Analysis Of Enterprise Resource Planning Integration In Supply Chain Management At PT. Dayamitra Telekomunikasi (Mitratel)

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Abstract.

This study aims to understand and analyze the integration of Enterprise Resource Planning (ERP) systems in Supply Chain Management (SCM) at PT Dayamitra Telekomunikasi. The method used in this research is qualitative research. Data collection techniques were conducted through interviews with managers and officers from Mitratel. The results of the study indicate that the integration of ERP in SCM at Mitratel has a positive impact on the efficiency and effectiveness of SCM operations, allowing the company to gain a competitive advantage. Research on ERP integration in SCM at PT Dayamitra Telekomunikasi is still limited. Therefore, it is recommended to conduct further in-depth research on ERP integration in SCM at Mitratel.

Keywords: *ERP, SCM and Mitratel.*

I. INTRODUCTION

The Indonesian economy has grown despite experiencing a decline in the previous quarter, with a year-on-year growth of 4.95% in the third quarter of 2024 (Coordinating Ministry for Economic Affairs of the Republic of Indonesia, 2024). The telecommunications sector has also shown consistent growth (Reza Pahlevi, 2024). In the context of globalization and increasing business competition, companies are required to enhance operational efficiency and their ability to respond to market dynamics. One way to achieve this is by adopting information technology in business processes. The integration of Enterprise Resource Planning (ERP) in Supply Chain Management (SCM) is a key system that can help companies manage resources in the supply chain more efficiently. Several previous studies have examined that the implementation of Supply Chain Management (SCM) based on Enterprise Resource Planning (ERP) at PT. Nestle has proven effective in improving company performance, especially during the pandemic, by ensuring product availability to the end consumer (William et al., 2022). Other research indicates that the success of Supply Chain Management (SCM) at PT. Toyota Astra Motor does not solely depend on the use of SAP ERP, but also on team solidity, investment in system quality, and creative thinking abilities. The combination of these factors creates a synergy that supports the optimization of SAP ERP implementation and the success of the company's SCM (Wan et al., 2023).It can be concluded that the implementation of ERP-based SCM effectively enhances company performance through supply chain management efficiency, supported by team solidity, system quality, and creativity.

The combination of technology, collaboration, and long-term strategies is key to the success of ERP integration in SCM.PT Dayamitra Telekomunikasi Tbk, known as Mitratel, is a subsidiary of PT Telkom Indonesia (Persero) Tbk that focuses on providing telecommunications infrastructure. Interviews with Mitratel staff revealed that the issues with ERP integration in supply chain management are due to uneven understanding of ERP operations. Additional interviews with other staff indicated challenges in integration and data processing, with fragmented data and multiple sources needing to be integrated, resulting in difficulties in accessing information and suboptimal validity. These issues hinder the efficiency of the flow of goods, information, and finances.In the context of core business functions, operations and supply chain management involve experts in product design, procurement, production, operational services, logistics, and distribution. These experts are organized and integrated in various ways according to the type of product or service offered. According to Render et al. (2017), "Supply chain management is the coordination of all

activities in the supply chain aimed at enhancing value for customers." Meanwhile, Stevenson (2018) states, "Supply chain management is the strategic coordination in the supply chain aimed at uniting supply and demand management.

"Based on the definitions from several experts, it can be concluded that Supply Chain Management (SCM) is the strategic and comprehensive coordination of activities within the supply chain to manage the flow of information, materials, and services from suppliers to end consumers. To ensure smooth supply chain management activities, companies use ERP systems that can integrate all supply chain activities, such as inventory management, purchasing, production, distribution, and shipping. This way, the flow of goods, information, and finances becomes more effective and efficient.According to Render et al. (2017), "ERP is an information system used to determine and plan the resources required by a company to process, produce, deliver, and record customer orders." According to Stevenson (2018), "ERP is a computer-based system aimed at connecting all parts of a business organization and important elements in the supply chain into a single database to facilitate information exchange." Based on the above definitions, Enterprise Resource Planning (ERP) is a computer-based information system designed to integrate and automate business processes within a company, including operational, production, distribution, accounting, and other aspects. ERP allows all parts of the organization and supply chain elements to share data through a single integrated database, thereby facilitating information exchange, improving efficiency, and supporting optimal planning and management of company resources. This research focuses on the dimensions and indicators of Enterprise Resource Planning (ERP), which are divided into three main dimensions: Quality Dimension, Use Dimension, and Benefits Dimension (Njina et al., 2017).

1. Quality Dimension

This dimension is measured by three criteria: system quality, information quality, and service quality. Petter et al. (2008) state that system quality includes ease of use, flexibility, response speed, and reliability, all impacting user satisfaction. Information quality is assessed based on accuracy, relevance, completeness, timeliness, and clarity. Service quality involves responsiveness, reliability, and the competence of support staff.

2. Use Dimension

The Use Dimension is measured through Voluntary Use and User Satisfaction. Petter et al. (2008) highlight that Voluntary Use indicates a positive perception of the system's benefits in environments where users can choose whether to use it. User Satisfaction results from the combination of system quality, information quality, and service quality, reflecting how well the system aids users in completing their tasks efficiently.

3. Benefits Dimension

This dimension includes Operational Benefits, Managerial Benefits, and Organizational Benefits. Gable et al. (2008) note that Operational Benefits streamline processes, reduce manual errors, and enhance productivity through integration. Managerial Benefits provide visibility into operations, enabling performance monitoring and optimal resource use. Organizational Benefits enhance flexibility, strengthen strategic capabilities, and improve adaptability to changes in the business environment.The expected conditions related to the integration of ERP and SCM are supported by research (Kwek, 2022), which states that companies are expected to leverage information technology, particularly Enterprise Resource Planning (ERP) and Supply Chain Management (SCM), to enhance their competitiveness. (Elzagi et al., 2023) mention that with the presence of ERP, it is hoped that all data can be integrated online, accurately, and facilitate management's operational tasks through optimal allocation of company resources.

On the other hand, the existing conditions related to this research are supported by several studies that indicate that ERP implementation affects SCM performance, ERP implementation impacts company performance, SCM performance influences company performance, and ERP indirectly affects company performance through SCM performance (Huda, 2022).The issues faced in relation to this research include a lack of understanding, as many companies still do not fully grasp the importance of ERP integration in SCM. Additionally, there are compatibility issues, as some ERP systems used in SCM are not compatible with one another, complicating integration. This is further compounded by resistance to change, as employees often

resist new systems and processes, hindering integration. Therefore, the solutions to the problems faced in relation to this research include training and education, providing training to employees about the benefits and use of ERP systems. Another solution is the selection of the right system, by choosing an ERP system that is compatible and can be well integrated.

There are research propositions regarding the integration of ERP in SCM, which include the following:

1. The expected conditions related to the integration of Enterprise Resource Planning in Supply Chain Management at Mitratel have not been achieved.
2. The existing conditions related to the integration of Enterprise Resource Planning in Supply Chain Management at Mitratel are not optimal.
3. There are issues occurring related to the integration of Enterprise Resource Planning in Supply Chain Management at Mitratel.
4. Solutions need to be developed to address the issues related to the integration of Enterprise Resource Planning in Supply Chain Management at Mitratel.

II. METHODS

The research method used in this study is a qualitative approach. The object of this research is the ERP system in SCM at PT. Dayamitra Telekomunikasi. The data collection technique is the process carried out by the researcher to obtain the necessary information. This study utilizes both primary and secondary data sources. Primary sources provide direct information, while secondary sources provide information through intermediaries (Sugiyono, 2022). Several data collection techniques used in this study include:

1. Observation, which involves direct observation of the research object to understand the ongoing activities (Sugiyono, 2022). The author will conduct participatory observation at PT Dayamitra Telekomunikasi.
2. Interviews, which involve question-and-answer interactions to gather information. The author will use structured interviews to obtain data about ERP integration in SCM at Mitratel, involving managers and staff who use ERP (Sugiyono, 2022).
3. Documentation Method, which is used to search for and analyze historical data to support data from observations and interviews, as well as to verify the validity of the data (Bungin & Moleong, 2007). The documents used include data on existing and expected conditions, issues related to ERP integration, and solutions to these problems.

The data analysis technique is an important part of report preparation, helping the author understand the meaning of the data and seek solutions to research problems. According to Nurdin & Hartati (2019), data analysis is the process of processing data to produce new information that is easier to understand. In this study, the author will collect, process, and analyze data. Sugiyono (2022) explains three data analysis processes, which include:

1. Data Reduction, which involves filtering and summarizing important information, focusing on relevant matters, and eliminating unnecessary information to form a clearer picture.
2. Data Presentation, which organizes and arranges data in a specific pattern to make it easier to understand, which can be in the form of narratives, tables, or diagrams.
3. Conclusion and Verification, which involves drawing preliminary conclusions that are temporary and may change if not supported by evidence in subsequent data collection. Conclusions are considered credible if supported by consistent evidence.

The technique for checking the validity of the data involves verifying and comparing data with other sources. According to Roosinda et al. (2021), validity and reliability are important in qualitative research to ensure accurate results, and this test is conducted through triangulation. Triangulation is the process of checking the truth of data from various perspectives to reduce bias (Firdaus, 2018). Several triangulation techniques include:

1. Source Triangulation, which verifies the credibility of data by comparing information from various sources (Sugiyono, 2022). The author compares data from staff and officers who use the ERP integration application in SCM.
2. Technique Triangulation, which verifies data from the same source using different methods, such as observation, interviews, and documentation, to ensure the consistency of the results (Sugiyono, 2022).
3. Time Triangulation, which checks the credibility of data through interviews or observations at different times to gain clear confidence. Data collection will be conducted from December 2024 to January 2025.

III. RESULT AND DISCUSSION

In conducting the analysis for this research, the researcher employs three stages: analyzing the expected and existing conditions related to the integration of ERP in SCM at Mitratel, analyzing the issues related to the integration of ERP in SCM at Mitratel, and seeking solutions to the problems associated with the integration of ERP in SCM at Mitratel.Based on several interviews conducted by the researcher, the results indicate that the expected and existing conditions show that, first, the current quality of the ERP system is quite good, which can help improve effectiveness and efficiency in the procurement process through automation, integration, and good data management. However, there are still challenges related to integration that are not yet fully optimal and a need for ongoing data management updates. There is hope that the quality of the ERP system can continue to be developed to remain relevant to needs, integrate in real-time with the company's internal application dashboard, and be expandable for integration with other units. Regarding the quality of ERP information, it currently provides sufficiently accurate, relevant, and up-to-date information, and is more informative in presentation, although there are still challenges related to integration and data maintenance. In the future, with the help of technologies such as AI, better integration with third-party systems, and cloud applications, the quality of information in ERP will continue to improve and provide greater advantages in enhancing the efficiency of SCM processes. The hope is that the entire SCM process from upstream to downstream can be implemented and integrated into the ERP system. Furthermore, the current and expected conditions regarding the quality of improvements in ERP to support the SCM processes carried out by Mitratel are quite adequate.

Currently, the quality of improvements in the ERP system is good, with automation, integration with third parties, and more efficient resource management; however, there are still challenges related to further integration, better data management, and enhanced user experience. The expectation regarding the quality of improvements is that minor system errors/issues no longer exist. Another hope is that there are no obstacles or bugs that could disrupt the SCM process.ERP system users feel that this system accelerates task completion through automation, data integration, and real-time reporting. They hope that innovations in integrating SCM process flows can enhance efficiency and collaboration. Positive experiences in using ERP for SCM operational activities are driven by automation, real-time visibility, and accurate inventory management. The hope for the future is that the ERP system becomes more user-friendly and flexible in customization.ERP has improved operational efficiency in SCM through inventory management, order processing, goods delivery, and data reporting. This system also enhances flexibility and reduces risks, supporting managerial decision-making with real-time and integrated reporting. Additionally, easy access to up-to-date data and robust analytics enables managers to make faster and more accurate decisions, improving resource management and competitiveness. Furthermore, ERP also enhances collaboration among departments in SCM activities by providing centralized data, automating workflows, and facilitating efficient communication, allowing the procurement department to collaborate with other teams in the organization.

In the analysis of issues, technical disruptions or downtime in the ERP system affecting the SCM process are rare, but the company can reduce their frequency and impact through good system maintenance, strong infrastructure, and adequate security. Users feel that the ERP system helps them complete tasks more efficiently compared to other methods, as ERP reduces manual coordination time and supports end-to-end processes as well as historical data management.Users are satisfied with the accessibility and ease of the

integrated ERP system, which reduces manual errors in SCM operational processes, such as job value calculations and vendor details. An easy-to-understand user interface facilitates users in retrieving and utilizing data for decision-making. Although ERP has great potential to enhance inter-departmental collaboration, challenges such as lack of training, poor integration, and a non-supportive corporate culture can hinder that potential. With improvements in training and system integration, ERP can be more effective in facilitating collaboration. However, limited access for certain units also poses a barrier to data utilization.To address the issues of ERP integration in SCM at Mitratel, steps that can be taken include conducting feasibility tests and regular preventive maintenance to avoid disruptions. To reduce downtime affecting the procurement process, the company needs to perform proactive system maintenance, enhance IT infrastructure, and tighten data security. By keeping the system updated and having an effective disaster recovery plan, the company can improve ERP reliability and ensure smooth SCM processes. Additionally, collaboration with the development unit (IT unit) is crucial for the smooth operation of SCM processes.

To improve the accuracy and consistency of data produced by ERP, several steps can be taken, including output data validation, regular checks, setting standards for data format parameters, and system maintenance. Strategic steps such as data planning, system design, user training, and testing are also necessary, along with coordination with related units for data reconciliation. Furthermore, additional training for users is important to enhance their understanding of ERP, considering employee turnover. Customization of ERP modules or features is also needed to make them more relevant to user needs and company developments. To enhance user satisfaction with the ERP system in SCM activities, the company needs to ensure that the application is user-friendly, supports relevant functionalities.

IV. CONCLUSION

The conclusions of this research indicate that the integration of ERP in SCM at Mitratel has shown significant progress, with a sufficiently good system supporting the efficiency and effectiveness of the procurement process. However, there are still challenges related to integration that are not yet optimal and a need for better data management. The quality of information produced by the ERP is currently quite accurate and relevant, but it needs to be improved through the implementation of technologies such as AI and cloud computing.Users are satisfied with the ERP system, which accelerates task completion and reduces manual errors, but challenges such as a lack of training and poor integration still exist.

To address these issues, the company needs to perform proactive system maintenance, enhance IT infrastructure, and tighten data security. Additionally, more intensive collaboration between users and the development unit is crucial to ensure the smooth operation of SCM processes.Strategic steps such as data validation, user training, and system customization are also necessary to improve data accuracy and consistency. To enhance user satisfaction, the company must ensure that the ERP system is user-friendly and well-integrated. Regularly holding inter-departmental collaboration meetings will help capture issues and ensure the relevance of ERP features. With this approach, ERP is expected to be more effective in supporting SCM integration and improving overall efficiency.

V. RECOMMENDATIONS

Based on the research findings, several key recommendations are proposed for Mitratel. First, it is essential to conduct a comparative case study with companies that have successfully implemented ERP in SCM to identify best practices that can be adapted. Additionally, developing a comprehensive training module for ERP users will enhance their understanding and skills while addressing potential issues.Exploring the application of new technologies, such as AI and predictive analytics, can significantly improve information quality and decision-making, supported by a cost-benefit analysis.

Regular evaluations of the ERP system's performance using clear indicators will help measure its effectiveness in supporting SCM processes.Integration testing with third-party systems is also crucial to assess their impact on efficiency and identify challenges. Periodic user satisfaction surveys will provide valuable feedback for continuous improvement. Furthermore, researching the influence of corporate culture

on ERP adoption can facilitate better integration, while investigating ways to enhance cross-departmental collaboration through effective ERP features will strengthen overall operational efficiency.

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