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Proposed Knowledge Management System to Improve Productivity in Strategy and Analytics PT. XL Axiata Tbk

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Abstract

This study addresses key productivity issues in PT. XL Axiata Tbk's Strategy and Analytics division, including excessive dependence on individual workers, lack of centralized documentation, slow onboarding, and inconsistent deliverable quality. These challenges have led to delays, poor First Time Right (FTR) rates, and reduced operational agility. A qualitative approach combining interviews, observations, and document analysis identified four major gaps: absence of standardized and centralized documentation, overreliance on key personnel (PIC), insufficient knowledge evaluation, and limited knowledge-sharing practices. The study proposes a Knowledge Management (KM) Strategy based on People, Process, and Technology, integrating the SECI Model (Socialization, Externalization, Combination, Internalization) to address these gaps. This strategy provides a structured way to capture, share, and apply organizational knowledge. Key solutions include establishing KM governance, appointing KM Champions, standardizing documentation templates, implementing a centralized DataHub repository, and introducing peer review processes. A phased KM roadmap—comprising Foundational, Implementation, and Evaluation phases—was developed to guide execution and measure outcomes using KPIs such as improved FTR rates, faster onboarding, repository utilization, and employee satisfaction. The study concludes that effective knowledge management requires a comprehensive organizational transformation, not just technological upgrades. By combining organizational, procedural, and technological interventions, the division can boost productivity, enhance deliverable quality, and foster a sustainable culture of knowledge sharing aligned with XL Axiata's strategic goals in the telecom sector.

Keywords: SECI Model, PPT Framework (People, Process, Technology), Knowledge Management (KM), Data Analytics, Productivity, KM Roadmap, Documentation

INTRODUCTION

The population and characteristics of Indonesia shows opportunities and challenges to the telecommunication sector. The marketplace is developing rapidly, competitively and investing heavily in infrastructure. Nevertheless, industry advancement faces regulatory problems, infrastructure gaps, and customer behavior modifications (Bardey et al., 2022; Havrysh et al., 2023; Ladipo et al., 2022; Mugo & Macharia, 2021; Radukić et al., 2019).

Regulatory uncertainty is among the greatest hurdles for the Indonesian telecommunication market. The regulatory landscape is usually highly complex and dynamic, and policies and regulations governing market operations might change often. For instance, stringent licensing terms and spectrum allocation laws can constrain operators' ability to grow and innovate (Sakhnovskiy et al., 2020; Shuaibu-Sadiq & Anyasi, 2020; Song et al., 2017; Wibisono et al., 2018).

Yet another significant obstacle is infrastructure development in Indonesia. A complicated and unreliable telecoms network is difficult because of the country's geographical layout that includes more than 17,000 islands. Whereas urban areas generally have fairly good coverage and service quality, remote and rural areas generally have poor infrastructure, resulting in digital divide. Fiber optics networks and mobile coverage are being expanded with initiatives ongoing but cost prohibitive and logistical challenges hold back progress.

The Indonesian telecommunication market is competitive with several key players fighting for market share. The leading competitors are:

Telkomsel

Telkomsel is the market leader with probably the widest network coverage in Indonesia and largest client. It is a subsidiary of Telkom Indonesia and is a key player because of its early entry and big infrastructure investments (Telkomsel Annual Report, 2022).

Indosat Ooredoo Hutchinson

Indosat Ooredoo Hutchinson is a significant competitor to Telkomsel and provides mobile and fixed-line services. The company is working on building up its 4G network and enhancing its service quality to attract a lot more customers (Indosat Ooredoo Annual Report, 2022).

XL Axiata

XL Axiata, another significant player, is expanding its network and making investments in cutting-edge technology. The business provides competitive services to grow in a market where consumers are price-sensitive (XL Axiata Annual Report, 2022).

Smartfren

Targeting younger, tech-savvy customers, Smartfren is a top supplier of data bundles and affordable prices. In order to enhance its services, it is also investing in 5G (Smartfren Annual Report, 2022).

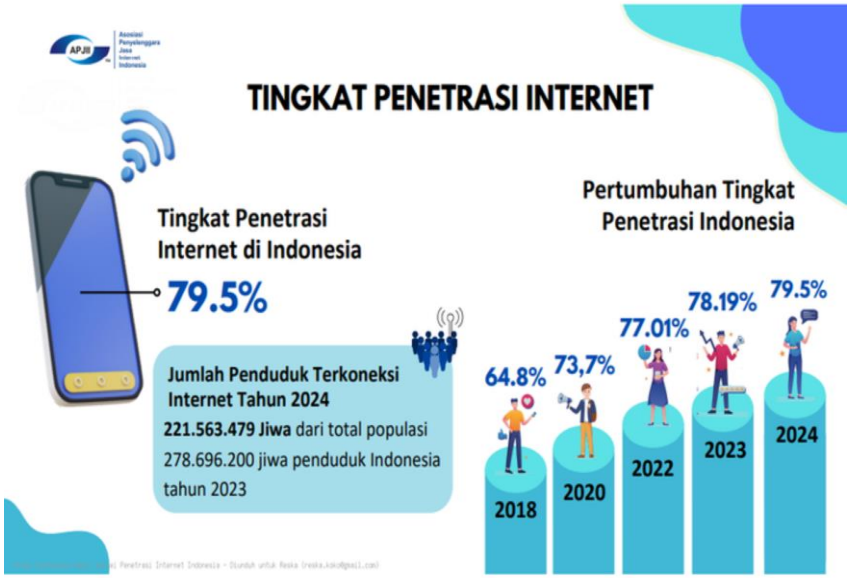

Figure 1 Internet user and penetration in Indonesia
Source: APJII 2020

The shifting consumer behavior in Indonesia's telecommunication marketplace is characterized by higher cell phone penetration, social media participation and need for fast Internet. In 2024, the Indonesian Internet Service Providers Association (APJII) noted that there were 221 million Internet users (79.5% of the population at that time) (APJII 2020).

Data services are becoming more considered useful services by customers over conventional SMS and voice services. Mobile apps, streaming services, along with web-based gaming have all grown to be more widespread - raising data usage. This change in customer preferences is driving telecommunications companies to invest in network capacity and quality to meet this increasing demand. Additionally, there is an increasing need for electronic e-commerce and payments which further require speedy Internet connections. These changes

have been greatly accelerated by the COVID 19 pandemic, with many working from home and consuming digital services in their daily life (World Bank, 2020).

Analysis of previous studies indicates that Wibisono (2018) highlighted regulatory and policy challenges in the development of Indonesia's telecommunications sector; however, this study did not sufficiently address how operators adapt to rapid changes in digital consumer behavior and the growing demand for data-driven services following the pandemic. Meanwhile, the APJII (2020) study focused on internet penetration and digital service usage by the population but did not thoroughly explore how telecommunications companies can leverage user data to improve service quality and competitive advantage.

The study aims to provide a comprehensive understanding of how telecommunications strategies can enhance market penetration, service quality, and customer satisfaction, while also offering practical insights for industry stakeholders in formulating policies and innovations that are adaptive to technological advancements and consumer behavior changes. Moreover, it contributes to the academic literature on strategic management in Indonesia's telecommunications sector.

RESEARCH METHOD

To do research on this project, mixed methods are used for data collection. It used observation as both qualitative and quantitative methods, and semi-structured interviews as qualitative methods. Secondary data is also used to support the research. From a step perspective, below is a diagram that visualizes the research design process.

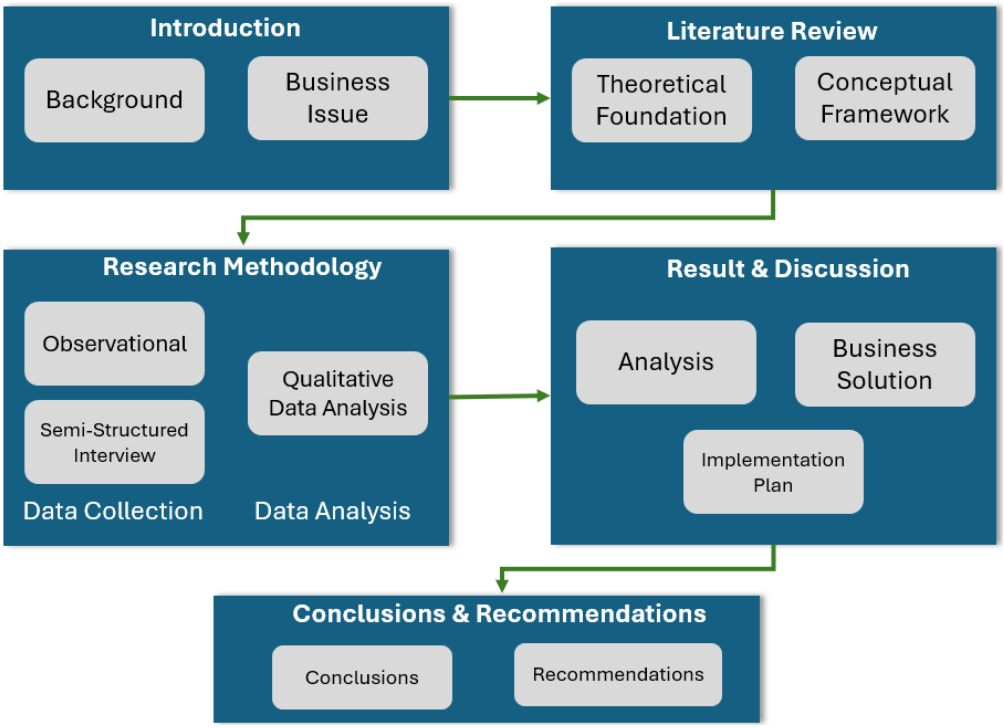

Figure 2. Research design

Research starts from the introduction section to share the background of telecommunication history and in the current situation. It continues with challenges in the telecommunication industry in Indonesia which follows with business issues in PT. XL Axiata Tbk. To strengthen the foundation of research, literature review is necessary by assessing the theory related to Knowledge Management. Once theoretically captured, conceptual framework is designed to get a high-level framework to proposed design of knowledge management system.

RESULT AND DISCUSSION

Internalization

Internalization is the process by which practice and application transform explicit knowledge into tacit knowledge. At this point, documented knowledge is internalized and used in day-to-day tasks until it is incorporated into the person's expertise and abilities. By going over previous project documentation and assessing how documented approaches compare to actual implementation, the Strategy and Analytics division will strengthen internalization.

1. Conduct a Review of Past Project Documentation as Part of New Project Analysis

During the start of new projects, teams will examine documentation from previous projects as part of the internalization process. This guarantees that before new projects start, explicit knowledge from earlier work—such as risks, lessons learned, successful approaches, and unsuccessful strategies—is examined and taken into account.

Teams can prevent mistakes and more successfully replicate tried-and-true techniques by using previous documentation as a guide. As team members obtain a better understanding of the context and logic underlying documented decisions, this review process will also reinforce tacit knowledge. Over time, this habit of starting new projects with knowledge from the past will embed learning into the division’s standard operating procedures.

2. Evaluate Approach from the Documentation Compared to the Implementation to Measure Outputs

Assessing the method outlined in the documentation in comparison to the actual implementation and its outcomes is another crucial internalization task. This assessment will establish whether the documented techniques are useful, efficient, and consistent with the desired results.

Teams can find theoretical and practical gaps by using this process. For instance, changing business needs, resource availability, or technical constraints may necessitate modifying a procedure described in a process document. Employees improve the documents for future use and strengthen their implicit comprehension of how and why changes are made in practice by considering these variations.

3. Define Periodically Documentation Review Cycle

The implementation of a periodic documentation review cycle will ensure that knowledge assets remain accurate, relevant, and comprehensive. Even well-written documents may eventually become outdated as a result of updated business strategies, process modifications, or technological advancements.

The division makes sure that out-of-date content is found and updated as soon as possible by establishing a review schedule, such as quarterly for technical documentation and bi-annually for business context. Additionally, by combining knowledge from various projects or domains into a more cohesive structure, this process makes it simpler for staff members to find and rely on the information that is available.

4. Monthly Review and Reporting of Documentation Quality and Usage

A monthly monitoring procedure will be put in place to keep tabs on the caliber and application of documentation in addition to recurring reviews. This entails determining whether documents adhere to predetermined standards, evaluating how frequently they are updated, and examining metrics related to user engagement (such as the quantity of views, downloads, or search hits).

Every month, KM Champions and pertinent team leads will receive a summary of this monitoring. These reports will assist in pinpointing areas that may require more materials, where updates are past due, or where documentation is underutilized. The goal of the Combination stage is to refine and combine explicit knowledge into a powerful organizational asset, and this process guarantees that explicit knowledge stays integrated, accurate, and actively used over time.

KM Roadmap

Finally, the implementation of Knowledge Management in PT. XL Axiata Tbk can be shown below KM Roadmap

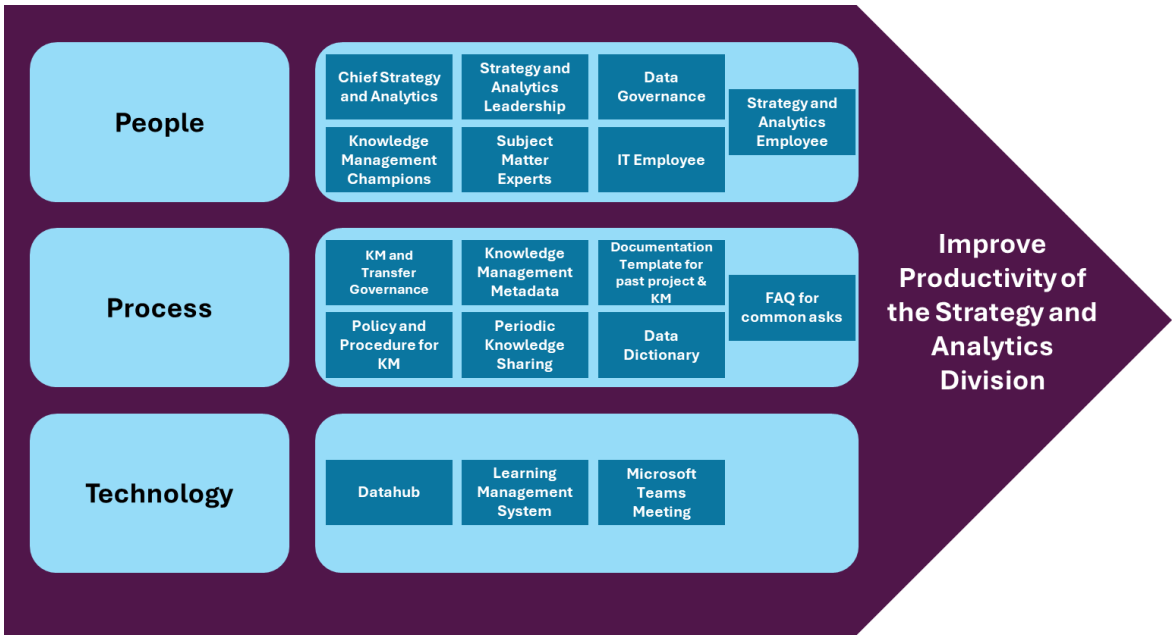

Figure 3. KM Roadmap

It visualizes how knowledge management systems will be implemented strategically from People, Process, and Technology perspective. Implementing three areas collaboratively will engage in a strong knowledge management and sharing cultures. To understand further, below explanation for each perspective:

1. People

In the Knowledge Management Roadmap, the People component is central because KM success depends largely on culture, leadership, and active participation. Technology by itself cannot address issues like the absence of formal mechanisms for knowledge reuse, reliance on verbal sharing, and dependence on individual PICs, as the thematic analysis made clear. Integrating knowledge management techniques into day-to-day operations requires strong leadership, defined roles, and proactive champions (Nonaka & Takeuchi, 1995).

High Level management

As sponsors of the KM initiative, the Chief Strategy and Analytics and the Strategy and Analytics Leadership are crucial. They are responsible for giving guidance, supporting the KM strategy, and making sure it is in line with corporate objectives. According to Jann Hidajat's framework for developing a knowledge-driven organization, where leadership commitment serves as the cornerstone for cultural change, leadership support is crucial in fostering a learning culture (Tjakraatmadja, 2020).

The Champions

Consisting of Data Governance, Knowledge Management Champions and Subject Matter Experts (SMEs), act as the drivers of KM activities. Data Governance will act as a first mover to established required foundational for knowledge management system implementation. SMEs were found to be crucial for training programs, structured handovers, and biweekly sessions of knowledge sharing in the thematic analysis. Champions will take the lead in these initiatives, make sure that documentation is recorded, and support the preservation of the Caliber and applicability of the knowledge in the repository.

Employees

The main users and producers of knowledge are employees, including those in the Data Governance, Strategy, and Analytics team and auxiliary IT staff. They will contribute to documentation, take part in frequent sharing sessions, and use what they learn in their work. Thematic concerns like inconsistent documentation use, onboarding delays, and the requirement for cross-functional alignment will be addressed by their active participation. The roadmap guarantees that knowledge management is integrated into daily operations and not a side project by involving all levels of people.

2. Process

The Knowledge Management Roadmap's Process component aims to establish an organized, replicable method for knowledge management throughout the division. According to the thematic analysis, the lack of standardized knowledge management procedures was closely associated with persistent problems like a high dependence on individual PICs, out-of-date documentation, and no formal mechanism for reuse. Establishing clear governance, consistent knowledge-sharing routines, and documentation standards will address these gaps (Tjakraatmadja, 2020).

Governance Implementation

Sets the foundation by defining clear procedures and responsibilities for knowledge creation, validation, and transfer. This includes assigning knowledge owners, setting update cycles, and defining knowledge domains. Thematic findings demonstrated that in the absence of governance, Confluence and other tools are either underutilized or not consistently maintained. The company guarantees accountability and consistency in knowledge management by integrating governance into routine processes.

Knowledge Sharing and Training

Formalize processes like scheduled handovers, biweekly SME meetings, and an ongoing training program. According to the thematic analysis, staff members appreciated frequent gatherings for informal learning and sharing but acknowledged that they were sporadic. While training programs will eventually create new SMEs, establishing a set cadence will guarantee that knowledge is shared methodically. This supports the SECI model's emphasis on socialization as a means of disseminating tacit knowledge throughout the organization, as highlighted by Nonaka & Takeuchi (1995).

Documentation Excellence

aims to enhance the stored knowledge's quality, usability, and accessibility. This entails keeping a data dictionary up to date, recording lessons learned after a project, and developing frequently asked questions (FAQs). Thematic problems with inconsistent updates, verbal communication, and missing documentation are all directly addressed by these procedures. The

organization supports both ongoing projects and the onboarding of new employees by standardizing documentation practices, which guarantees that explicit knowledge is accurate and readily accessible for reuse.

The KM Roadmap ensures that knowledge is recorded, disseminated, and preserved as part of regular operations by transferring the division from ad hoc, person-dependent practices to a consistent, system-supported approach through these structured processes.

3. Technology

The infrastructure for efficiently storing, organizing, and disseminating knowledge is provided by the Knowledge Management Roadmap's Technology component. A well-organized, easily accessible technology ecosystem that facilitates both storage and collaboration is required, according to the thematic analysis, which also highlights problems like Confluence not being maintained on a regular basis, the desire for a single source of truth, and the lack of documentation. Technology acts as the enabler, but must be aligned with people and processes to deliver value (Trott, 2021).

The Datahub

Serves as a centralized analytics knowledge portal and repository. Project outputs, business context, data sources, and documentation will all be consolidated into a single, organized platform. The Datahub serves as the division's single source of truth by storing knowledge management metadata like ownership, last update, and domain. This tackles a number of thematic issues related to dispersed information, out-of-date documents, and trouble locating important knowledge.

The Learning Management System (LMS)

As the backbone for training and continuous capability building. It will host structured training modules, collect feedback, and track evaluation results. As emphasized in the SECI Combination phase, where training curricula integrate explicit knowledge for consistent application, this is in line with the KM strategy to guarantee ongoing knowledge transfer. Additionally, the LMS facilitates the creation of new Subject Matter Experts, tackling the issue of excessive dependence on people.

Microsoft Teams Meeting

As the online training and knowledge-sharing platform. It makes it possible to record sharing sessions, collaborate in real time, and integrate with Confluence or Datahub to store session materials automatically. Thematic findings from the Needs of Knowledge Sharing Culture analysis, where employees acknowledged the importance of sharing sessions but pointed out the absence of organized follow-up, are directly supported by this capability.

The KM Roadmap guarantees that knowledge is not only stored but also shared, maintained, and readily retrieved by integrating Datahub, LMS, and Microsoft Teams into an integrated technology stack. Here, technology serves as a facilitator for the People and Process elements, guaranteeing that the division has the resources necessary to maintain knowledge management procedures in the long run.

By combining Datahub, LMS, and Microsoft Teams into an integrated technology stack, the KM Roadmap ensures that knowledge is not only stored but also shared, maintained, and easily retrieved. Technology here acts as the enabler for the People and Process components, ensuring the division has the tools to sustain knowledge management practices over the long term

CONCLUSION

The research revealed that PT. XL Axiata Tbk's Strategy and Analytics division struggles with productivity due to dispersed knowledge, heavy reliance on specific employees, and the absence of a centralized knowledge repository. Interviews, observations, and document reviews highlighted that much knowledge resides only in experienced employees' minds, causing delays when they are unavailable. Documentation is inconsistent and underutilized despite existing tools like Confluence, and onboarding lacks structure, prolonging new employees' adjustment. Additionally, employees often must directly consult key personnel to find information, leading to inefficiencies, work duplication, and uneven task quality. Future research could explore the impact of implementing a fully integrated, user-friendly knowledge management platform on team collaboration, operational efficiency, and employee satisfaction within this division.

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