International Journal of Scientific Research and Management (IJSRM)
||Volume||11||Issue||08||Pages||5011-5022||2023||
Website: https://ijsrm.net ISSN (e): 2321-3418
DOI: 10.18535/ijsrm/v11i08.em01

Maturity Assessment of Knowledge Management Strategy and Implementation at Property Developer

Ressa Regina[1] , Jann Hidajat Tjakraatmadja[2]

[1]Bandung Institute of Technology
[2]Bandung Institute of Technology

Abstract
Property industry is one of the fast-growing sectors in the midst of macroeconomic development in Indonesia. Therefore, Astra Group have entered the property sector since 2013, that became object of this research: Astra Property. The company vision is to be the most preferred and trustworthy property company. To carry out daily business activities, management and employees have values and culture that must be implemented. However, in property industry its important for Astra Property to maintain and manage its knowledge. Especially due to some resigned employee, high rate of pro hire employee and agile organization issue. There has never been assessment conducted regarding existing condition for knowledge management in Astra Property. Based on the APO KM Maturity assessment in this research, Astra Property can be identified on 3rd Level (Expansion) with total score is 138.98 with the highest score in average score factor process (22.32), while the lowest average score is technology (18.02).

Keywords: property, knowledge management, KM maturity assessment.

1. Introduction

Property industy is one of the fast-growing sectors in the midst of macroeconomic development in Indonesia. Many countries often use this industry as an indicator of crisis as it becomes one of a country key sector. As one of the countries with the largest economy in Southeast Asia and the world's 17th largest by GDP, Indonesia currently focuses its growth on its infrastructure, including property development.

Property Industry in Indonesia has seen significant growth over the past decades, driven by rapid urbanization and a growing middle class. The industry creates a range of sub-sectors, including residential, commercial, and industrial properties. The Indonesian property market is highly competitive. Some of major players present in the market; include Agung Podomoro Land, Lippo Group, Sinar Mas Land, Ciputra Group, and Duta Anggada Realty.

As a general trading company, PT. Astra International Tbk business diversified in many sectors. One of the newest sectors is Property which now operated by Astra Property Group. After being separated into its own legal entity, Astra Property have finally launched as the 7th line of business pillars PT Astra International Tbk at 2016. Astra Property is committed to elevate the standard quality of properties in its every class as contribution to enhancement quality of life and the society.

Hence, in order to mitigate these challenges and achieve their vision, Astra Property needs to be innovative and excellence quality achieve in its products portfolio and business process by remaining cost consciousness in order to increase the productivity. The key for a company to continuously innovate relies on its capability to manage the knowledge, which includes the process of : create new knowledge, distribute it throughout the organization, and embed it in process, products/services, and system (Nonaka & Takeuchi, 1995).

From the explanation above, Astra Property's management should evaluate and assess the maturity level knowledge management in order to improve the internal practice of knowledge management, including the quality of KM System in the company, which will affect to the improvement of Astra Property's productivity,

turnover rate, innovation capability, performance and eventually competitive advantage.

1.1 Research Questions and Research Objectives

Based on the business issues faced by Astra Property Group, this study will be focus in answering these several research question :

1. What is the maturity level of the existing knowledge management in Astra Property?
2. What are the challenges and opportunities of improvement that faced by Astra Property group in order to grow?
3. What can Astra Property do to improve its knowledge management practice in order to support innovation process and management in achieving competitive advantages?

The objective of this research is to support Astra Property's management in improving the knowledge management practice inside of the company by :

1. Assessing maturity level of the existing knowledge management in Astra Property
2. Identifying the challenges and opportunities of improvement
3. Providing knowledge management recommenations for Astra Property

2. Literature Review

2.1. Definition of Knowledge Management

Knowledge management is about dealing with knowledge resources as well as dealing with the procedures that follow up the benefits for organization. These prodcedures include : creating knowledge; saving knowledge; utilizing knowledge; and sharing knowledge (Mackintosh et al., 1999). Organizations must have a solid capability to develop, organize, retain, and utilize all employees's abilities to stay ahead in the company. Certain information and knowledge systems can be used to assist and improve the processes of knowledge creation, storage, transfer and also its application in the company.

2.2. Knowledge Management Components

According to Tjakraatmadja & Kristinawati (2017), there are 4 essential components of Knowledge Management as follow:

1. People

People are essential in knowledge management because they are the primary creators, sharers, users, and retainers of knowledge within an organization. By understanding the role of people in the knowledge management process, organizations can develop effective strategies for capturing, storing, and sharing knowledge to drive innovation and create value on the companies.

2. Process

Process help to formalized and systematized the knowledge management process, ensuring consistency, efficiency, quality, and continues improvement within an organization. By developing effective processes for managing knowledge, an organization can leverage their knowledge assets to drive innovation, improve decision making, and create value.

3. Technology

Technology are essential in knowledge managemet to provide tools and infrastructure needed in an organization. It helps knowledge more accessible to employees, facilitate collaboration among employees, automate the process, and provide security and control; ensuring that it is only accessed by authorized user.

4. Governance

Governance components helps to define the policies, procedures, roles, and responsibilities needed to ensure that knowledge is effectively managed and aligned with organizational goals. They provide the framework for managing the people, processes, and technology involved in knowledge management.

2.3. Knowledge Management Assessment Method

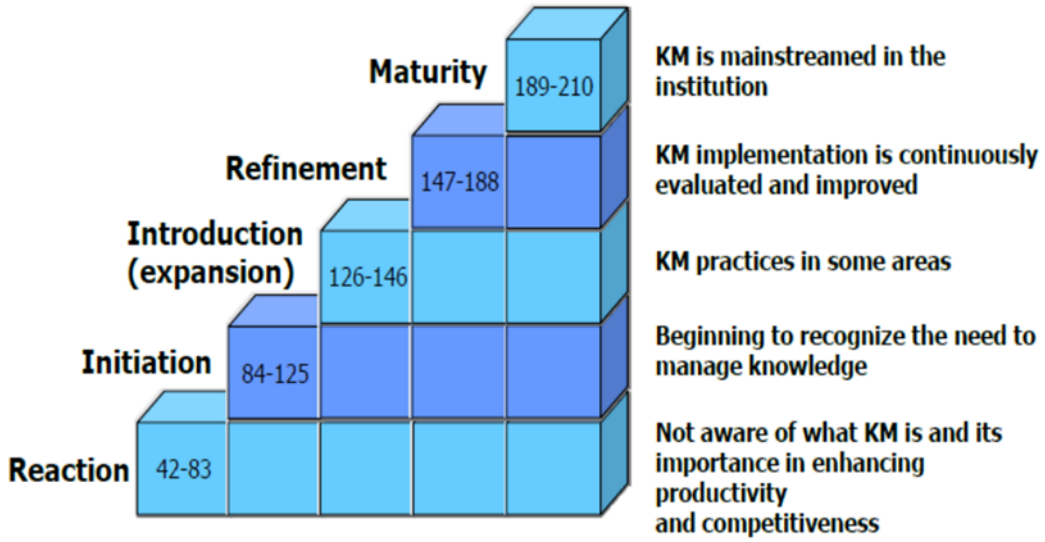
Asian Productivity Organization (APO) offers a knowledge management maturity assessment tool that can help organizations evaluate their knowledge management capabilities and identify areas for improvement.

The assessment tool includes a set of survey questions that cover these six areas, and the responses are scored to provide an overall knowledge management maturity score for the organization. The tool also provides a detailed report that identifies strengths and weaknesses in each of the six areas and offers recommendations for improvement.

The APO knowledge management maturity assessment tool is designed to help organizations of all sizes and types, from small businesses to large corporations, government agencies, and non-profit organizations. By using this tool, organizations can improve their knowledge management practices and enhance their competitiveness in the global marketplace.

After comparing the two KM Maturity assessment methods, in this research APO will be used because it is considered more suitable with Astra Property current condition. Referring to APO KM framework, the result of KM maturity assessment will be presented in maturity level as shown in Figure 2.1. This level will provide an overview and understanding of the KM readiness condition in the company which is presented in table of questionnaire group scores and a radar chart as an outcome.

Figure 2.1 KM Maturity Level



3. Research Methodology

3.1. Data Collection Method

As explained on last section, APO considers seven aspects within the organization which is assessed. Each category will have six questions each that needs to be scored by the respondents between 1 to 5, with 1 being the organization is doing very poorly or doing nothing at all for that question and 5 being the organization is doing very well for the category in question. There will be a total 42 questions therefore the maximum KM assessment score is 210 and the lowest being 42. The total score for all question will be used to determine the organization's current KM maturity level that can be seen on table below.

Table 3. 1 APO KM Maturity Level

Score	KM Maturity Level	Description
42-83	1	Reaction
84-125	2	Initiation
126-146	3	Expansion
147-188	4	Refinement
189-210	5	Maturity

3.2. Data Analysis Method

A fishbone diagram, also known as an Ishikawa diagram or a cause-and-effect diagram, is a tool used for identifying and analyzing the root causes of a particular problem or issue. The basic function of the fishbone diagram is to identify and organize causes as much as possible, and also helps find the root causes of a problem using a structured approach (Ilie & Ciocoiu, 2010).

For this research, problem identification are four main frameworks of knowledge management : People, Process, Technology, and Method, while the root causes will be the key success factors of knowledge management in Astra Property.

Astra Property employees will be asked to fill the KM maturity assessment questionnaire, after fulfilling the required sample size the survey will be terminated. Astra Property maturity score will be calculated by averaging all of the scores for each question, and average of each question then summed to determine each Astra Property maturity score and determine category average. The result can help researcher to define the focus of the solution to improve Astra Property maturity level.

4. Result and Discussion

4.1 Respondent Demographics

The questionnaire filling began on May 12, 2023 and the last response was received on May 19, 2023. The sample target is an employee from Astra Property Group, which has an important role in supporting function or business unit. From the data, researcher find that 20 respondents are female while 21 respondents od the rest are male.

From group age, the most of respondents comes from the most productive age in group of age 26-30 years old (41.5%), followed by group >40 years (22%), 31-35 years old (19.5%), 20-25 years old (9.8%), and 36-40 years (7.3%). In terms of working duration, the average of the respondents has more than 5 years experiences (53.7%), 3-5 years experiences (34.1%) , and <3 year experience (12.2%).

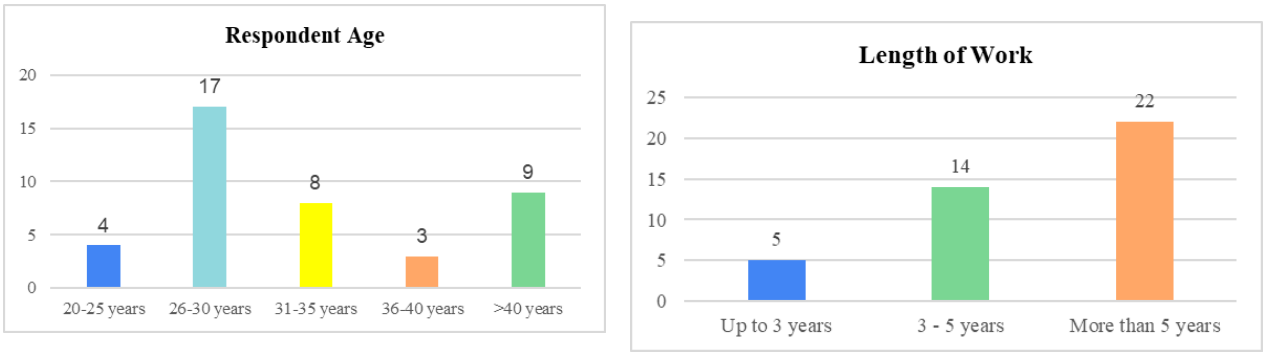


Figure 4.1. Respondent Demographics

4.2 Reliability and Validity Test

The reliability test for the questionnaires is conducted using Cronbach's Alpha. The reliability test on all 41 respondents calculated using spreadsheet shows Cronbach's Alpha value 0.7 as shown in table below and indicating that the test can be considered consistent and reliable.

Table 4.1. Reliability Test Result

	Number of Samples	N of Items	Cornbach's Alpha	Reliable / Not Reliable
Leadership	41	5	0,825	Reliable
Process	41	5	0,843	Reliable
People	41	5	0,847	Reliable
Technology	41	5	0,868	Reliable
KM Process	41	5	0,862	Reliable
Learning and Innovations	41	5	0,871	Reliable
KM Outcomes	41	5	0,877	Reliable

In terms of validity, the questionnaire is tested using Pearson's product moment correlation coefficient (Pearson, K. 1948) for all 41 respondents. The correlation coefficient of the data is calculated using spreadsheet. The calculation result is subsequently compared with the value of 0.265 derived from the table's r for the degree of freedom 70, a two tailed test with a level of significance of 5% (0.005). And from the calculation, the survey in this research is reliable and valid.

4.3 Knowledge Management Maturity Level

Knowledge management maturity in Astra Property Group determined using APO KM Framework as tools that consist of 42 questions which grouped into 7 categories and each categories has 6 questions. Each question has maximum score 5, so the total score is 210.

From the questionnaire result, the total score for Astra Property Group is 138.98 with the highest score in average score factor process (22.32), while the lowest average score is technology (18.02). Detail score for each factor is described in the following table and figure below:

Table 4.2. Detail Score for Each Factor Assessment

No	Category	Maximum Score	Average Score	Score Gap
1	Leadership	30	21,29	8,71
2	Process	30	22,32	7,68
3	People	30	20,02	9,98
4	Technology	30	18,02	11,98
5	KM Process	30	19,15	10,85
6	Learning and Innovations	30	20,02	9,98
7	KM Outcomes	30	18,15	11,85
Total		**210**	**138,98**	**71,02**

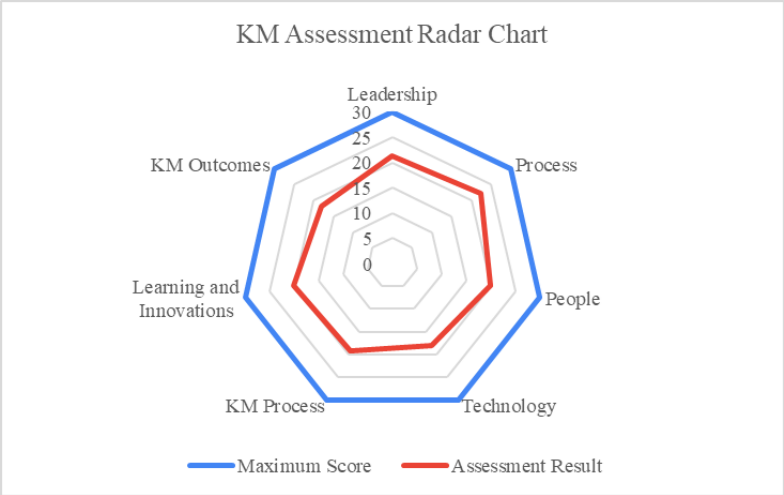


Figure 4.2. Company Survey Result in Radar Chart

The result of assessment shows that KM Maturity level of Astra Property is on 3rd level (Introduction / expansion level) of APO KM Framework. Expansion level represents Astra Property has implemented knowledge management in some area in the company, however there has no continuous evaluation and improvement performed.

4.4 Key Success Factor to KM Maturity Improvement

After the survey result is obtained and explained, researcher perform root cause analysis using fish bone diagram to provide management with the appropriate solution

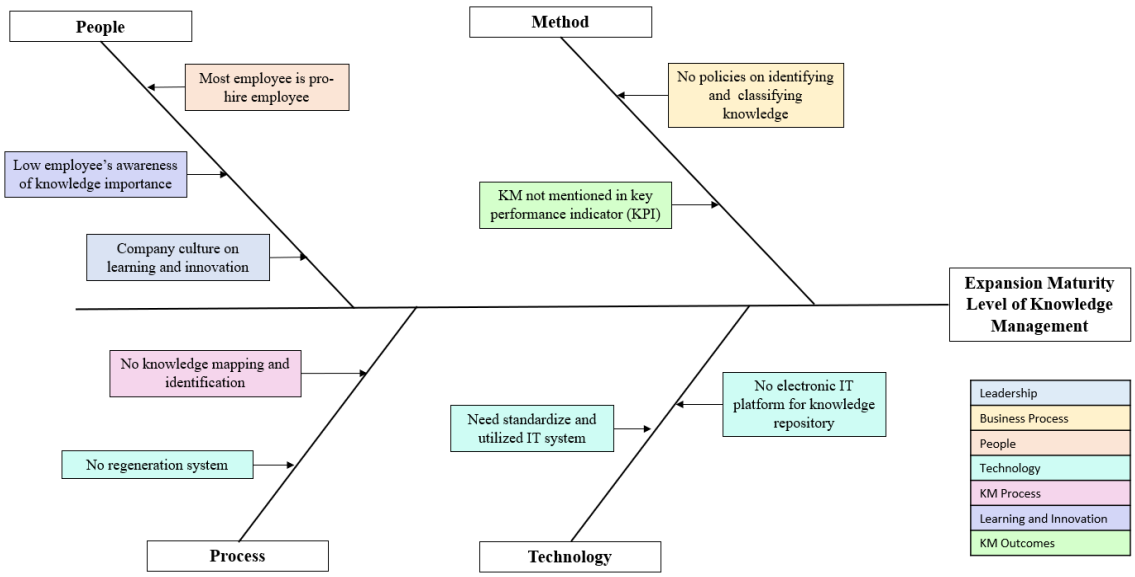


Figure 4.3. Fish Bone Diagram

Table 4.3. Fish Bone Analysis Explanation

Component	Root Cause
People	Incomplete and ineffective implementation of management process : **1.** Most of employee is pro hire employee **2.** There's low employee awareness of knowledge importance **3.** Company culture on learning and innovation
Method	1. No policies on identifying and classifying knowledge 2. KM not mentioned in Astra Property key performance indicator (KPI)
Process	1. No knowledge mapping and identification 2. No regenerating system
Technology	1. Astra Property needs electronic IT system for knowledge repository 2. There is no standardize and utilized system 3. There is no standard IT systm to provide knowledge management in the company

After the root cause analysis, it can be concluded that the practice of knowledge management in Astra Property is not fully and effectively implemented. This situation can lead to saturated employees and completed abandonment of knowledge management, since its benefits cannot be perceived by employees and the company itself.

4.5 Business Solution

Based on the research finding to create knowledge management program, Astra Property needs to have knowledge based technology that is accessible to all department to ensure knowledge capturing, sharing, storing, and reutilizing processes. A proposed knowledge management program to cross the knowledge gap and improve Astra Property maturity level as seen on table below:

Table 4.4. Business Solution

Component	Root Cause	Solutions
People	Incomplete and ineffective implementation of knowledge management process : **1.** Most of employee is pro hire employee **2.** There's low employee awareness of knowledge importance **3.** Company culture on learning and innovation	1. Develop a comprehensive knowledge management strategy and identify knowledge expert who can spearhead KM initiatives and support employees in sharing and accessing knowledge 2. Enhance employee's awareness and engagement by communicate the benefit of KM through internal emails, newsletter, and other communication channels. Management can also recognize and reward employees who actively contribute to knowledge sharing and innovation. 3. Foster a knowledge sharing culture by encourage employees to document their expertise, lesson learned, and best practice in a structured format. 4. Leardership and management support by allocate resources, both financial and human to support the implementation and maintenance of knowledge management process and encourage managers to lead by example by actively participacing in knowledge sharing and promoting a culture of learning and innovation
Method	1. No policies on identifying and classifying knowledge 2. KM not mentioned in Astra Property key performance indicator (KPI)	Develop knowledge identification and classification policies through: **1.** Establish clear guidelines and procedures for identifying and classifying knowledge within the organization by define different types of knowledge (e.g., explicit, tacit, procedural) and provide examples to help employees understand how to identify and classify knowledge. **2.** Create templates or forms to capture relevant information when documenting knowledge, such as the source, context, and applicability of the knowledge. **3.** Integrate KM into Key Performance Indicators (KPIs) and also : • Review the existing KPIs and identify opportunities to include KM-related metrics. • Define specific KPIs that measure knowledge-related activities, such as knowledge sharing, knowledge utilization, or the effectiveness of knowledge transfer. • Ensure that the KPIs align with the organization's strategic objectives and reflect the value and importance of knowledge management. **4.** Raise Awareness and Provide Training by conduct training sessions or workshops to educate employees about the benefits and significances of knowledge management.

		Highlight how knowledge management contributes to individual and organizational performance and competitive advantage. Train employees on the policies and procedures for identifying, classifying, and documenting knowledge effectively. **5.** Establish a Knowledge Management Team or Role: • Create a dedicated team or appoint a knowledgeable individual responsible for overseeing knowledge management initiatives. • Empower this team or role to develop and implement knowledge management policies, monitor progress, and drive continuous improvement. • Provide resources and support to ensure the success of the knowledge management team or role. Regularly Evaluate and Improve: • Continuously monitor and evaluate the effectiveness of the knowledge management policies, processes, and systems. • Collect feedback from employees to identify areas for improvement and address any challenges or barriers to knowledge management. • Regularly update and refine the knowledge management policies and practices based on feedback and evolving organizational needs.
Process	1. No knowledge mapping and identification 2. No regenerating system	Create knowledge mapping for Astra Property and its identification by : • Conduct a comprehensive knowledge audit or assessment to identify critical knowledge areas within the organization. • Create a knowledge map that visually represents the key knowledge domains, sources, and holders. • Implement a systematic process to identify and document explicit knowledge (e.g., documents, databases) and tacit knowledge (e.g., expertise, experiences) across the organization. • Assign responsibility to individuals or teams for managing and updating knowledge in their respective domains. Regenerating System by establish a process for continuously capturing and regenerating knowledge within the organization, and implement mechanisms to encourage and facilitate knowledge sharing and collaboration, such as communities of practice, discussion

		forums, or mentoring programs. By regenerating system at Astra Property it will Encourage employees to document their experiences, lessons learned, and best practices in a structured format to contribute to the regenerating system. Training and Awareness: • Provide training and workshops to employees on the importance of knowledge mapping, identification, and regeneration. • Educate employees on how to effectively document and share their knowledge. • Create awareness campaigns and communication initiatives to highlight the value of knowledge management and encourage employee participation. • Establish regular knowledge-sharing sessions or workshops where employees can present and exchange knowledge. Continuous Improvement and Evaluation: • Regularly review and evaluate the effectiveness of the knowledge mapping, identification, and regeneration processes. • Collect feedback from employees on the usability and relevance of the knowledge management tools and initiatives.
Technology	1. Astra Property needs electronic IT system for knowledge repository 2. There is no standardize and utilized system 3. There is no standard IT systm to provide knowledge management in the company	Align company's objective with the content and outcomes of KM system, by implement an Electronic Knowledge Repository System: • Evaluate and select an appropriate electronic knowledge repository system that aligns with the organization's needs and requirements. • The system should allow for easy capture, organization, storage, and retrieval of knowledge assets. • Ensure the system supports both explicit and tacit knowledge, enabling employees to document their expertise and share best practices. • Implement user-friendly interfaces and search functionalities to facilitate seamless access to the knowledge repository. Standardize and Utilize the Knowledge Management System: • Develop standardized procedures and guidelines for

		capturing, organizing, and managing knowledge within the electronic repository system. • Define roles and responsibilities for knowledge contributors, reviewers, and administrators to ensure consistency and accountability. • Train employees on how to effectively use the knowledge management system and adhere to the established procedures. • Foster a culture of utilization by actively promoting and encouraging employees to leverage the knowledge management system in their daily work. Customization and Integration: • Customize the knowledge management system to meet the specific needs and workflows of Astra Property. • Ensure seamless integration with other relevant systems, such as document management systems, customer relationship management (CRM) software, or enterprise resource planning (ERP) systems. • Enable automatic synchronization and updates between systems to ensure data consistency and minimize duplication. Data Security and Access Control: • Implement robust security measures to protect sensitive knowledge assets stored in the electronic repository system. • Define access control mechanisms to restrict access to confidential or proprietary information based on user roles and permissions. • Regularly review and update security protocols to address emerging threats and vulnerabilities. Ongoing Support and Training: • Provide ongoing technical support and training to employees to ensure they can effectively use the knowledge management system. • Conduct regular training sessions, workshops, or webinars to familiarize employees with the features and functionalities of the system. • Establish a dedicated support team or help desk to address user queries, troubleshoot issues, and provide guidance on utilizing the knowledge management technology.

		Knowledge Management Tools and Technologies: • Invest in knowledge management tools and technologies that support knowledge capture, organization, and regeneration. • Implement a centralized knowledge repository or database where employees can access and contribute to relevant knowledge resources.

5. Conclusions

After the explanation of background, business issue, data analysis and business solutions in the previous chapters, this chapters is aimed to assess the maturity level of knowledge management in Astra Property Group. From the survey result using the APO KM Maturity Assessment tool, a total score of Astra Property is 138.98. It can be concluded that the maturity level of knowledge management in Astra Property is on introduction level, which the 3rd level: Expansion level of APO KM Framework. It indicates that Astra Property has implemented knowledge management instructionally-wide in the company, but has not been standardized and formalized.

There are several things that Astra Property can do to improve as explain on business solution on previous chapter. To summarized some strategies that Astra Property can consider to implement for achieving competitive advantages for their business:

- Establish a knowledge-sharing culture
- Create a centralized knowledge repository and system
- Implement knowledge capture processes
- Encourage continuous learning
- Measure and evaluate knowledge management efforts

Acknowledgments

This research is dedicated to my parents, brother and sister, my closest friends, and my boyfriend who always support me.

References

1. Nonaka, I. and Takeuchi, H. (1995) *The Knowledge Creation Company*. Oxford University Press.
2. Nonaka, I., Toyama, R. and Konno, N. (2000) 'SECI, Ba and Leadership: a Unified Model of Dynamic Knowledge Creation', *Long Range Planning*, 33, pp. 5-34. Doi:10.1016/S0024-6301(99)00115-6.
3. Mackintosh, A., Kingston, J., & Filby, I. (1999). Divison of Informatics, University of Edinburgh by Knowledge Management Techniques : Teaching & Dissemination Concept. *Intenational Journal*, (September).
4. Nonaka, I., & von Krogh, G. (2009). Tacit Knowledge and Knowledge Conversion: Controversy and Advancement in Organizational Knowledge Creation Theory. *Organization Science*, 635-652.
5. Obeidat, B. Y., Abdallah, A. B., Aqqad, N. O., Akhoershiedah, A. O., & Maqa, M. (2017). The Effect of Intellectual Capital on Organizational Performance: The Mediating Role of Knowledge Sharing. *Communication and Network*, 1-27.
6. Lin, H-F. (2007). Knowledge sharing and firm innovation capability: an empirical study. *International Journal of Manpower*, 315-332.
7. Buckman, R. H. (2004). Building a knowledge-driven Organization. McGraw-Hill.
8. Dalkir, K. (2005). Knowledge Management in Theory and Practice. Elsevier Butterworth-Heinemann.
9. Tjakraatmadja, J. H. (2015). KM Planning. School of Business and Management ITB. Unpublished document.
10. Ronald Young, Ilie, G., & Ciocoiu, C. N. (2010). Application of Fishbone Diagram to Determine the

Risk Of An Event with Multiple Causes. Management Research and Practice Vol. 2 Issue 1, 1-20.

11. Kothari, C. R. (2004). Research Methodology : Methods and Techniques. India: New Age International Publishers.
12. Steiner, D.L. (2003). Starting at the beginning : An introduction to coefficient alpha and internal consistency. Journal of Personality Assessment, 80.