KNOWLEDGE MANAGEMENT IMPLEMENTATION TO IMPROVE PERFORMANCE IN TESTING AND SUBSEA DIVISION AT BIG RED COMPANY

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Abstract
The approaching retirement of experienced petroleum engineers and technical staff, which threatens to result in the loss of a significant quantity of cumulative knowledge and expertise, is one of the major challenges facing the industry. Within the next ten years, it is predicted that approximately 231,000 years of collective knowledge will be on the line. To overcome this difficulty, knowledge management has emerged as a major method. This research investigates the strategies, tools, and processes implemented to successfully capture, organize, and share knowledge across the organization through a thorough analysis of the KM initiatives undertaken by Big Red Company. With a focus on their effective application by national and international oil companies in Indonesia, it also examines the results and impacts of these KM practices on the company's performance and competitiveness in both local and global contexts. Considering these circumstances, the company needs to improve the knowledge management system for managing knowledge, which is through the implementation of a Knowledge Management (KM) system. In doing this, the research is based on two research questions. The first is how is the current Knowledge Management maturity level in the Big Red Company Operation Division, specifically in the Testing and Subsea, and the second is What is the knowledge management implementation plan that can be suggested related to the proposed knowledge management process after knowing the maturity level of knowledge management in Big Red Company. These two research questions will be answered using theories related to knowledge, knowledge management, and two knowledge management frameworks, namely APO Knowledge Management Framework and Socialization, Externalization, Combination, Internalization (SECI). Because a qualitative method is used in this research, data is collected through interviews and observations, which are then analysed using thematic analysis. The results of data collection show that there are several issues related to the APO KM Framework and SECI frameworks. These issues range from the limited in the Testing and Subsea division, which is in Operation Division, the lack of knowledge sharing processes within and between teams, the lack of proper knowledge transfer, difficulty in accessing knowledge and information due to manual access, and others. Through the utilization of APO KM Framework and SECI frameworks, the author was able to design a knowledge management system by formulating several tools, for example, Coaching, Training, Knowledge café, Lesson-learned documents, K-based exit interview, and e-learning. With a total of 12 (thirteen) knowledge management tools or techniques, the company now has the ability to identify the knowledge needed, capture the knowledge, store the knowledge, share the knowledge, and effectively utilize knowledge and information which can improve the organization's performance, enhance decision-making processes, and foster innovation and collaboration, thereby gaining a competitive advantage in the lifting equipment industry which ultimately contributes greatly to the growth of the company. For the knowledge management system implementation process, it will be divided into 5 (five) stages: Preparation, Identification, Development, Implementation and Evaluation to ensure that the knowledge management system is implemented effectively, its impact can be measured, and areas for improvement can be identified to make necessary changes. Implementation will begin in January of 2024, and

there will be a dedicated Person In Charge (PIC) for all knowledge management initiatives to monitor the progress and ensure the sustainability of this system.

Keywords: Knowledge Management, APO KM Framework, SECI

INTRODUCTION

In today's business landscape, knowledge management (KM) has emerged as a crucial organizational process, particularly for companies operating in the energy industry, where the effective development, sharing, and utilization of knowledge assets are paramount for maintaining a competitive edge (Sheehan, Vargas-Sánchez, Presenza, & Abbate, 2016). KM encompasses a range of activities and practices aimed at leveraging knowledge and expertise to enhance decision-making, innovation, and overall performance (Lopes, Scavarda, Hofmeister, Thomé, & Vaccaro, 2017). The concept of KM maturity, which refers to the level of sophistication and effectiveness with which an organization manages its knowledge assets, has gained significant attention in recent years (Kulkarni & St Louis, 2003). Maturity models provide a systematic approach for assessing an organization's KM capabilities and charting a course for the development of effective KM strategies and practices (Jennex, Smolnik, & Croasdell, 2008).

One of the largest infrastructures in the world belongs to Big Red Company. Big Red Company is the largest diversified energy services, engineering, construction, and maintenance corporation in the world, according to Bruno & Valette. Big Red Company is less vulnerable to a downturn in any one market or division because of its broad revenue stream. In more than 120 countries, Big Red Company has 7,000 clients and over 100,000 employees (Bruno & Valette, 2001).

The management and planning abilities of Big Red Company have helped the company become the top service provider in the global oil and construction industries (Stevens, 2008). Big Red Company, however, is faced with a number of moral conundrums that can spell the end for their enormous company or might just fuel their ascent to even greater dominance (Vielmetter & Sell, 2014). Let's look at Big Red Company's past and present while considering the decision the company made to boost its earnings and expand as a business (Kim & Mauborgne, 2014). Big Red Company is already very successful both locally and internationally; for example, in Indonesia, the company's services have been utilized by both the national oil company as well as the multinational oil company. The degree of service quality provided by the company is supported by the extremely high end of the quality value provided by the company (Orel & Kara, 2014). In order to stay competitive in today's cutthroat business environment, Big Red Company must continue to improve both the quality of its technological capabilities and the quality of its people resources. The decline in global petroleum oil prices in 2015 led to the elimination of a significant number of jobs. resulting in a higher attrition rate among employees (Fragkos & Paroussos, 2018).

Big Red Company is a globally renowned oilfield services firm that offers a diverse portfolio of products and services to the energy industry (Li, Gallagher, &

Mauzerall, 2020). Given the rapid pace of technological and market change in the industry, innovation and learning have become increasingly critical for business success, and knowledge management has emerged as a key enabler of these objectives (Grant, 2013). Moreover, the retirement of experienced petroleum engineers and technical staff has been identified as a significant challenge facing the industry, with estimates suggesting that the sector stands to lose approximately 231,000 years of cumulative knowledge and expertise in the next decade this study according to Society of Petroleum Engineers researcher. Against this backdrop, knowledge management has emerged as a critical strategy for mitigating the potential negative impact of knowledge loss due to retirements and downsizing (Daghfous, Amer, Belkhodja, Angell, & Zoubi, 2023). Consequently, a detailed study is being conducted to identify opportunities for enhancing knowledge management practices at Big Red Company, with the aim of addressing some of the most pressing challenges facing the company. In particular, the need to link rapidly advancing data management systems with the expertise of globally distributed operations is driving the adoption of KM at Big Red Company.

In order to effectively address the complex challenges faced by businesses today, it is often necessary to pursue multiple goals simultaneously (Smith, Binns, & Tushman, 2010). In the context of this final project, it is essential to undertake a comprehensive analysis of the current situation within Big Red Company's Testing and Subsea division, as well as to conduct an in-depth examination of the relevant literature on knowledge management. These two components will serve as the foundation upon which a customized knowledge management strategy plan can be developed and implemented at Big Red Company. To achieve these objectives, the research will be structured around the following key components: evaluating the current state of the company's existing knowledge management system, identifying areas for improvement, and designing a customized set of knowledge management strategies that are tailored to the specific needs and conditions of the Testing and Subsea division. By pursuing these objectives, the research will contribute to a deeper understanding of the role of knowledge management in enhancing organizational performance and improving overall business outcomes.

METHOD

The use of a conceptual framework is a common practice in research studies as it helps to provide a clear understanding of the main topic and objectives of the study. This framework serves as a guide that outlines the key concepts, variables, and relationships that are being examined in the research. The conceptual framework provides a visual representation of the study's main components and how they are interconnected, thereby making it easier for readers to comprehend the research. It helps the author to organize their ideas and provides a structure for the research, which in turn facilitates the analysis of the findings. The framework presented in this research is designed to simplify the understanding of the research by providing a clear overview of the concepts and variables that are being examined, and the relationships between them.

Below is the conceptual framework of this thesis, which will break down what will be explained in chapters I to IV.
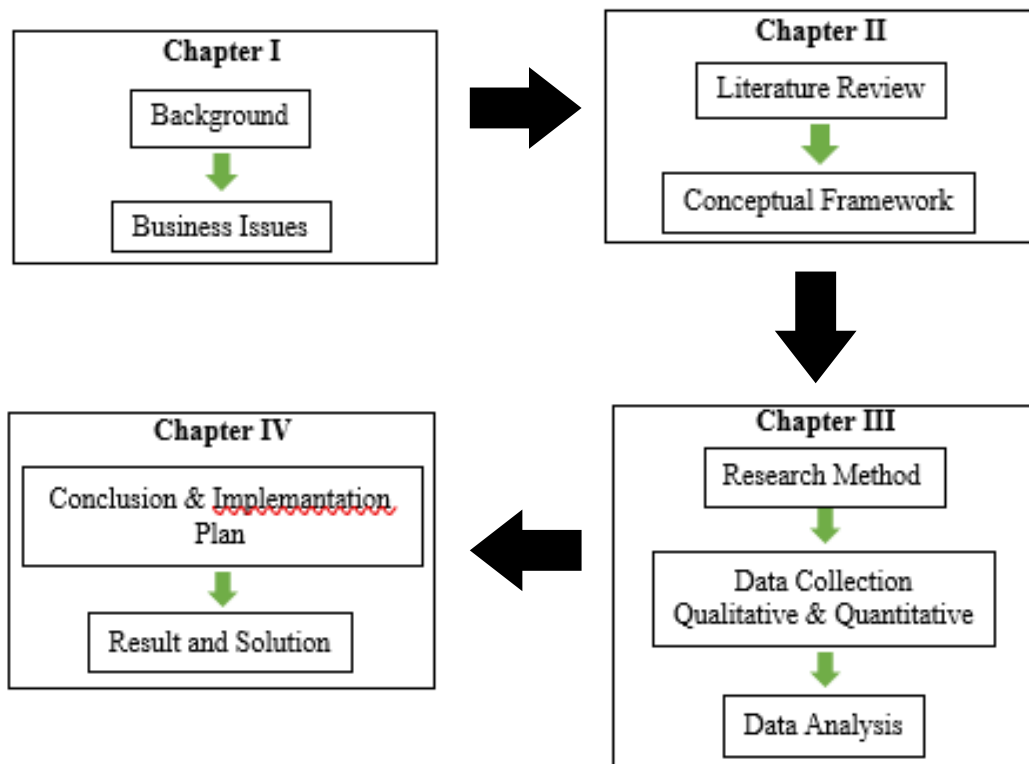
Figures 1 Research Methodology
(Source : Author)

Survey

To gather comprehensive and reliable data for this research, a carefully designed online survey is being conducted to collect quantitative data. The online platform being used for the survey is Google Forms, which enables a convenient and efficient way to collect data from a large sample size of employees in Big Red Company's Operation Division, specifically those working in Testing and Subsea division. The survey is designed to measure the Knowledge Management maturity level of the company, as developed in Appendix 1, and to identify the strengths and weaknesses of the current Knowledge Management practices. The use of email to distribute the survey link ensures that it reaches the targeted respondents in a timely and effective manner. By using an online survey, the research can obtain an accurate and unbiased representation of the opinions and experiences of the employees, while also ensuring their anonymity and confidentiality. This approach allows the research to provide valuable insights into the current state of Knowledge Management in Big Red Company's Operation Division, and to offer practical recommendations for enhancing Knowledge Management practices in the company. The questionnaire consists of two main sections which are:

RESULTS AND DISCUSSION

Root Cause and Solution based on APO KM Framework

The findings of both qualitative and quantitative research need to be analyzed in order to get to the bottom of the issue, which is an essential step that must come before any other investigation into how to find the most effective answer to this research problem. As was discussed in the prior part of this discussion, there are multiple characteristics of the situation that might be cited as the cause of the issue. In order to identify these underlying reasons, we continue to make use of certain components of the APO KM Framework. These components include leadership, process, people, technology, knowledge process, and learning & innovation. The author will proceed to dissect each of the aforementioned six facets one at a time in order to discover which of the six aspects contain the most significant root reasons that can be considered the crux of the issue. The selection of the most important factors is accomplished by first taking into account the results of a quantitative study, which generates the inputs for a fishbone diagram, and then taking into account the findings of a qualitative analysis or the conversations that were had with management. The results of the questionnaire survey were analyzed to see whether or not they were relevant and congruent with the views of management. The table that follows outlines the fundamental issues that, once addressed with the use of an APO KM framework to the creation of a KM system, could be resolved.

Table 1 Relevance analysis between Qualitative and Quantitative data

KM Sub-Categories	Average Score	Fishbone Category	Management Statement
Leader act as a role model	3.76	People	**BSM Statement:** *Despite of peak operational schedule in rig-site for senior leaders, thus making a mentoring progress may appear slow.*
Active Participant from Management	3.52	People	**PDC Statement:** *Infrequent management visits to sites that can hinder effective communication and cause a sense of disconnect between managers and personnel*

Key Factors	3.52	Process	**PDC Statement :** *The lack of timely communication from the global team regarding new procedures leaves employees uninformed and unprepared, leading to potential errors.*
Crisis Management	3.65	Process	**BSM Statement :** *This exposes the company to potential risks, emphasizing the importance of implementing robust contingency plans to ensure preparedness and resilience in the face of unforeseen circumstances.*
Knowledge Based Training	3.57	People	**BSM Statement :** *It's important to recognize the value they bring to our organization and invest in their knowledge and skills through comprehensive training programs.*
Availability of KM Manager	3.20	People	**PDC Statement :** *we miss out on opportunities to optimize knowledge sharing and learning processes among employees, its because there is no dedicated manager to manage this KM*
Knowledge availability & reliability	3.50	Technology	**BSM Statement :** *Without regular maintenance, the value of our KM tools decreases as the information becomes unreliable.*
Usage electronic based IT platform	3.62	Technology	**PDC Statement :** *We could boost productivity and reduce the workload on staff by streamlining our systems and combining all relevant operations*

			onto a single platform. This would also encourage improved data integrity and integrity.
Critical knowledge retention	3.20	Process	**BSM Statement :** *That is a concerning gap in our knowledge management process. When employees leave, we lose valuable skills and insights.*
Knowledge documentation	3.33	Process	**PDC Statement :** *To empower staff to work successfully, even with new equipment or procedures, our KM tools must gather comprehensive content, including manuals and instructions.*
Incentives	3.10	Governance	**BSM Statement :** *It is important for us to consider implementing incentives, such as recognition, additional training opportunities or even financial rewards, to recognize and encourage their dedication in guiding and supporting others in their journey of professional development*
Company is open to new ideas	3.00	Governance	**PDC Statement :** *By reducing unnecessary bureaucratic hurdles, we can encourage a culture of creativity and facilitate the adoption of new ideas and technologies that can drive organizational progress.*

In order to better the knowledge management responsibilities in the Surface Well Test, Data Acquisition, and Drill Stem Test teams and to close the knowledge maturity gap. Author recommend potential business solutions that may be used to improve the KM situation in Big Red Company in order to prevent any significant knowledge loss in the upcoming years due to a lack of knowledge documentation and retiring expertise. The information shown above starts with quantitative data and then generates a fishbone framework, which narrows the problem based on the score from

the questionnaire results and then the interview results, which are qualitative data meant for support analysis. The framework is then presented. Because this qualitative data is being used to find out the perspectives from the management side, in order for us to find solutions that are relevant enough for the future to become a kind of corporate improvement, we need to find out what those opinions are. The following table presents the root causes that can be solved using APO KM framework to develop a KM system.

Table 2 Root Cause and Solution Summary

KM Categories	Key Success Factor	Root causes	Solution
Leadership	Leader act as a role model	Lack of communication between managers and personnel	Community Portal
	Active Participant from Management	Infrequent coordination meetings between management and personnel	Knowledge Cafe
Process	Key Factors	New procedures take time to be communicated to employees	Community Portal
	Crisis Management	Lack of planning to address crises or unexpected events	Knowledge Cafe
People	Knowledge Based Training	Absence of knowledge-based training for agency/contractor employees.	Web-Based-Training on Learning Central
	Availability of KM Manager	There is no dedicated manager to handle Knowledge Management (KM).	Assigned KM Manager per division
Technology	Knowledge availability & reliability	KM tools are not routinely maintained, resulting in outdated data	Assigned 1 personnel

	Usage electronic based IT platform	There are too many IT platforms that employees must use, and some systems have overlapping functions	Centralized in KM Cloud
Knowledge Process	Critical knowledge retention	There is no storage or documentation of critical knowledge from employees who resign or are dismissed.	K-Based Exit Interview
	Knowledge documentation	Some aspects are not documented in the KM Tools	KM Cloud
Learning & Innovation	Incentives	No incentives provided for mentors/coaches during mentoring and coaching programs.	Mentoring Timesheet
	Company is open to new ideas	The process of delivering new ideas or technology has long regulations.	Knowledge Cafe

SECI Framework

After addressing People, Process, Technology, and Governance based on a Fishbone analysis, the next phase in the process of creating the KM system is to determine the methodologies or approaches for each of the modes of the SECI Framework. This step will be taken in order to create the KM system. Within the confines of this model, the interaction of tacit and explicit knowledge is what leads to the production of new knowledge. All of the following explanations are offered approaches or procedures based on the company's current condition, and the author will input an expected condition in order to plot all of the answer into the SECI framework. Considering that Big Red Company has sufficient experience regarding the Knowledge Management system, all of the following explanations are presented.

1. Tacit to Tacit Knowledge Creation (Socialization)

Table 3 Big Red Company Existing & Expected Socialization

Existing Socialization	Root Cause	Expected Socialization
Training	-	Training
Mentoring	-	Mentoring
On-the-job Training	-	On-the-job Training
	Lack of communication between managers and personnel	Community Portal
	New procedures take time to be communicated to employees	Community Portal
	The process of delivering new ideas or technology has long regulations.	Knowledge Cafe

A community portal and knowledge cafe can solve problems like poor communication between managers and employees, delays in communicating new procedures like technical bulletins to employees, and lengthy regulations for delivering new ideas or technology. Community portals enable staff cooperation, communication, and knowledge exchange. It facilitates manager-employee communication and dialogue. Managers can immediately engage with employees using a community portal to deliver critical information like new processes or technical advisories. This improves transparency and avoids communication delays, keeping staff informed.

A community site enables employees to exchange ideas and skills. It allows employees to propose new ideas and technology. This avoids long concept submission rules. The site speeds up evaluation and selection of creative ideas. Knowledge cafes can also supplement the community portal by providing a physical or virtual location for casual and participatory knowledge-sharing. Managers and staff can discuss, share, and learn in these meetings. Knowledge cafes enhance community and effective communication by breaking down hierarchical boundaries. Community portals and knowledge cafes facilitate communication, information sharing, and technology transfer. They promote open communication, allowing management and staff to collaborate and align their aims. These technologies help firms improve communication, implement new procedures faster, and offer creative ideas and technology faster.

2. Tacit to Explicit Knowledge Creation (Externalization)

Table 4 Big Red Company Existing & Expected Externalization

Existing Socialization	Root Cause	Expected Socialization
Exit Interview	-	Exit Interview
Handover documents	-	Handover documents
	No incentives provided for mentors/coaches during mentoring and coaching programs.	Mentoring Timesheet
	There is no storage or documentation of critical knowledge from employees who resign or are dismissed.	K-Based Exit Interview

      Based on the interview and observation that were completed in the past, the authors made the suggestion that additional measures be taken, which included using a mentoring timesheet and conducting a K-based departure interview. The K-based exit interview is also included because it enables the knowledge of the employee who is going to leave the company to be replicated and transmitted to the employee who is going to take their place. This information is then passed on to the employee who will take over that employee's previous responsibilities.

      Through the use of the mentoring timesheet, mentors will be encouraged to take a more active role in the facilitation of meetings and coaching sessions with younger workers or employees, ultimately leading to an increase in employee competency. Through the use of mentoring timesheets, it is possible to give the impression to mentors that the firm appreciates the contributions mentors make in terms of delivering knowledge or soft skills.

3. Explicit to Explicit Knowledge Creation (Combination)

Table 5 Big Red Company Existing & Expected Combination

Existing Socialization	Root Cause	Expected Socialization
KM Record	-	KM Record
Intranet	-	Intranet
	There are too many IT platforms that employees must use, and some systems have overlapping	Centralized KM Cloud

	functions	
	Some aspects are not documented in the KM Tools.	KM Cloud

At Big Red Company, the author advises putting in place a Knowledge Management (KM) Cloud system to consolidate all of the company's information. Currently, the corporation operates a number of knowledge management (KM) systems at both the regional and the international levels. An excessive number of systems has become a burden for employees, which has resulted in decreased efficiency and increased difficulty in gaining access to pertinent knowledge. To solve this problem, the author suggests combining all of the different knowledge management systems into a single, centralized knowledge management cloud.

The fact that Big Red Company's knowledge management system does not contain any equipment manual volumes is a big obstacle for the business. In the case that the equipment fails to function properly, these instructions are essential tools that provide direction. Nevertheless, at the present time, these handbooks are only available in paper form, and they are not kept in the KM system of the organization. It is crucial to save all of the data and records of equipment and tools, particularly in the Testing and Subsea division, within the KM Cloud in order to guarantee that vital information is not lost. This is especially true in the case of the Testing and Subsea. This would remove the need to rely on physical copies of the handbook volumes, which run the risk of becoming unreadable with time. This is especially true for more outdated machinery or instruments that have been in circulation for several decades.

Big Red Company can prevent the loss of vital information and improve its access to information by digitizing the equipment handbook volumes and developing a centralized knowledge management cloud system. This would add to the overall knowledge management strategy of the organization and make the procedures of troubleshooting and maintenance more efficient.

4. Explicit to Tacit Knowledge Creation (Internalization)

Table 6 Big Red Company Existing & Expected Internalization

Existing Socialization	Root Cause	Expected Socialization
Websites	-	Websites
Checking Procedure	-	Checking Procedure

	Absence of knowledge-based training for agency/contractor employees.	Web-Based-Training on Learning Central
	There is no dedicated manager to handle Knowledge Management (KM).	Assigned KM Manager
	KM tools are not routinely maintained, resulting in outdated data	Assigned dedicated person to maintain KM Tools

Learning Central is recommended as a venue for holding web-based training by the author. Learning Central is a training portal that is housed in the headquarters of the Big Red Company in Houston, Texas, in the United States. Employees frequently utilize this portal to register for training, although it is typically exclusively used for offline training. The author claims that agency employees are still required to obtain training, even if it is just through web-based training or what is more popularly known as online training. This is due to the fact that regulations from the corporation specify that every agency or contractor employee cannot attend training at HQ directly.

After that, it is essential for the organization to choose a KM Manager for each division. For the time being, the managers who are in charge of KM are still centralized internationally; hence, there is not a separate representation for KM Manager in each country. Because of the appointment of a KM Manager, the Knowledge Management (KM) system in each nation, and especially in Indonesia, will become more efficient, and more implementations will be carried out.

SECI Roadmap

The author made this recommendation to the organization based on the current business condition that they are experiencing in accordance with the additional knowledge conversion mechanism that was proposed earlier in this paragraph. This road map is presented since there are many expenses, a significant amount of time, and a significant amount of dedication required to execute the entire system, as well as the number of parties that need to be socialized in order to be able to carry out this activity in accordance with the requirements of the firm in order to reach its goals.

Table 7 SECI Roadmap

No	Expected SECI Based on scale priority (High – Low)	Reasons	PIC

1.	K-Based Exit Interview	The high employee turnover rate should not have an effect on the successful completion of the project; consequently, the transfer of knowledge should be carried out when an employee leaves the organization in order to prevent the loss of information.	HR Department and Entire Business Service Outsourcing
2.	Assign KM Manager & Assigned dedicated person to maintain KM Tools	Because of the appointment of a KM Manager, the Knowledge Management (KM) system in each nation, and especially in Indonesia, will become more efficient, and more implementations will be carried out.	HR Department
3.	Community Portal & Knowledge Cafe	It is essential to establish a culture of information sharing among the members of the team in order to encourage innovative thinking and creative problem solving among the members of the company. After the culture has been firmly established, there will be a more rapid exchange of information.	Entire Business Service Outsourcing
4.	Web-Based-Training on Learning Central	Participation in technical training by employees, which will make them more skilled in their jobs and better able to support employees with soft skills, is of the highest priority.	Entire Business Service Outsourcing

5.	Centralized KM Cloud	Within the KM Cloud in order to guarantee that vital information is not lost. This is especially true in the case of the Testing and Subsea. This would remove the need to rely on physical copies of the handbook volumes, which run the risk of becoming unreadable with time	Management
6.	Mentoring Timesheet	Mentors will be encouraged to take a more active role in the facilitation of meetings and coaching sessions with younger workers or employees, ultimately leading to an increase in employee competency.	Management

Implementation Plan and Justification

The organization has included a number of knowledge management initiatives into its daily operations; however, the current knowledge management programs are poorly structured. Before developing a knowledge management strategy, the organization seeks to understand its existing level of knowledge management maturity. The suggested implementation strategy is based on the business solution in order for Big Red Company to bridge the knowledge gap and raise the organization's maturity level in knowledge management. There are five phases to the implementation. Seventeen tasks must be completed as part of the implementation within the suggested period

Knowledge Management Implementation to Improve Performance in Testing and Subsea Division at Big Red Company

No	Activities	PIC	Tools	Oct				Nov				Dec				Jan				Feb				Mar			
				1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Preparation of Knowledge Management Implementation Stage																											
1	Established of leader commitment & understanding to support KM implementation	Management & Manager	Community Portal	■	■																						
2	Planning the KM implementation including priority, focus & KM implementation strategy	Management & Manager	Community Portal			■																					
3	Integrate KM Program to the incentive program	Management & Manager	Training				■																				
Context Indicator Identification Stage																											
4	Planning context indicator measurement approach	Manager	Community Portal					■																			
5	Interview & survey preparation to measure context indicator	Manager & Consultant	Interview & Survey						■	■																	
6	Data Collection	Manager & Consultant	Interview & Survey								■	■															
7	Data Analysis	Manager	Interview & Survey							■																	
Knowledge Management Development Stage																											
8	Designate the key leaders & subject matter expert	Management	Community Portal									■															
9	Conduct trainings for leaders	Manager	Training										■	■													
10	Conduct workshop & training	Management & HR	Knowledge Café & Web-Based Training											■	■												
11	Conduct divison meeting	Manager	Knowledge Café															■									
12	Encouraging knowledge transfer among members in the organization	Manager	Knowledge Café															■	■								
Knowledge Management Implementation Stage																											
13	Record individual and organizational knowledge	Management	KM Cloud																	■	■						
14	Facilitate storing and retrieving document from repository	Management	KM Cloud																	■	■						
15	Implementation of process innovation	Management	KM Cloud																			■					
Knowledge Management Evaluation Stage																											
16	People & KM activities review	Management & Manager	Mentoring Timesheet & Community Portal																						■		
17	People & KM activities evaluation	Management & Manager	Mentoring Timesheet & Community Portal																								■

Proposed Time Frame - 2023/2024

Conclusion

To conclude, this research has presented the existing practices of knowledge transfer in the organization. In the first chapter, it describes 2 (two) research questions, the first question is about the causes of problem related about the current knowledge management maturity level in Big Red Company. In order to get an answer to this issue, the author may make use of a variety of methods, such as interviews, surveys, or the analysis of data. These methods can be helpful in understanding the viewpoints of employees, managers, and other stakeholders within the business on the current state of knowledge management. They can also be used to obtain insights from employees. The purpose of the study is to determine the causes behind the company's knowledge management maturity level. In order to do this, the study will investigate a variety of aspects, including organizational culture, leadership practices, technology infrastructure, and employee involvement. There are also some plans on tools investment such as for the organization server, however, it is still under discussion as currently the company is focusing more on investing the human resources.

The second question is on the creation of a plan for the implementation of knowledge management in connection to the suggested knowledge management method. In particular, the study intends to investigate how the process of implementing can be made easier by utilizing the SECI model (which stands for Socialization, Externalization, Combination, and Internalization) and the fishbone analysis method, with data taken from the APO KM Framework.

In order to find an answer to this question, the author will initially investigate the SECI model. This model serves as a framework for the knowledge conversion that occurs within businesses. The exchange of tacit information takes place during socialization and occurs as a result of interactions and experiences with other people. The act of articulating implicit knowledge into explicit forms, such as texts or databases, is referred to as the process of externalization. The combination process requires the integration and consolidation of explicit knowledge obtained from a wide variety of sources. Last but not least, the process of internalization focuses on the individual's transformation of explicit knowledge into tacit knowledge through the process of internalizing and applying that knowledge.

The implementation of the KM system will be divided into 5 (five) stages i.e. Preparation, Identification, Development, Implementation and Evaluation to ensure that the KM system is effectively implemented, the impact can be measured, and the areas for improvement can be identified. The implementation will start from Oct 2023 and there will be a dedicated PIC for KM implementation to monitor the continuity of this system. The Preparation stage consist of 3 (three) activities which revolves around process to get approval from management to established of leader commitment and understanding to support KM implementation. All of these activities will take approximately six months. The next stage is the identification stage which aims to interviewing and survey preparation to measure context indicator. Then continued with the development stage which involves the actual action of the development of the KM system i.e. conduct workshop and training, conduct division meeting. The next stage is about implementation stage that will contain about implementation of the process for this innovation. Finally, the evaluation stage also starts as soon as the implementation stage begins using two methods – discussion forums and quarterly surveys. This stage aims to assess the KM system effectiveness compared to its objectives, identify areas for improvement, and make necessary changes.

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