

Knowledge Management Maturity Assessment to Identify Opportunity for Improvement at PT Pupuk Kaltim

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ABSTRACT: *The agricultural sector has a significant impact on the economy in Indonesia. Fertilizer is needed as a supporting factor to increase productivity in agriculture. PT Pupuk Kaltim is a company that produces urea and NPK fertilizers. The challenge faced by the fertilizer industry is the increase in raw material costs. To overcome these challenges, efficiency and effectiveness must be carried out. Knowledge management is one way to improve this. For this reason, it is necessary to do an evaluation first to determine the company's knowledge management's condition or level of maturity. The assessment results are in the form of information regarding the company's strengths and areas that need to be improved to improve efficiency and effectiveness. This study uses research methods that combine quantitative and qualitative approaches. The questions in the questionnaire are based on the Asian Productivity Organization's knowledge management maturity level tool. The questionnaire results show that the maturity level of knowledge management at PT Pupuk Kaltim is at a refinement level. To increase the level of maturity, there are four strategies: incorporating knowledge management into long-term plans, mentoring, developing document management systems, and integrating technology platforms.*

KEYWORDS - *fertilizer industry, knowledge management, maturity level, maturity level Assessment, Asian Productivity Organization.*

I. INTRODUCTION

Most Indonesian people make a living as farmers. So, it is not wrong if Indonesia is called an agricultural country. According to Indonesian Statistics Center, in 2021, there will be 38.77 million farmers in Indonesia, or 29.59% of Indonesia's workforce working in the agricultural sector. The agricultural sector in Indonesia has great benefits for the economy in Indonesia. The agricultural sector in 2021 contributed 13.28% and in Q2-2022 contributed 12.98% to the national economy. The agricultural sector requires supporting factors that have an important role in increasing the productivity and quality of agricultural products, namely fertilizer. In 2019 Indonesia had 36.8 million hectares of agricultural land[1]. With such a large land area, large amounts of fertilizer are needed. Farmers' need for fertilizer nationally reached 22.57 million tons to 26.18 million tons. With a very large number of needs for fertilizer, making fertilizer is a business sector that has great opportunities. PT Pupuk Kaltim is a company that produces urea and NPK fertilizers. There are challenges for PT Pupuk Kaltim. The difficulty is the rise in production costs. Fertilizer industry producers must function effectively, be more sensitive to opportunities, and adopt various anticipatory measures in order to continue to grow in the face of competition. One of the steps that can be taken is to utilize the knowledge management possessed by PT Pupuk Kaltim in order to increase competitiveness so that it can survive in this industry.

Knowledge management increases the efficiency and effectiveness of organizations in producing goods and services and creating innovations that lead to competitive advantage [2]. It can be concluded that the use of knowledge management can be a way for PT Pupuk Kaltim to have a competitive advantage. Prior to formulating a knowledge management strategy, it is necessary to evaluate the maturity level in advance in order to determine the condition or maturity level of the company's knowledge management, and at the same time, it can be used as material for formulating the most suitable knowledge management implementation strategy to achieve company goals. The maturity level of knowledge management implementation can be measured using several factors as measurement criteria, one of the measurement tools developed by Asian Productivity Organization (APO).

The results of the assessment are in the form of information on the company's strengths and areas that need to be improved. Knowledge management programs have been implemented by PT Pupuk Kaltim. To ensure that these programs run properly, an assessment of these activities and the overall situation of knowledge management in the business is required. PT Pupuk Kaltim needs to implement a knowledge management maturity level evaluation in order to improve productivity and effectiveness.

II. LITERATURE REVIEW

2.1 Knowledge Management

Knowledge management is a systematic step in managing organizational knowledge to create value and competitive advantage [3]. Knowledge management is a collection of processes, policies, and tools to link employee knowledge to new sources of knowledge (products, services, and processes) to create innovative solutions[4]. Knowledge Management is a discipline that enables individuals, teams, and entire organizations to create, share and apply knowledge to better achieve their goals collectively and systematically [5].

2.2 Asian Productivity Organization Framework

Understanding the organization's vision, mission, operational goals, and strategic direction is the first step in the APO knowledge management framework. It aids in the analysis of an organization's fundamental strengths and capabilities and identifies any areas that require improvement. To successfully launch knowledge management implementations, it might be helpful to evaluate how common these drivers and supporters are inside the organization using the Four Accelerators. The five fundamental knowledge processes offer a preliminary evaluation of current knowledge management techniques that can be used in implementation. Organizations occasionally employ knowledge management without being aware of it. The outcomes of knowledge management initiatives assess the efficiency of the knowledge process, which is backed by crucial success elements (Accelerator, Vision, and Mission). The outcomes must show improved learning and innovation that strengthens the capacities of people, groups, organizations, and communities and ultimately results in enhancements in the caliber of goods and services, productivity, profitability, and growth [5].

2.3 Knowledge Management Maturity Assessment Approach

This survey questionnaire is intended to assist organizations in quickly assessing how prepared they are for knowledge management. The seven audit categories are covered by 42 questions with a maximum score of 210 points. The maximum score for each category is 30 points. Each question has a rating range of 1 (doing poorly or accomplishing nothing at all) to 5. (doing very well) [5]. Based on the crucial components of the framework, there are seven audit categories in the APO knowledge management evaluation tool:

a. Leadership

This category assesses how well-equipped the organization's leadership is to meet the demands of a knowledge-based economy. Regarding KM policies and tactics within the organization, KM leadership is evaluated. In order to launch, direct, and sustain KM activities, the organization also evaluates its leadership capacity.

b. Process

The process category evaluates the management, application, and enhancement of the main work processes within the company. In order to attain greater performance, it also measures how much the organization continuously reviews and enhances its work procedures.

c. People

The organization's capacity to establish and maintain a knowledge-driven and learning culture is evaluated in this category. The organization's initiatives to promote collaboration and knowledge exchange are assessed. Knowledge worker development is also evaluated.

d. Technology

This area assesses the organization's capacity to create and provide knowledge-based solutions, such as content management systems and collaboration tools. These tools' dependability and accessibility are also evaluated.

e. Knowledge Processes

The organization's capacity for knowledge identification, creation, storage, exchange, and application is assessed. It is also evaluated how best practices are shared and lessons acquired to reduce working twice as hard and recreating the wheel.

f. Learning and Innovation

This category evaluates an organization's capacity to strengthen learning and innovation through organized knowledge processes. The management's initiatives to promote innovation and learning ideals and to offer incentives for information sharing are also evaluated.

g. Knowledge Management Outcomes

The ability of the business to increase value to customers and citizens through new and enhanced products and services is measured by the knowledge management outcomes category. It assesses the organization's capacity to improve productivity, quality, profitability, and sustainable growth through efficient resource management as well as through learning and innovation.

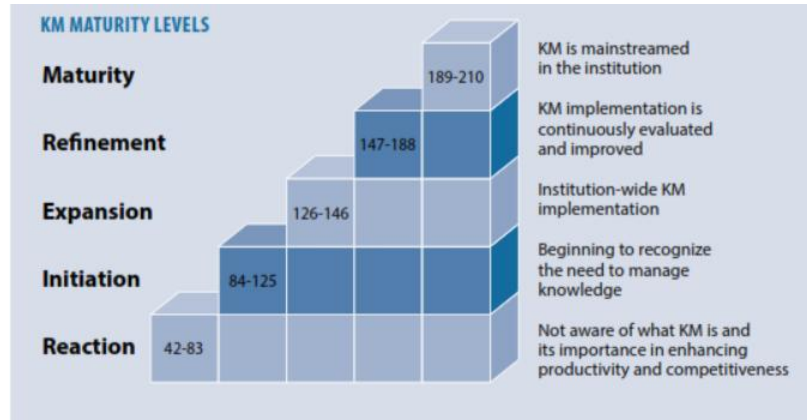


Fig. 1 knowledge management maturity levels.

III. RESEARCH METHOD

This research uses both quantitative and qualitative research methods. This is done to acquire more detailed information. The mixed methods research method is a research method between quantitative and qualitative methods to be used together in research activity to obtain more comprehensive, valid, reliable, and objective data[6]. The population in this study were 1,415 permanent employees of PT Pupuk Kaltim, and the sampling error was set at 5%. In determining the sample, using the Issac Michael's method. The sample is 302 permanent employees. Interviews were used to dig deeper into why these categories could be strengths or weaknesses and to verify the results of the questionnaires that had been collected with the actual conditions. There were two informants in this interview, the head of the knowledge management unit and the head of the procedure and business process unit.

IV. RESULT AND DISCUSSION

The APO framework approach is used in this study to assess knowledge management maturity, which contains seven categories: process, people, technology, knowledge process, learning and innovation, and KM outcomes. There are six questions in each category. The APO approach offers a maximum score of 210 because each question has a payload score ranging from 1 to 5. The total maturity evaluation score is calculated by dividing the responses to all questions from all respondents by the number of respondents, which is 302 employees. The scores for each category are arranged as follows:

table. 1 Overall total score summary.

No	Category	Maximum Score	Average Score	Gap Score
1	Leadership	30	26.32	3.68
2	Process	30	26.22	3.78
3	People	30	26.02	3.98
4	Technology	30	24.74	5.26
5	Knowledge Process	30	25.43	4.57
6	Learning & Innovation	30	26.11	3.89
7	KM Outcomes	30	25.91	4.09
	Total	210	180.74	29.26

According to table 1, PT Pupuk Kaltim's knowledge management maturity level is refinement because the total average score is 180.74, which fits within the scoring range of 147 to 188. At this level, knowledge management is still being reviewed to be continually enhanced by involving the expansion of company-wide knowledge management projects and cooperating to establish enterprise capabilities.

Gaps in knowledge management at PT Pupuk Kaltim can be found based on quantitative and qualitative data findings. These gaps are then represented on a fishbone diagram. The following is a fishbone diagram from PT Pupuk Kaltim's gap analysis:

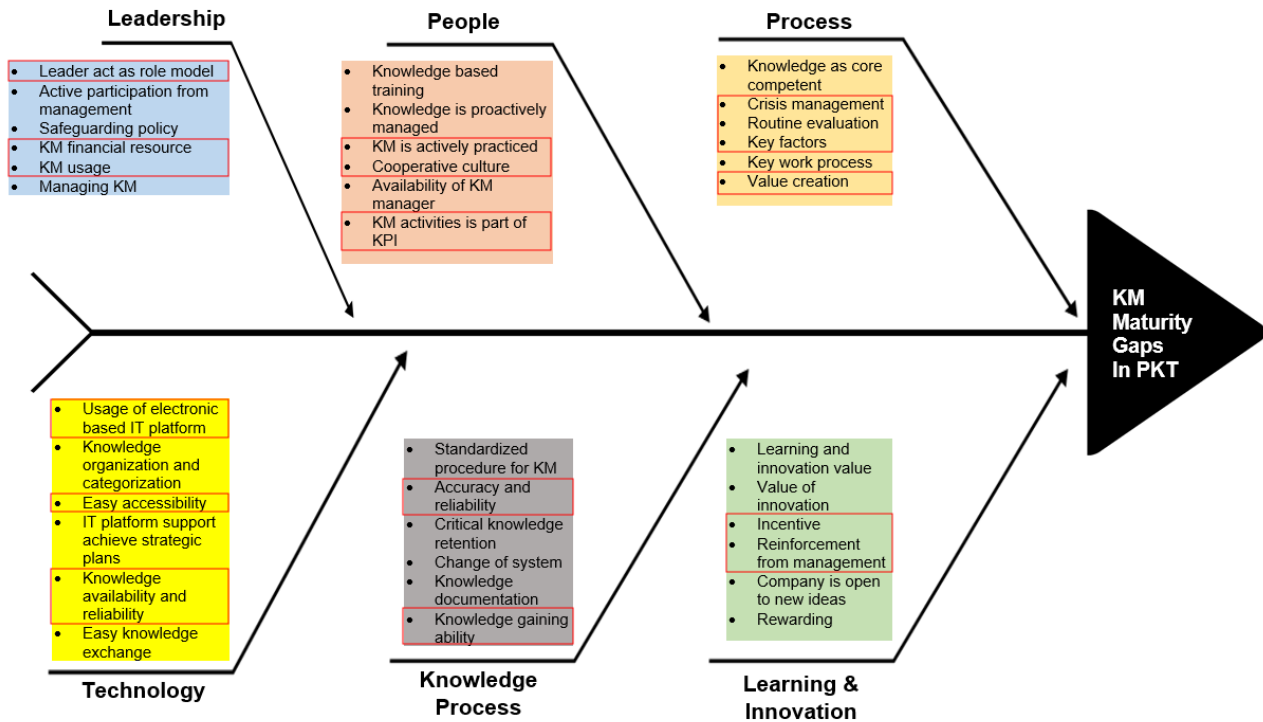


table 2. Root Causes from gaps and Opportunity for Improvement

Categories	Root Cause	Opportunity For Improvement
Leadership	<ol style="list-style-type: none"> 1. Budget allocation for knowledge management activities. 2. Management as a role model. 3. Implementation of knowledge management. 	<ol style="list-style-type: none"> 1. Proposed to include knowledge management in the company's long-term plan so that knowledge management can be a separate program and not combined with other programs to increase the budget. 2. The company has created a coaching and mentoring program so employees can emulate management directly. 3. Making knowledge management an indicator of employee evaluation and used as a basis for career assessment so that employees will be motivated to carry out knowledge management activities.
Process	<ol style="list-style-type: none"> 1. Systematic crisis management. 2. Routine evaluation activities. 3. New knowledge has a crucial role. 4. Improving business work processes to create value. 	<ol style="list-style-type: none"> 1. Provide opportunities for employees from various levels of positions to prepare for crisis management so that a feedback process can occur, in addition to increasing socialization in multiple forms so that employees can understand crisis management procedures well. 2. Improve the evaluation process in various business support sectors regularly, at least once a year. 3. Creating discussion forums to review new knowledge related to key and supporting competencies to increase productivity and management to consider accepting this new knowledge <p>Work processes are routinely evaluated regularly and constantly improved so that better values can be created.</p>
People	<ol style="list-style-type: none"> 1. Cooperation culture 	<ol style="list-style-type: none"> 1. They are improving the dissemination of standardized

Categories	Root Cause	Opportunity For Improvement
	<ol style="list-style-type: none"> 2. Knowledge Management is not yet part of the KPI. 3. Employees use knowledge management as a daily activity. 	<ol style="list-style-type: none"> cooperation procedures so that the collaboration results can be recorded and reused. 2. Propose management to add knowledge management as KPI content for all employees. 3. Improving the supporting factors for knowledge management activities, such as providing an easy-to-use technology platform, ease of searching for documents, and the availability of documents needed to improve daily knowledge management activities.
Technology	<ol style="list-style-type: none"> 1. Ineffective use of technology platforms. 2. Technology platforms that are not easily accessible. 3. Knowledge that is not all available and up to date. 	<ol style="list-style-type: none"> 1. Making the various available technology platforms into one platform that can meet the needs of employees. So it does not spawn a variety of different technology platforms. 2. Designing a technology platform with an easy-to-access display, server capabilities as needed, and socializing the use of a massive platform. 3. Ensuring that the content on information technology platforms matches the needs of employees by conducting surveys of knowledge needs and the content is updated regularly by assigning employees specifically to do the job.
Knowledge Process	<ol style="list-style-type: none"> 1. The level of accuracy and reliability of knowledge. 2. Ease of getting information. 	<ol style="list-style-type: none"> 1. Conduct regular evaluations of documents so that the accuracy and reliability of knowledge are maintained. 2. They are creating a good categorization system for soft copy and hard copy documents to make it easier to access this information quickly and accurately.
Learning & Innovation	<ol style="list-style-type: none"> 1. Providing incentives for employees who work together and share knowledge. 2. Employee ideas and contributions. 	<ol style="list-style-type: none"> 1. Providing incentives not only in a material form, such as money but in the form of recognition from the company. 2. Create a forum to discuss ideas submitted by employees from various departments and appreciate contributions by giving rewards.

PT Pupuk Kaltim can use the implementation plan to improve the maturity level of knowledge management to a mature level. The goal of this implementation plan is to give opportunities for improvement to improve the knowledge management results of PT Pupuk Kaltim. The first phase, which proposes knowledge management, is detailed in the company's long-term plan. This is meant to serve as a foundation for activities and to improve knowledge management. Furthermore, the second phase involves creating a document management system to make it easier for employees to acquire timely, accurate, and up-to-date information. It is thought that optimizing the document management system will boost productivity. The third phase involves the creation of knowledge management activities, explicitly mentoring. The fourth phase entails integrating information technology platforms and providing platforms suited to each subsidiary's needs. The next step is to analyze the results of each knowledge management program, which should be done at least once a year to identify shortcomings and potential for development.

V. CONCLUSION

PT Pupuk Kaltim uses an assessment of the maturity level of APO knowledge management to identify conditions and opportunities for improvement to increase productivity and effectiveness. The level of maturity at PT Pupuk Kaltim is refinement. This means that knowledge management has been carried out but continues to be evaluated and improved. There are gaps in each category assessed. To fix this gap to increase the level of maturity, a strategic plan is needed, namely proposing knowledge management in the company's long-term plan, development of document management system, mentoring, and integrated knowledge management portal. The proposed implementation plans have limitations because the plans just focus on knowledge management implementation without a further cost calculation.

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