



Maturity Assessment of Knowledge Management at Livestock and Fisheries Service of Sungai Penuh City

Alma Dewi Sundari¹, Achmad Ghazali²

^{1,2} School of Business Management, Institut Teknologi Bandung

ABSTRACT: In order to make a significant contribution to national and regional GDP, the Livestock and Fisheries Service (LFS) of Sungai Penuh City in Jambi Province aimed to achieve annual production growth exceeding 10 tons from 2021 to 2026. To accomplish this goal, knowledge management had to be put into practice to strengthen the organizational ability to create rules and regulations for the livestock and fishing sectors. The research adopted a mixed method, with a quantitative approach using the APO KM Assessment Tool and a qualitative method employing interviews. Based on KM maturity levels with a total score of 170.26, the LFS was at the "Refinement" level. There were opportunities for improvement in Technology, People, and KM Process in LFS. Additionally, as part of LFS's KM strategy, a formal KM policy, governance structure, and professional KM function should have been established.

KEYWORDS: APO KM Assessment Toll, Knowledge Management, KM Strategy, KM Initiatives, KM Maturity.

INTRODUCTION

The agricultural sector encompasses food crops, plantations, livestock, fisheries, and forestry, playing a vital role in both the national and regional economies. These sectors are essential for people's livelihoods and make substantial contributions to employment and food supply. The Strategic Plan of the Ministry of Agriculture aims for an annual economic growth of 5.7-6% by 2024, emphasizing productivity enhancement, improvements in the labor market, and the development of human resources.

The livestock and fisheries sector, positioned as a potential key economic driver, has significantly contributed to both national and regional GDP. In the second quarter of 2023, the agricultural sector, particularly fisheries, experienced a noteworthy 2% growth, with considerable expansion observed in the Livestock and Fisheries subsectors. Jambi Province exemplifies the dominance of the agricultural sector, contributing 32.60% to its GRDP in Q3 2023, reflecting a 2.82% growth from the preceding quarter.

The Livestock and Fisheries Service (LFS) of Sungai Penuh City in Jambi Province aims to achieve annual production growth exceeding 10 tons from 2021 to 2026. The implementation of knowledge management is pivotal for enhancing organizational capacity, formulating policies, and regulating the livestock and fisheries sectors. This approach facilitates the identification of employee skills, supports information exchange, and enables effective monitoring and evaluation. Additionally, it promotes technology integration by providing a platform for sharing information and best practices related to the application of technology in advancing livestock and fisheries activities.

Business Issue

Several issues found were related to knowledge management in LFS are as follow:

1. Addressing challenges in managing the livestock and fisheries sectors necessitates the implementation of knowledge management to enhance resource utilization effectively and efficiently. This approach fosters innovation, leading to improved organizational and regional development performance in line with established targets.
2. Apart from retirements, internal changes occurred at the Livestock and Fisheries Service in Sungai Penuh City in 2022, involving the transfer of 10 employees in and 7 employees out. The absence of documentation on departing employees' knowledge poses a risk of losing valuable assets. To manage employee transfers and retirements effectively, LFS must ensure that the knowledge and experience of departing employees are preserved and made accessible for replacement employees and future generations.
3. To align with the directives of the Minister of PAN and RB Regulation Number 14 of 2011, emphasizing best practices for knowledge management implementation and the delivery of public services with excellence, integrity, accountability, and



high performance, LFS, as a regional government agency, needs to formulate formal guidelines for knowledge management implementation. This initiative is essential, given the absence of prior research to assess and evaluate the success of knowledge management implementation in LFS.

LITERATURE REVIEW

Data, Information, Knowledge, and Wisdom (DIKW)

The DIKW concept is a way of thinking that breaks down data processing results, information, knowledge, and wisdom into layers, each of which has unique attributes. According to Sudhana (2023), Data in knowledge management can be perceived as raw information that lacks interpretation or as meaningless facts without context. Data that has been contextualized and processed is called information. Understanding gained from information through learning and experience is known as knowledge. The application of facts and knowledge to reason-based choices or actions is wisdom. An business can evaluate the quality of information and decide how to use it most efficiently with the aid of the DIKW principle. Organizations may leverage data more effectively and make more informed decisions if they comprehend the process of data evolution into knowledge.

Knowledge Management (KM)

Based on IBM (2021), Knowledge management (KM) is the methodical identification, recognition, organization, archiving, and sharing of information inside a business. When information is not easily accessible within a company, it can lead to significant costs for the enterprise since workers have to waste time looking for relevant information rather than focusing on meeting targets.

KM Maturity Assessment Approach

Using the customized APO KM Assessment Tool, enterprises may quickly ascertain their level of knowledge management readiness through a preliminary assessment procedure. An organization uses the APO KM Assessment tool as a prelude to starting a Knowledge Management (KM) effort. Its goal is to help the business prioritize and identify areas that need improvement in knowledge management.

The first phase in the APO KM Framework is to obtain a thorough understanding of the organization's vision, mission, commercial objectives, and strategic paths. This forms the basis for determining and assessing the organization's key capabilities and areas that require additional development. The Four Accelerators are helpful tools for assessing the extent to which these driving forces and supportive factors are present within the organization in order to create the conditions for a successful knowledge management deployment. Furthermore, a preliminary assessment of current knowledge management techniques that can be used in the implementation phase is provided by the five fundamental knowledge management procedures (APO, 2020). The APO KM Assessment Tool encompasses seven distinct categories:

1. KM Leadership

This category assesses the organization's ability to take the lead in addressing the problems brought forward by a knowledgebased economy. By examining the organization's present Knowledge Management (KM) policies and initiatives, it investigates the efficacy of KM leadership. Furthermore, it evaluates the organization's efforts to start, run, and maintain knowledge management (KM) procedures across the board in order to determine leadership competency.

2. Process

The process category looks at how knowledge can be applied to managing, carrying out, and enhancing an organization's core operating procedures. It also assesses how frequently the company reviews and enhances its work procedures in order to get higher performance.

3. People

The assessment in the people category focuses on how well the organization fosters and upholds a culture that values knowledge and continuous development. It assesses the company's endeavors to foster cooperation and knowledge exchange, as well as the development of an informed workforce.

4. Technology

The technology category evaluates the organization's capacity to create and deliver information-driven solutions, which include content management systems and collaborative tools. It also evaluates these technology resources' availability and dependability.

5. Knowledge Processes

This category assesses how successfully the company finds, produces, retains, distributes, and uses knowledge in a methodical manner. It also evaluates the organization's capacity to disseminate best practices and lessons discovered in order to cut down on pointless work and prevent repetition.

6. Learning and Innovation

This category evaluates how well the organization uses organized knowledge processes to promote, maintain, and improve learning and innovation. Additionally, it evaluates the management's attempts to instill learning and innovation-related principles and provides incentives to encourage knowledge sharing.

7. KM Outcomes

The KM Outcomes category assesses how well the company can deliver new and improved goods and services to customers while also increasing value for the general public. It also looks at how well the company uses resources to increase output, quality, profitability, and sustainable growth, all while fostering innovation and ongoing learning.

Conceptual Framework



Figure 1. Conceptual Framework

METHODS

A well thought-out and structured plan and strategy for carrying out an investigation is called a research design. It is made to make sure the variables causing variances are under control and that the research issue is adequately addressed (Akhtar, 2020). Mixed research methods—quantitative and qualitative—are used in this research. Figure 2. illustrates the design of the research:

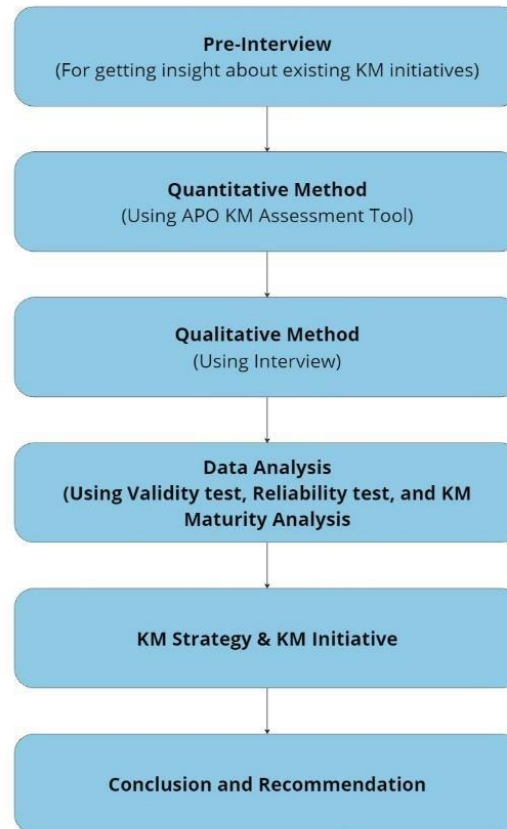


Figure 2. Research design

Quantitative Method

Given that the APO KM Assessment Tool is used as a preliminary measure before the organization launches its Knowledge Management (KM) initiative, this research employs a quantitative approach using a questionnaire based on the instrument itself.

Qualitative Method

The research employed a qualitative approach to develop KM activities and strategies for the LFS. Multiple connected employees are interviewed as part of the qualitative process.

Data Collection Method

Both quantitative and qualitative data are the main sources of the acquired data. Surveys with questionnaires to complete are used to collect quantitative data with the goal of assessing the level of knowledge management maturity. Principal informants from LFS are interviewed in order to get qualitative data.

Questionnaire Survey

Surveys are used in quantitative research, and questionnaires are used to target certain respondents. The Google Forms survey went live on November 20 and will be open until December 1, 2023. Seventy to eighty percent of the targeted respondents are workers in Sungai Penuh City's Livestock and Fisheries Department. Participants must have worked for the company for a minimum of six months in order to guarantee respondent familiarity with the department and their capacity to answer the questionnaire (APO, 2020). The purpose of the survey was to ascertain LFS's level of KM maturity.

Interview

The interview was taking approximately 20-40 minutes and was conducted in Bahasa with 3 (three) employees of the LFS, with the composition as follows:

1. Head of planning subsection of the Livestock and Fisheries Department of Sungai Penuh City
2. Head of the livestock cultivation section of the Livestock and Fisheries Department of Sungai Penuh City
3. Field technical personnel of the Livestock and Fisheries Department of Sungai Penuh City

The interview is semi-structured and includes open-ended questions to delve deeper into responses. The questions are based on the results of the KM maturity level assessment, and they will also be informed by the business problems and real-world situations that the interviewees are currently dealing with. Its goals are to learn more about commitment and identify the underlying factors influencing the quantitative survey results. This method allows for a more in-depth, mutually reinforcing analysis. Additionally, as they face business issues, the interviews will help identify the relevant modifications that need to be made in order to eliminate KM gaps and align them with the strategic goals.

Data Analysis

Validity & Reliability Tests

The research will also evaluate the validity and reliability of the questionnaire to make sure the results are reliable. When evaluating any measurement tool or research tool, these two basic and important factors are critical to consider. The author plans to perform validity and reliability tests using SPSS 25.

Validity ensures that the information gathered appropriately reflects the scope of the research and the actual situation being studied. Validity tests are necessary for each of the data collection questions since they correspond with variables. The test compares the crucial value from the r-table with the estimated correlation coefficient (r), considering a 5% significance level and degrees of freedom (df) equal to the sample size (n) minus two. The data is considered valid if the computed r exceeds the critical r. This computes the correlation between the overall variable score and the scores assigned to each question or indicator (Taherdoost, 2016). The degree of consistency and stability in a certain phenomenon's measurement is known as reliability. It comprises determining if a measurement tool yields reliable data when used repeatedly under the same circumstances. In other words, if a scale or test yields the same results every time it is used, it is considered dependable. Reliability evaluation is crucial because it ensures consistency in all areas of a measurement device (Taherdoost, 2016).

KM Maturity Level Analysis

The results of the survey on KM Maturity will be used to determine the regions lacking in KM Maturity. In order to accomplish the goals of the research, this analysis is essential.



Figure 3. APO KM Framework

The total score of the evaluation is then compared to the KM Maturity model. The organization's knowledge management maturity is shown by this comparison.

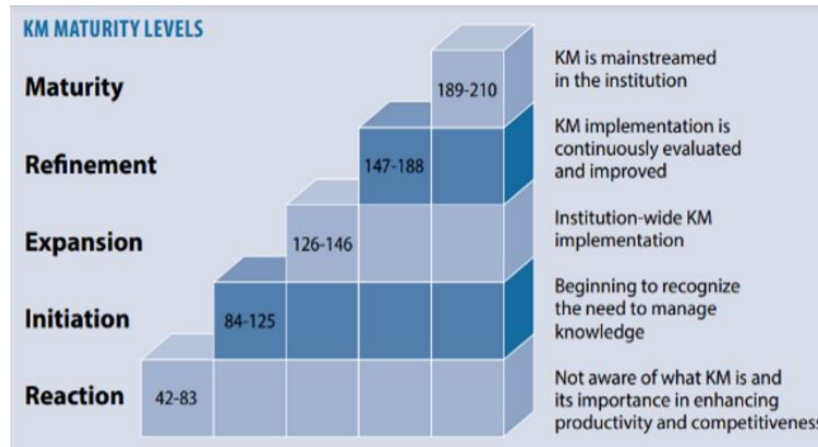


Figure 4. KM Maturity Levels

The evaluation's findings provide information about how ready a company is for knowledge management (KM). This amount of preparation can range from the lowest, referred to as response, to the highest, called maturity. The traits connected to each of these phases are related to the presence, absence, or lack of the four knowledge management accelerators, as well as the elements of learning and innovation and the subsequent knowledge management successes within the organization. (APO, 2020).

RESULTS AND DISCUSSION

Survey Result

Out of the 66 targeted respondents in total, 64 returned responses; three of these could not be analyzed due to their shorter than six-month working term. Thus, 61 responses, or 92% of the total number of final responders, can be considered for analysis because they meet the minimum percentage criteria (i.e., 70-80%).



Figure 5. Respondents Working Period and Position

Figure 5 indicates that 63.9% of respondents have worked for a company for more than three (3) years. This is positive because workers who have worked for a company longer have gained greater expertise and knowledge. 18% of workers had worked for six to twelve months, and 18% had worked for more than a year but less than three years. In the meantime, it is known from the chart position that the highest percentage of respondents to the survey were honorary employees (41%), followed by staff (21.3%), functional employees (18%), echelon IV (13.1%), and echelon III (6.6%).

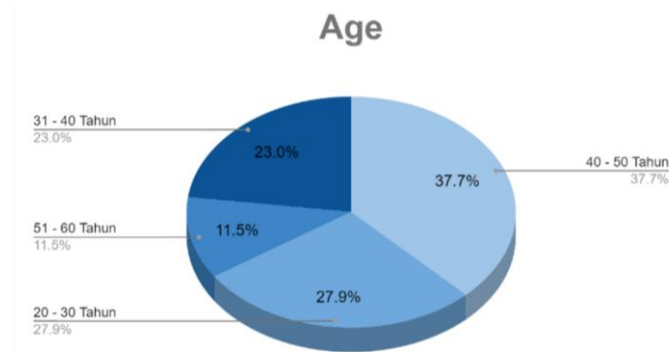


Figure 6. Respondents Age

Figure 6 demonstrates that employees between the ages of 40 and 50 made up as much as 37.7% of the primary contributors who answered the survey. Next, workers in the 20–30 age range made up 27.9%, workers in the 31–40 age range made up 23%, and workers in the 51–60 age range made up 11.5%.

Result of Validity & Reliability Test

By validating the legitimacy of the questionnaire results, the validity test makes sure that the data analysis done on the data is useful and relevant. The validity of the questionnaire results in this study was assessed using the Pearson Correlation. The Pearson Correlation Coefficient is compared with the critical value found in the r Table. At a significant level of 5%, the critical r Table value for a population of 61 respondents is 0.248. The validity of every question in the table that is provided indicates that the questionnaire can be utilized for more research.

The purpose of the reliability test is to assess how well the measurement technique used for data gathering worked. It is essential to make sure that solid data can be used as the basis for a meaningful analysis. This study employed Cronbach's Alpha Value to assess the reliability of the survey data. The reliability test findings indicate that all categories have values more than 0.900, indicating high reliability for this study.

KM Maturity Level of LFS

The APO KM Framework, a methodology with seven categories and six questions per category, is used to evaluate the level of KM maturity in LFS. Each category has a minimum score of 5 and a maximum score of 30, with a maximum total score of 210 for all categories combined. The scores for each category are displayed in the following table along with the difference between the maximum and actual scores to help you identify which categories have the most score gaps. Categorization with a high gap score indicates that more attention has to be paid to the development and improvement of that particular category. In contrast, a decreasing gap score indicates the presence of good practices and implies the implementation of efficient knowledge management procedures.

Table 1. KM Assessment Score of LFS

Category	Score	Gap Between Maximum Score and Actual Score	Ranks from The Highest to The Lowest Gap Score
Leadership	24.43	5.57	5
Process	24.48	5.52	6
People	24.21	5.79	2
Technology	23.82	6.18	1
Knowledge Process	24.26	5.74	3
Learning and Innovation	24.39	5.61	4
Outcome	24.67	5.33	7
Total Score	170.26		

Table 7 demonstrated that, with the biggest gap score of 6.18, the Technology category stands out as the most urgent concern. This highlights the need for considerable technology advancements by indicating a huge gap between the ideal state and the current technological infrastructure supporting knowledge management.

Closely behind, the People category shows a significant disparity (5.79), indicating shortcomings in the human capital component of KM. Simultaneously, the Leadership category indicates a critical need for development in leadership practices relevant to knowledge management projects, with a noteworthy gap score of 5.57. This implies a crucial connection between good knowledge management strategy execution inside the company and effective leadership.

With gap scores of 5.74, 5.61, and 5.52 in the KM Process, Learning and Innovation, and Process categories, respectively, the gaps that have been found highlight the overall need for thorough growth in these areas. These results highlight shortcomings in the organization's learning and innovation strategy, knowledge management procedures, and operational process efficiency.

Surprisingly, the knowledge management outcomes category had the lowest gap score—5.33—of any category, suggesting that the results of knowledge management efforts are more closely aligned with the intended state. This shows that even while the organization's entire knowledge management system may use some refinement, it has had comparatively greater success in seeing benefits from its current knowledge management procedures.

Based on KM maturity levels with the total score of 170.26, the LFS is at “Refinement” level.

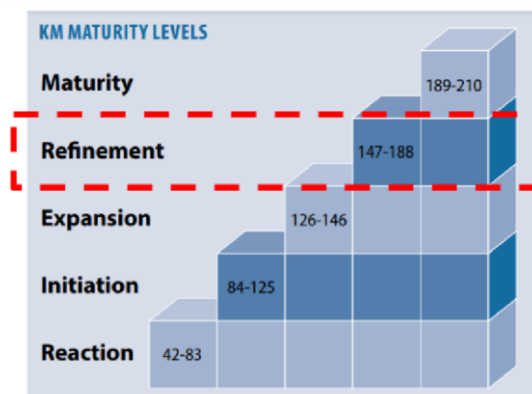


Figure 7. KM Maturity Level of LFS

The "Refinement" level indicates that the service has proven to be proficient in important knowledge management domains and has laid a strong foundation. It also suggests that there are chances for additional development and refinement in particular areas, like people, technology, and particular knowledge processes. Although results and leadership get above-average ratings, suggesting strengths to capitalize on, the company is advised to deliberately concentrate on areas marked for development. All things considered, achieving the "Refinement" level denotes a dedication to ongoing progress through knowledge management methods.

Interview Summary

Interviews were conducted with three LFS personnel, specifically the Livestock Division Head, Planning Subsection Head, and Field Educator, with the goal of gathering insights to formulate effective KM strategies. The decision to adopt a semi-structured format was influenced by the evaluation of the organization's knowledge management maturity level.

LFS actively participates in knowledge-sharing activities, such as discussions, experience sharing, and problem-solving sessions, with outcomes documented in written reports. However, there is currently no centralized storage, such as a Google Drive folder, for these documents. Knowledge application involves mentoring, especially for those transitioning from other agencies, but some employees are hesitant to ask questions or share their knowledge.

A notable challenge identified is the limited use of technology, evident in the absence of an official LFS website. Employees show a preference for paper reporting, despite the availability of applications for field officers. The issues related to technology and knowledge management are not specifically addressed, with matters concerning technology handled by the personnel department.



Recommendations include integrating technology to enhance reporting efficiency, encouraging its use, and establishing a dedicated team to tackle technology and knowledge-related challenges.

Knowledge Management Strategy

The research determined the issues pertaining to the four accelerators of knowledge management implementation—leadership, people, process, and technology—based on the results of the questionnaire. The expected capability, present capability, and capability gap are shown in the following table.

Table 2. LFS Capability Gap

Accelerators	Expected Capability	Current Capability	Capability Gap
Leadership	Availability of KM policy, KM governance, and formal KM function.	There is no KM policy, KM governance, and formal KM function.	Unavailability of KM policy, KM governance, and formal KM function.
Process	Implement knowledge sharing and processes for knowledge storage. Foster cross-functional collaboration through KM process.	Some documented processes for KM are in place. Collaboration is limited to specific departments.	Incomplete documentation of KM process and Lack of cross-functional knowledge collaboration.
People	Employees competencies databases are mapped.	Limited Employee Competencies Mapping.	Incomplete Competencies Mapping.
Technology	Implementation of Internal Technology Infrastructure and integration with KM system.	LFS does not have internal website yet, no integration with KM system, and limited digital collaboration.	Lack of internal technology, disconnected KM systems, and dependency on traditional communication.

After the capability gap has been identified, the following step is to determine the knowledge required to convert the current capability into the desired capability. It is carried out by determining the essential knowledge. Determining the KM approach for LFS requires identifying critical information based on capability shortfalls.

Table 3. Critical knowledge and KM strategy

Accelerators	Critical Knowledge	KM Strategy
Leadership	KM policy, KM governance, and formal function of KM.	<ul style="list-style-type: none"> Establish KM policy, governance structure, and formal KM function.
Process	Documentation of Knowledge process and framework for cross-functional knowledge collaboration.	<ul style="list-style-type: none"> Document knowledge processes comprehensively. Develop a standardized framework for crossfunctional collaboration.



People	Employees Competencies Mapping.	<ul style="list-style-type: none"> • Conduct a thorough mapping of competencies related • Develop training programs to enhance identified competencies.
Technology	Internal technology and KM systems	<ul style="list-style-type: none"> • Improve the technology used by LFS to make it easier for KM practices to be adopted and put into action.

Knowledge Management Initiative

The following table summarizes the proposed KM initiatives to be implemented by LFS.

Table 4. KM initiatives

KM Strategy	KM Initiative
Establish KM policy, governance structure, and formal KM function.	<ul style="list-style-type: none"> • Develop and formalize a comprehensive KM policy outlining the principles, objectives, and guidelines for knowledge management. • Establish a KM governance structure that includes key stakeholders and the roles. • Implement a formal KM function responsible for overseeing knowledge initiatives. • Allocate financial budget for knowledge management practice.
Document knowledge processes comprehensively.	<ul style="list-style-type: none"> • Launch a project to document existing KM processes thoroughly. • Create standardized templates and guidelines for documenting knowledge processes. • Conduct sharing session with specific topic related to employees competences.
Develop a standardized framework for cross-functional collaboration.	<ul style="list-style-type: none"> • Form a cross-functional team to design and implement a standardized framework for collaboration. • Identify and document best practices for knowledge sharing across different departments. • Introduce collaboration tools and conduct training sessions to familiarize employees with the new framework.
Conduct a thorough mapping of competencies related to knowledge management.	<ul style="list-style-type: none"> • Conduct a comprehensive assessment to map competencies related to knowledge management. • Identify areas of strength and improvement for each level of employee. • Develop a competency mapping report and utilize it to inform training and development initiatives.
Develop training programs to enhance identified competencies.	<ul style="list-style-type: none"> • Design and implement training programs targeting identified competency gaps. • Collaborate with internal or external training providers to offer specialized workshops, seminars, or e-learning modules. • Conduct formal mentoring programs.



Improve the technology used by LFS to make it easier for KM practices to be adopted and put into action.	<ul style="list-style-type: none">Implement an internal technology infrastructure, such as website, cloud, collaborative platform or shared folder for documentation of KM.Provide hands-on training sessions to ensure proficiency in utilizing the technology for knowledge sharing.
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CONCLUSION

The research indicates that LFS has implemented various Knowledge Management (KM) initiatives, even though they lack formal implementation. These initiatives include monthly evaluations, morning internal meetings, and the utilization of a WhatsApp group for information sharing. The KM maturity level evaluation positions LFS at the Refinement level, signifying ongoing analysis and appraisal of KM application. Despite the absence of formalization, LFS remains committed to enhancing KM practices for organizational goals.

In accordance with the research findings, a recommended KM strategy for LFS involves establishing a formal KM policy, governance structure, and dedicated KM function. It underscores the thorough documentation of knowledge processes, the creation of a standardized framework for cross-functional collaboration, and a detailed competency mapping. Additionally, the strategy proposes the development of training programs for competency enhancement and the upgrading of technology to facilitate the adoption and execution of KM practices. The overarching goal is to ensure consistent implementation of KM practices at LFS.

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