its Human Resources on a regular basis, particularly for competences that are subject to changes in the flow of work processes, technology, and procedures as a response to changing circumstances. One of the initiatives that PT PELNI (Persero) will use to realize the notion of sustainable Human Resources development is knowledge management. The goal of establishing a knowledge management program is to create new innovations in order to compete with its competitors. PT PELNI (Persero) realized that he needed to create a knowledge management program because they believed that knowledge management was essential to the company's long-term viability in the face of stiff competition among port service companies. Additionally, one of the challenges for PT PELNI (Persero)'s formation of the program is the construction of a knowledge management program that takes a long time and costs a lot of money.



Figure 1. Number of Employees in PT PELNI (Persero)

According to Diana Oblinger et al., generation X is the generation born in 1965 to 1980 which can be categorized based on the age of 36 years to 52 years per 2017, while generation Y is the generation born in 1981 - 1994 which can be categorized by age. 23 years to 35 years per year 2017. Based on this category, it can be stated that generation X dominates compared to generation Y, with a total number of 866 employees for generation X and 802 employees for generation Y. However, Frost concludes that the number of generation X which dominates can pose a high risk of failure in knowledge management programs. This is because Generation X tends to have an outdated perspective and lack technological knowledge.

Based on the background, this study aims to assess the company's readiness in implementing Knowledge Management (KM). Then, the research questions that will be answered in this study are formulated. The research questions in this study are:

- RQ1: What factors influence the implementation of knowledge management at PT PELNI (Persero)?
- RQ2: What are the managerial knowledge management implications for PT PELNI (Persero)?

II. Review of Literature

2.1 Knowledge Management

Knowledge management refers to systematic operations that provide knowledge management in terms of acquire, application, distribution, backup, retrieval, and development of new ideas in order to promote innovation. In addition to financial assets, every organization must manage knowledge as an asset or property (asset knowledge management). Knowledge management assets have a significant influence on knowledge management operations, hence every company needs to be able to learn more.

2.2 Factors that Contribute to the Successful Implementation of Knowledge Management

The determination of knowledge management implementation factors and indicators is based on a literature review of prior studies. Accordingly, numerous elements can be utilized to determine the preparedness of knowledge management implementation, including the factors of top management, executive management, culture, organizational infrastructure, human resources management, continuous improvement, KM framework, as well as technical infrastructure.

2.3 Analytical Hierarchy Process (AHP)

The AHP (Analytical Hierarchy Process) technique is a pairwise comparison-based measurement theory that depends on expert opinion to establish priority scales. This technique simplifies complicated, unstructured, strategic, and dynamic situations by arranging variables in a hierarchical or level-based structure. The variable's level of relevance is then subjectively quantified in terms of its relative significance relative to other variables.

2.4 Likert Summated Ratings (LSR)

Likert scale is a scale that indicates an individual's level of agreement with a statement. This scale is frequently used in various survey-based investigations, and its distribution involves the distribution of questionnaires. According to Malhotra & Mukherjee, this scale allows respondents to indicate their level of agreement or disagreement with a series of stimulus-related statements. This scale is also used to measure the attitudes, views, and perceptions of an individual or group about social phenomena. Each statement and question will be assigned a score that reflects the respondent's opinion on the phenomenon.

2.5 Previous Research

As a foundation for this research, the authors look over to prior and comparable investigations. According to the investigations on Knowledge management in the Petroleum Industry of Iran carried out by Saeed Khodabakhshzadeh et al, discover that IT infrastructure and organizational structure were the most prepared to implement KM in the company, followed by management support, human resources, and organizational culture. This research was conducted at the Iranian National Oil Company by distributing questionnaires to 638 employees. This study employs the variables of management readiness/support, organizational culture, IT infrastructure, human resources, and organizational structure to examine the implementation of knowledge management (KM) within the organization.

Moreover, evaluation of knowledge management performance: an organic approach that carried out by Chen and Fong combines survey studies and system dynamics (SD) simulations to demonstrate the transformation from a mechanistic to an organic perspective on KM strategy and performance evaluation. The survey study was conducted based on a sample of 143 construction contractors, and used structural equation modelling (SEM) techniques to develop a KM performance index to review the key elements that support the KM strategy. The SD simulation predicts the development of the KM strategy configuration and the evolution of KM performance over time. The organic KM performance evaluation approach demonstrated by this study has significant potential to improve the alignment of KM strategies in an increasingly dynamic business environment.

Meanwhile, knowledge management system performance measurement index was carried out by Tseng. The research framework uses in-depth interviews; knowledge management performance index (KMPI). This research reveal that the quality of knowledge management on the three components of the knowledge management system will affect the performance of the knowledge management system. Hence, the more effective and efficient that can be achieved by the three components, the better the performance achieved by the Knowledge management System.

III. Research Method

This research uses Analytical Hierarchy Process (AHP) and Likert Summated Ratings (LSR) methods. The resource persons used in this study were 5 experts and 2 academics as well as practitioners. Meanwhile, for the readiness evaluation respondents, there were 23 respondents who served as human capital staff.



Figure 2 depicts a framework for measuring organizational preparedness to implement KM. In accordance with the condition of PT PELNI (Persero) knowledge management implementation, eight elements with a total of 42 indicators will be evaluated following consultation. In this study, 38 indicators were organized into 8 components. The eight factors consist of top management factor, executive management factor, culture factor, organizational infrastructure factor, human resource management factor, continuous improvement factor, KM architecture factor, and technical infrastructure factor.

After determining a relevant framework, the following stage is to create a questionnaire. In this study, three questionnaires are distributed: the indicator verification questionnaire that was adjusted to PT PELNI (Persero)'s requirements, the AHP weighting questionnaire for the selected indicators, and the evaluation questionnaire on PT PELNI

(Persero)'s readiness to apply knowledge management. This section outlines the format of each questionnaire.

The questionnaire's questions are derived from the variables provided in the KM. The scale utilized at this stage is the one designed by Saaty, which ranges from 1 to 7. This scale is used to weight knowledge management implementation aspects and indicators. Determination of factors and indicators of Knowledge management implementation, research questionnaire design, determination of research respondents, weighting using the AHP approach, selection of indicators, and evaluation of Knowledge management implementation readiness.

The primary data collection method used is by conducting interviews with PT PELNI (Persero) experts. Determination of experts as AHP respondents is the same as in the previous stage, namely through discussions with the person in charge of PT PELNI (Persero) knowledge management program which is determined based on the experience of experts in following the planning and preparation of PT PELNI (Persero) knowledge management program as well. Respondents from this questionnaire are employees who serve as staff in the Human Capital & General Affairs (HR) division. The appointment of staff in the Human Capital & General Affairs (HR) division as respondents was due to the socialization of the knowledge management program at PT PELNI (Persero) that had not been comprehensive in all divisions, but had been carried out in the Human Capital & General Affairs (HR) division of respondents uses a table developed by Isaac and Michael in Sugiyono with a significance level of 10%, so that a sample value of 23 respondents was obtained.

The data is processed to become input and problem mapping and solution. Beginning with the identification of the knowledge management road plan, this stage entails the identification of knowledge management-aligned factors and indicators. Identifying the weighting of knowledge management factors and indicators in order to evaluate the readiness of PT PELNI (Persero) to adopt knowledge management.

IV. Results and Discussion

The outcomes of collecting and processing data from the distributed questionnaires, as well as the readiness to implement knowledge management at PT PELNI (Persero) is covered in this section.

4.1 KM Reading Level Calculation

The number of respondents used is 23 people and the number of questions is 38. The number of questions is the same as the number of indicators contained in the questionnaire. Based on the above formula, the results of the calculation of the lower limit (B) and upper limit (A) for each indicator are as follows.

Lower limit (B) = number of respondents x lowest score (1) x number of questions = $23 \times 1 \times 1 = 23$ Upper limit (A) = number of respondents x highest score (7) x number of questions = $23 \times 7 \times 1 = 161$ (1)

From the results above, the range value (n) is obtained by calculating the difference between the upper limit (A) and the lower limit (B). Range (n) = 161 - 23 = 138 (2) Furthermore, the quartile value of each indicator is calculated to determine the distribution of the data by dividing the data into four equal parts.

Quartile I (Q1) = B + (n/4) = 23 + (138/4) = 57.5Quartile II (Q2) = B + (n/2) = 23 + (138/2) = 92

Quarter III (Q2) = B + (n.2) = 23 + (136/2) = 92 Quarter III (Q3) = B + (n.3/4) = 23 + (138.3/4) = 126.5

Factor	Indicator	Correlation	Evaluation	Readiness	Readiness
Factor	Indicator	Weight	Value	Value	Position
	TMF1	0.113	136	15.368	Very ready
Top Management Factor	TMF2	0.038	125	4.750	Ready
	TMF3	0.016	130	2.080	Very ready
	TMF4	0.021	140	2.940	Very ready
	EMF1	0.101	124	12.524	Ready
F	EMF2	0.040	116	4.640	Ready
Executive Management Factor	EMF3	0.024	101	2.424	Ready
ivianagement i actor	EMF4	0.030	127	3.810	Very ready
	EMF5	0.045	134	6.030	Very ready
	CF1	0.035	135	4.725	Very ready
	CF2	0.032	126	4.032	Ready
Culture Factor	CF3	0.014	137	1.918	Very ready
	CF4	0.015	140	2.100	Very ready
	CF5	0.019	134	2.546	Very ready
	OIF1	0.016	141	2.256	Very ready
Organizational	OIF2	0.010	142	1.420	Very ready
Infrastructure Factor	OIF3	0.016	125	2.000	Ready
	OIF4	0.011	133	1.463	Very ready
	HRMF1	0.038	127	4.826	Very ready
Llumon Docouroo	HRMF2	0.016	126	2.016	Ready
Management Factor	HRMF3	0.018	143	2.574	Very ready
	HRMF4	0.016	132	2.112	Very ready
	HRMF5	0.014	146	2.044	Very ready
Continuous	CIF1	0.068	103	7.004 Read	Ready
Continuous Improvement Factor	CIF2	0.031	120	3.720	Ready
	CIF3	0.018	138	2.484	Very ready
	KAF1	0.021	114	2.394	Ready
	KAF2	0.015	97	1.455	Ready
KM Architactura	KAF3	0.018	107	1.926	Ready
KM Architecture Factor	KAF4	0.011	96	1.056	Ready
	KAF5	0.012	107	1.284	Ready
	KAF6	0.010	108	1.080	Ready
	KAF7	0.006	129	0.774	Very ready
Technical Infrastructure Factor	TIF1	0.025	118	2.950	Ready
	TIF2	0.029	112	3.248	Ready
	TIF3	0.019	116	2.204	Ready
	TIF4	0.012	120	1.440	Ready
	TIF5	0.006	138	0.828	Very ready
Total			124.445		

Table 1. Knowledge Management Implementation Readiness Evaluation

(3)

The determination of readiness for implementation of knowledge management at PT PELNI (Persero) can be seen through the perspective adopted from research conducted by Yuniarti regarding the evaluation of the readiness of the implementation of Green ICT with the explanation of the total score as follows.

 $\begin{array}{ll} B & \leq total \ score < Q1 = very \ negative \ attitude \\ Q1 \leq total \ score < Q2 = negative \ attitude \\ Q2 \leq total \ score < Q3 = positive \ attitude \\ \end{array}$

 $Q3 \le total \ score \le A = very \ positive \ attitude.$

Lower limit (B) = number of respondents x lowest readiness score x number of questions = $23 \times 0.774 \times 1 = 17.802$

Upper limit (A) = number of respondents x highest readiness score x number of questions = $23 \times 15,368 \times 1 = 353,464$ (4)

From the above calculation results, the range value (n) is obtained by calculating the difference between the upper limit (A) and the lower limit (B) as follows.

Range (n)	= 353.464 - 17.802	
	= 335.662	(5)

Besides that, the value at the quartile for each of the indicators is computed. A division of the data into four equal parts is carried out in this way so that the distribution of the data can be determined.

Quartile I (Q1)	= B + (n/4) = 17.802 + (335.662/4) = 101.717	75
Quartile II (Q2)	= B + (n/2) = 17.802 + (335.662/2)	
	= 185.633	
Quarter III (Q3)	= B + (n.3/4) = 17.802 + (335.662x3/4)	
	= 269.5485	(6)

According to the evaluation results, PT PELNI (Persero)'s total preparedness to apply knowledge management is valued at 124.445 (see Table I). This proves that PT PELNI (Persero)'s readiness to apply knowledge management is between Q1 and Q2, revealing that implementation readiness is unprepared. This indicates that X organization is not yet prepared to implement knowledge management, as further improvements must be made to provide optimal preparation for implementing knowledge management.

4.2 Managerial Implications of Knowledge management at PT PELNI (Persero)

By using AHP technique, managerial implications are derived from the priority value of each factor. Support and commitment from top management must be maintained, as in the execution of KM programs, top management managers require support and commitment to effectively lead their subordinates. Hence the subordinates have confidence and trust in the program's execution. In addition, top management managers must continue to encourage their subordinates by setting a good example, so their subordinates are always inspired to implement knowledge management initiatives. In fact, budget approval from top management is essential for the success of this initiative. Instead required is simple access to budget approvals without complicated procedures. In addition, the relationship between the business's vision, mission, and tasks as well as its KM strategy must be transparent and consistent. According to PT PELNI (Persero)'s expert perspective, the company uses lessons learned as an example of applying KM for employees. This lesson was learned in the form of documenting work-related errors and failures. Lessons learnt are vital to the effectiveness of this program; therefore, organizations must engage in a more extensive dissemination of lessons learned to employees. This is because few employees are familiar with the phrase lesson learned. The company also gives examples and role models through the KM team and company and divisional leaders.

In the implementation of the KM program, the company's existing culture is crucial. In implementing this program, however, X business made no cultural adjustments. The implementation of the KM program at PT PELNI (Persero) is anticipated to have a positive effect on the firm's culture; thus, the company is now implementing numerous cultural reforms, such as a communication culture, in order for the KM program to operate effectively. In addition to communication culture, companies must increase the quality of creative training to ensure that employees are always interested and motivated to participate in company-sponsored training, thereby fostering the development of new innovations.

Nevertheless, PT PELNI (Persero) have a high organizational structure, which in the application of knowledge management will be difficult. This is due to the fact that communication between employees is structured. Therefore, PT PELNI (Persero) is in the process of altering its communication culture to facilitate employee communication, and this change must be maintained for the success of the KM program. In establishing the KM program, PT PELNI (Persero) also created a KM team to plan, organize, promote, and serve as a role model for employees. As a means of promoting the KM program, PT PELNI (Persero) basically needs to strengthen communication between employees and set the correct example in order to complete this transformation.

According to experts in PT PELNI (Persero), the majority of employees at PT PELNI (Persero) perceive well-being. This is because the company actually cares about its employees' welfare. The organization is constantly appreciative of the actions and efforts of its employees, and as a result, employees have the flexibility to do their duties. In addition, companies frequently provide incentives to employees if the company's performance has improved, leading to high employee loyalty. Considering that these indicators can have a positive impact on the organization, it is essential that the corporation maintains such.

Based on the expert's description, the company has done measurements of the KM program alongside other companies to determine the level of readiness. To determine a further step and conduct an evaluation, it is necessary to undertake an internal measurement of readiness in order to determine the next step.

The readiness of the responses' implementation suggests a prepared standpoint. Meanwhile, based on the findings of the weighting, this factor is the seventh most important aspect of adopting knowledge management. This indicates that this factor is significant enough to be evaluated.

V. Conclusion

This study aims to identify Knowledge Management (KM) implementation factors, highlight KM implementation elements, and assess PT PELNI (Persero)'s readiness for KM implementation. The investigation employs the Analytical Hierarchy Process (AHP) and Likert Summated Ratings (LSR) techniques. For readiness evaluation respondents, there were 23 respondents who served as human capital staff. According to the findings of

this study, PT PELNI (Persero) has eight factors with a total of 38 indicators. Furthermore, TMF, EMF, CF, OIF, HRMF, CIF, KAF and TIF are listed in order based on their relative significance. By then, based on the level of readiness, the results of the overall evaluation of readiness are unprepared. On the other hand, based on the results of the respondent's summary, the majority of the indicators are considered ready for implementation.

Based on the overall readiness value and including the results of weighting, the results of the evaluation of the implementation readiness of knowledge management PT PELNI (Persero) are in an unprepared position with a value of 124.445, which reveals the position of Q1 and Q2. This means that some indications in the implementation of knowledge management are ready to be implemented, but the majority are not, and changes must be made first. Conversely, the findings of the respondent recap indicate that the majority of the indicators of knowledge management implementation are ready for implementation. This suggests that there is a perceived gap between employees and the KM team. Consequently, while employees are ready to undertake knowledge management programs, the KM team believes that there is still room for development in every indicator of knowledge management implementation before it is adopted for employees.

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