Enterprise Resource Planning (ERP) in Supply Chain Management (SCM) Operational Performance: A Systematic Literature Review

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ABSTRACT

Technological developments in the digital era have made competition in the business world increasingly fierce. Companies are competing to find ways to increase productivity to be able to produce products of better quality and in large quantities and quickly by utilizing technology. One of the many technologies that can be utilized in companies is Enterprise Resource Planning (ERP). Many companies have implemented this ERP system to support the company's operational performance and productivity. Company operations in creating products have different levels of difficulty. Every company has business management in carrying out these operational activities, namely Supply Chain Management (SCM). Starting from procurement of raw materials to distribution of finished products, many are managed by SCM. In order to make SCM performance more effective and efficient, technology is needed in its management. The technology that can be used is ERP. It is hoped that the implementation of this ERP can help SCM operational performance become even more productive.

Keywords*: Technology, Enterprise Resource Planning, Supply Chain Management, Performance*

ABSTRAK

Perkembangan teknologi di era digital membuat persaingan di dunia bisnis semakin ketat. Perusahaan berlomba mencari cara meningkatkan produktivitas untuk dapat memberikan hasil produk yang mempunyai kualitas lebih baik dan juga jumlah yang banyak dan cepat dengan memanfaatkan teknologi. Satu dari banyak teknologi yang bisa dimanfaatkan di perusahaan adalah Enterprise Resource Planning (ERP). Banyak perusahaan yang telah menerapkan System ERP ini guna menunjang kinerja dan produktivitas operasional perusahaan. Operasional perusahaan dalam menciptakan produk mempunyai tingkat kesulitan yang berbeda. Setiap perusahaan mempunyai manajemen bisnis dalam menjalankan kegiatan operasional tersebut, yaitu Supply Chain Management (SCM). Mulai dari pengadaan material bahan baku hingga pendistribusian produk jadi banyak di kelola oleh SCM. Guna menjadikan kinerja SCM lebih efektif dan efisien lagi, maka dibutuhkan teknologi dalam pengelolaannya. Teknologi yang dapat digunakan adalah ERP. Diharapkan dengan diterapkannya ERP ini dapat membantu kinerja operasional SCM menjadi semakin produktif lagi.

Kata kunci*: Teknologi, Perencanaan Sumber Daya Perusahaan, Manajemen Rantai Pasokan, Kinerja*

INTRODUCTION

As technology develops, this means that competition between business people is increasing day by day, so that digital technological transformation forces organizations to always adapt to technological developments in order to be able to compete in an increasingly tight market (Wulandari et al., 2023; Iwan & Arisman, 2023). In the 21st century, business development is quite significant and development is quite rapid with continuous changes. Business actors in various types of business are more emphasized on having the ability to adapt to changes that occur, and prioritizing the main goal, namely customer satisfaction (Putri et al., 2023).

Technological developments in the global era have an influence on the development of an organization or a company, changes that have small or large impacts. Digital technology is a transition from employee work systems which mostly use automatic operating systems carried out by computers compared to manual human performance (Jamilati et al., (2023). This technology enables processes in communication, interaction and also in the business world so that it becomes faster and more efficient and can be better connected (Jaiswal et al., 2022; Maharani et al., 2023). Every company, in carrying out activities such as moving materials, obtains information and also finances from the hands of producers. to ready-to-use products by customers (Macnico et al., 2022).

One way for companies can serve their customers better is by improving business performance and implementing effective Supply Chain Management (SCM). By implementing Enterprise Resource Planning (ERP) as a strategic priority, it is hoped that SCM performance will be more efficient. Supply Chain Management controls all processes and integrates all activities. SCM also works efficiently with vendors/suppliers to get products into the hands of customers and balance supply and demand along the way. Enterprise Resource Planning (ERP) includes tools and company performance management. Software that helps organizations plan, budget, estimate and report company financial results (Hwang & Min, 2015; Aziz et al., 2018; Tarigan et al., 2021Wijaya et al., 2023). The ERP system, together with SCM, can function as an effective instrument in order to improve organizational performance and produce better products so as to maintain competitive advantage. An ERP system can potentially increase transparency in all supplies by eliminating information distortion and being able to increase the speed of obtaining information quickly and minimize information delays (Putri et al., 2023).

RESEARCH METHODS

This research method uses the Systematic Literature Review (SLR) research method. The LSR method is a research method used by identifying, analyzing, evaluating and interpreting all previous research results that the researcher obtained. The results of this previous research were then reviewed by the researcher, by systematically reviewing and identifying the selected research articles. Systematic Literature Review (SLR) is a term used to refer to research methodology and development carried out to collect and evaluate research related to the focus topic discussed. If a researcher wants to use the LSR method, the researcher must identify and review several journals systematically and use steps appropriate to the use of the LSR method. Systematic Literature Review (SLR) is a series of processes for identifying, assessing, and analyzing and interpreting everything that is proven in research that has been carried out in accordance with the aim of providing answers to questions that arise in certain research.

In this study, the SLR method was applied with the aim of conducting a systematic and comprehensive literature evaluation related to the related topic. This SLR is used to systematically compile and analyze existing literature to answer questions in certain research. The data used in this research was by collecting data, searching for various articles on Google Scholar with the keywords implementation of the Enterprise Resource Planning (ERP) system in the operational performance of Supply Chain Management (SCM). Data viability for SLR is evaluated. The data used is related to the implementation of ERP in SCM operational performance. The results of this literature study are used as a

basis for analyzing the application of the Enterprise Resource Planning (ERP) system in the operational performance of Supply Chain Management (SCM). How effective and efficient is ERP implementation in helping SCM performance. What benefits do you get from using new technology in this digital era and what are the advantages of this new technology? Based on the articles obtained, related matters will be analyzed and identified.

RESULTS AND DISCUSSION

The research data included in this research is a summary and analysis of 5 articles related to the application of enterprise resource planning (ERP) in the operational performance of Supply Chain Management (SCM). The summary results of these articles are in Appendix 1. Based on the data, this research has been carried out from 5 related journals, research results were obtained for each article, where each article had various results related to the implementation of ERP in SCM operational performance. Each study found that the ERP systems used were different. It was found that there were 2 systems that used SAP, 1 system that used Odoo, 1 system that used JD Edward ERP, and one study did not mention in detail what application or ERP system was used. In these five studies, basically all of them implemented ERP to help in efficient and effective performance, especially in the operational performance of Supply Chain Management.

The process carried out by the Supply Chain starts from purchasing initial raw materials, inventory of raw materials, provision of materials, receipt and storage of finished products until the product is delivered to the customer. All of these activities will definitely relate to many other related departments. In its operational activities, implementing ERP helps the Supply Chain in communicating with other departments operationally. The research above states that by implementing ERP in SCM operational activities you can reduce costs, you can easily track, monitor and find out the use of materials to finished products, thereby minimizing material losses, helping with proper delivery and also monitoring material stock.

However, even though it helps a lot in the SCM operational performance process, the ERP system itself still has shortcomings in its implementation, where these shortcomings are also explained in the research above. For example, the costs of implementing ERP are quite expensive, it takes time to transform from the old system to ERP, and requires qualified technology to implement it. Compared to the weaknesses of ERP, there are still many benefits in operational activities so that companies still choose to use this technology, especially in the increasingly sophisticated digital era. Companies cannot continue to run using the old system, there must be an upgrade every year for better business development.

The findings are in line with previous studies. In line with the development of information systems, in this digital era a business-based application has been developed that can help a company. The application of digital technology can potentially be a useful factor in significantly improving employee performance in achieving goals (Indriyani et al., 2023) and also improving employee skills so that they can be in line with technological advances (Tiara et al., 2023). Humans using technology to help complete their work is something that has now become a necessity in life (Nikmah et al., 2023). Nowadays, with the emergence of technology which is becoming more sophisticated day by day, people in many countries can work efficiently (Sakdiah et al., 2023). One technology that is determining in the business that is being run and can be in line with current developments is the ERP (Enterprise Resource Planning) system, this system has been used in many companies, especially in the manufacturing and service sectors. This ERP system has been implemented by several companies that initially did not really understand how this system worked and now more and more people are using it.

Each company carries out significant development of performance and productivity with the aim of being able to survive and compete with other companies (Marinda et al., 2023). High workforce anxiety regarding digital, automation and technological developments can have a huge impact on the labor market and productivity (Pew

Research Center in (Pratama et al., 2023). Apart from that, a company also needs business management that is run in such a way for the sake of sustainability for the company itself. One type of management that needs to be carried out by a company is Supply Chain Management (SCM) or commonly referred to as supply chain management, which is a process where the company processes raw materials into finished products until they reach the hands of customers (Putri et al., 2023).

Supply Chain Management is a mechanism that integrates all activities involved and also the parties concerned in producing a product from raw materials to finished goods (Atatsi et al., 2019; Votto et al., 2021). The supply chain also has responsibility for distributing goods and delivering finished products to customers at the right time and place in the most efficient way. Supply Chain Management can also be defined as an approach used to achieve efficient integration of suppliers, manufacturers, distributors, retailers and customers. This means that goods are produced in the right quantity, at the right time, and in the right place with the aim of achieving a minimum cost of the overall system and also achieving the desired service level (Khan et al., 2020; Cuandra et al., 2022). SCM pays a lot of attention to production which involves many activities, including attention to policy decisions, new product development, process problems, work calls, sales numbers and so on (Laili et al., 2023).

To maximize profits, the company will improve performance, work efficiency, fast service and meet expectations. Usually, consumers consider price and quality. The important role of all parties from suppliers, manufacturers, distributors, retailers to customers in creating cheap, high-quality and fast products is what gave birth to a new concept, namely supply chain management (Putri et al., 2023).

Every company cannot be separated from the existence of a supply chain to support the smooth running of its business. Therefore, various systems are designed to increase the efficiency of processes that occur from material availability to finished products. The world of business and industry will always develop following technological developments and competition. In order to achieve smoothness and efficiency in a company's operational activities, companies can implement an enterprise resource planning (ERP) system which can help with finances, inspections and supply chain management (Hwang, & Min, 2015; Aziz et al., 2018; Tarigan et al., 2021; Wijaya et al., 2023)

CONCLUSION

Based on this research, it can be concluded from several overall research results, namely regarding the application of Enterprise Resource Planning (ERP) in the operational performance of Supply Chain Management (SCM). Research conducted on several companies states that implementing ERP is very helpful in operational activities, especially in SCM. Companies that implement ERP can make SCM performance more effective and efficient so that they can reduce production and distribution costs. Starting from the material procurement process, storage, to distribution, this ERP system can help so that damage and loss of goods can be minimized. The ERP used by each company is different, some use SAP, Odoo, and JD Edward ERP. There are many types of ERP, but basically the goal is the same. Even though the implementation of ERP still has weaknesses and shortcomings, there are still many impacts on performance effectiveness that are felt, so that SCM can better control goods and the goods flow process.

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Appendix

Appendix 1. Summary of articles

No	Researcher	Year	Title	Journal	Research result
1	Tata Fransiska Putri, Destiana Safitri, Putri Tazkia, Sevilla Nadia Amada, Xena Amanda, Yuliana Shintia, Wisnu Yuwono, Fitriana Aidnilla Sinambela	2023	Implementation of the Enterprise Resource Planning System and Chain System Performance Supply to PT Unilever Indonesia	JUEB: Journal of Economics and Business	The research results show that PT Unilever Indonesia has implemented an ERP system since 2006, the program used is SAP. Implementing ERP, PT Unilever Indonesia can help existing SCM to increase company efficiency which of course can reduce costs. There are 4 stages of PT Unilever Indonesia in carrying out SCM operations, namely Supplier, Manufacturing, Warehousing and Distribution Center. All of these activities use the SAP ERP system.
2	Antonio Tantra Wijaya, Bernard, Edwin, Erick, Jeslyn, Rieza Melinda	2023	Implementation of the Enterprise Resource Planning System and Chain System Performance Supply to PT Unilever Indonesia	Tambusai Education Journal	From the research results it can be seen that the ERP system used by PT. TDK Electronics Indonesia is an Aveva application. PT. TDK Electronics Indonesia has implemented the Aveva ERP system since 2021. Since the implementation of the company's ERP system, it has become easier to track, monitor and find out all damage to machines or the position of raw materials and can speed up all work processes so that they are more efficient and cost effective.
3	Fidia, Peter Macnico, Julia Christini, Novi Sandra, Yuni Nuraeni, Nasar Buntu Laulita, Fendy Cuandra	2022	Analysis of the Implementation of ERP-Based Supply Chain Management in the PT Semen Indonesia Tbk Distribution system	TRANSECONOMICS: Accounting, Business and Finance	PT. Sinar Sosro implemented this ERP system using the SAP program. The implementation of the SAP ERP system can overcome problems in inventory scheduling because everything is well documented and also helps with accounting and book closing issues.
4	Ria Andika & Diana	2020	Analysis of the Implementation of Enterprise Resource Planning (ERP) at PT Sinar Sosro Palembang	Journal of Information Systems Development and Informatics	PT. Sinar Sosro implemented this ERP system using the SAP program. The implementation of the SAP ERP system can overcome problems in inventory scheduling because everything is well documented and also helps with accounting and book closing issues.
5	Suminten	2019	Implementation of Enterprise Resource Planning (ERP) in the Odoo-Based Pithik Sambel Ndesso Business	PROSISKO Journal	Based on the research results, Pithik Sambel Ndesso Business has implemented the Odoo ERP system. Implementing the Odoo system helps in managing raw materials. In addition, all information about past income can be tracked easily and can be backed up too.