



Department of Digital Business

Journal of Artificial Intelligence and Digital Business (RIGGS)

Homepage: <https://journal.ilmudata.co.id/index.php/RIGGS>

Vol. 2 No. 2 (2024) pp: 36-42

P-ISSN: 2963-9298, e-ISSN: 2963-914X

Enterprise Resource Planning Based Management Information System for Micro, Small and Medium Enterprises in Indonesia: A Systematic Literature Review

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Abstract

This study is a systematic literature review on ERP-Based Management Information Systems for MSMEs (Micro, Small and Medium Enterprises) in Indonesia. Through an analysis of previous studies, the findings show that the use of ERP can integrate various business functions in one integrated system, automate business processes, and provide fast access to real-time information, thereby increasing the operational efficiency and productivity of MSMEs. The research method in this paper is carried out systematically, starting with identifying research questions and determining the paper's contribution. Furthermore, a search strategy was carried out, selecting relevant and quality documents and extracting data to produce output in this study. The results show that ERP provides integrated data access, enables better and more informed decision-making, and helps plan business growth better. Although ERP adoption requires initial investment and wise management, the use of ERP has proven to impact the competitiveness and growth of MSMEs in Indonesia positively. This study will provide an in-depth understanding of the ERP-Based Management Information System and contribute to developing strategies and policies that support the growth and sustainability of the MSME sector in Indonesia.

Keywords: ERP, Management Information System, MSMEs, Indonesia, Systematic Literature Review

1. Introduction

Indonesia is currently dealing with many difficulties due to globalization and the advancement of information technology. MSMEs (Micro, Small and Medium Enterprises) play an important role in the Indonesian economy [1], [2] contributing a large proportion of employment and contribution to the country's economic growth [3], [4]. However, MSMEs in Indonesia still face various obstacles, especially regarding information management. Many MSMEs still manage their business traditionally without the support of integrated information systems [5], [6], [7]. As a result, they often have difficulty facing global competition and optimizing their business potential.

ERP (Enterprise Resource Planning) is an integrated information management solution that has proven effective in increasing operational efficiency and decision-making for large companies [8], [9], [10]. However, ERP implementation among MSMEs in Indonesia is still limited and requires an in-depth understanding of the challenges and associated benefits. The successful use of ERP in MSMEs needs to be supported by a comprehensive understanding of the

MSME business context in Indonesia and the obstacles that may be encountered.

Previous research on ERP in Indonesian MSMEs was still limited and tended to be fragmentary. Most of the research focuses more on the technical aspects of implementation rather than providing a thorough understanding of the success or failure of ERP in supporting MSME growth [11], [12], [13]. Therefore, this scientific article aims to carry out a systematic literature review on using ERP-based information management systems in the MSME environment in Indonesia.

This study will guide stakeholders, including MSME business owners, software developers, and other parties involved in implementing and using ERP in MSMEs. In addition, this article will also provide valuable information for the government and other institutions in designing policies that support growth and innovation in the MSME sector.

In today's digital economy, access to information and technology is critical to business success. However, many MSMEs in Indonesia face limited resources and

skills in adopting sophisticated information technology such as ERP. Therefore, it is necessary to have a deep understanding of how MSMEs can overcome these obstacles and exploit the full potential of an ERP-based information management system.

In addition, the rapid growth of information technology and the adoption of ERP by large enterprises have completely changed the business landscape. MSMEs that want to remain competitive and competitive must be able to adapt to this change. However, technology adoption can also pose certain risks, including data security issues, high implementation costs, and organizational challenges in changing established business processes [14], [15], [16].

In this study, we will analyze various previous studies conducted on ERP in Indonesian MSMEs. The specific focus includes benefits, barriers, successful strategies, and implementation studies from the MSME perspective. In addition, it will also identify remaining research gaps and provide recommendations for future research to increase understanding of this topic.

By understanding the challenges and benefits of using ERP in Indonesian MSMEs, this scientific article can positively contribute to developing and using a more effective and competitive information management system for MSMEs in this country. With the right adoption and support from various stakeholders, Indonesian MSMEs can optimize their business potential, improve operational efficiency, and remain relevant in facing global challenges.

This study aims to conduct systematic literature observations on the implementation and benefits of Enterprise Resource Planning (ERP)-based Management Information Systems in the scope of Micro, Small and Medium Enterprises (MSMEs) in Indonesia. This research aims to identify trends, challenges, and successful implementation of the system and present a holistic picture of its contribution to operational efficiency, decision-making, and growth of MSMEs in the Indonesian business context. Thus, this research aims to provide readers with an in-depth understanding of the impact and potential of implementing an ERP-based Management Information System on MSMEs in Indonesia so that it can become the basis for further research and implementation in supporting the development of the MSME sector in this country.

2. Materials and Methods

This chapter will describe the systematic approach used in this literature review. This research is based on a systematic method to collect, filter, and analyze relevant scientific articles about using an ERP-based information management system in Indonesian MSMEs. This systematic approach includes several

steps, including identification of sources of information, selection of inclusion and exclusion criteria, and analysis and synthesis of data from relevant articles.

The research method in this paper is carried out systematically, starting with identifying research questions and determining the paper's contribution. Furthermore, a search strategy was carried out, selecting relevant and quality papers and extracting data to produce output in this study [17], [18], [19].

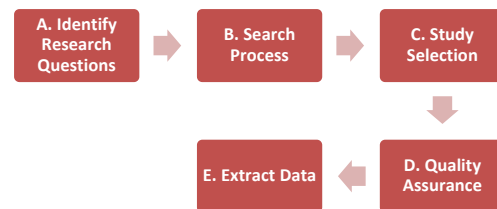


Figure 1. Systematic literature review phase for this study [19]

2.1. Research Questions

This study has three main research questions formulated sequentially to help understand the research focus. These research questions aim to collect the necessary data and form a contribution to the paper. The research questions posed are as follows:

- How does implementing an ERP-based information management system increase the operational efficiency and productivity of Micro, Small and Medium Enterprises (MSMEs) in Indonesia?
- What are the main obstacles faced by Indonesian MSMEs in adopting and implementing an ERP-based information management system, and how can these challenges be overcome?
- How does using an ERP-based information management system impact strategic decision-making and the long-term growth of MSMEs in Indonesia?

With these questions, this literature review will seek comprehensive answers about the benefits, challenges, and impacts of using an ERP-based information management system for MSMEs in Indonesia.

2.2. Research Design

The review search process is carried out following a certain strategy by using the identification of terms that are relevant and applied in the study, such as "ERP", "Management Information System", "ERP based Management Information System", "MSMEs in Indonesia", and "ERP-Based Management Information System for MSMEs in Indonesia". The use of research questions is a reference in developing this strategy. The database selection includes digital library sources with a high reputation, namely Scopus, ACM Digital Library, IEEE, and Science Direct. The search process was done by searching for information based on titles,

keywords, abstracts, introductions, results, discussions, conclusions, and relevant research topics from 2018 to 2023. This information is presented in Table 1.

Table 1. The Database Search Process

Searching Index	Content Specific
Database	Scopus, ACM Digital Library, IEEE, and Science Direct
Article Type	Scientific or technical articles publish in reputable peer-reviewed journals conferences
Search Strings	"ERP", "Management Information System", "ERP based Management Information System", "MSMEs in Indonesia", and "ERP-Based Management Information System for MSMEs in Indonesia"
Language	English
Search Period	2018 – 2023
Screening Procedure	The title, abstract, introduction, discussion, and conclusion of each article are all relevant to the research topic

2.3. Study Selection

Table 2 shows the inclusion and exclusion criteria formulated to select relevant articles related to the research topic.

Table 2. Inclusion and Exclusion Criteria in Research

Criteria	Description
Inclusion	Articles from journals or relevant conferences
	Articles with content in the English language
	Articles which make use of ERP-Based Management Information System for MSMEs in Indonesia
Exclusion	Articles prior to 2018
	Articles from secondary sources
	Articles duplicated in other databases
	Articles which were not done about ERP-Based Management Information System for MSMEs in Indonesia
	Articles which do not have a relationship with ERP-Based Management Information System for MSMEs in Indonesia
	Articles which only mention the terms "ERP", "Management Information System", "ERP based Management Information System", "MSMEs in Indonesia", and "ERP-Based Management Information System for MSMEs in Indonesia" without applying it to the research.

2.4. Quality Assurance and Extract Data

At this stage, assessment and evaluation of the quality of included or excluded articles are carried out, considering predetermined inclusion and exclusion criteria. The selection process was carried out carefully to ensure that the selected articles were under the focus of the research and were of adequate quality. Relevant and quality articles will form the basis of further data analysis. This systematic approach will likely result in an in-depth and objective literature review on using an

ERP-based information management system in Indonesian MSMEs.

3. Results and Discussions

This section presents the findings and discussion of the three research questions formulated in this systematic literature review. As the main objective of this research, we are trying to dig deeper into the ERP-Based Management Information System for MSMEs in Indonesia. ERP-based information management systems have become an interesting and relevant topic in the context of MSMEs in Indonesia, where the challenges and opportunities this sector faces continue to evolve along with the rapidly changing business environment. Through a comprehensive literature review, we hope to provide in-depth insight into how ERP can contribute to operational efficiency, strategic decision-making, and the long-term growth of MSMEs in Indonesia.

Implementing an ERP-based information management system contributed significantly to MSMEs in Indonesia, helping to improve their operational efficiency and productivity [20], [21]. Integrating business processes in a unified system enables the automation of routine tasks and real-time performance monitoring, providing great benefits in making the right and strategic decisions [22], [23]. However, we also identified several obstacles MSMEs face in adopting and implementing ERP, such as limited funds and IT skills [24], [25]. To address this challenge, important recommendations for government support and ERP solution providers that are more affordable and accessible to MSMEs.

To achieve long-term growth, an ERP-based information management system has proven to play an important role for MSMEs in increasing competitiveness and business opportunities. Integrated data and information help MSMEs plan more effective marketing strategies, identify market trends, and create added customer value. Therefore, ERP can positively impact the growth and development of MSME businesses in Indonesia if properly implemented and managed wisely.

3.1. The Contribution of the Implementation of an ERP-Based Information Management System to the Operational Efficiency and Productivity of MSMEs in Indonesia

This study found that implementing an ERP-based information management system positively contributed to the operational efficiency and productivity of MSMEs in Indonesia [26], [27], [28]. Many studies show that using ERP can integrate various business functions, such as accounting, production, inventory, and sales, in one integrated system [29], [30]. This enables MSMEs to automate business processes, reduce

manual work, and increase operational efficiency. In addition, ERP also provides quick access to real-time information, enabling more timely and accurate decision-making, thereby increasing the productivity and overall performance of MSMEs.

Implementing an ERP-based information management system has been proven to increase the operational efficiency of MSMEs in Indonesia. With the integration of business processes that take place automatically, MSMEs can avoid data duplication, reduce the time needed for various administrative tasks, and eliminate human errors [31], [32], [33]. This allows MSMEs to focus more on their core business activities, such as product development and customer service, which can increase overall productivity.

In addition, ERP implementation also provides benefits in managing supply chains and inventories. With better visibility of market supply and demand, MSMEs can optimize their supply, avoid shortages or excess stocks, and improve demand forecasting accuracy [34], [35], [36]. All of this helps reduce operational costs and increase efficiency in inventory management.

Using an ERP-based information management system also allows MSMEs to improve cooperation between departments and teams within the company [37]. Data integration and centralized access to information enable better collaboration in decision-making and task execution, increasing teamwork and creativity in finding solutions to business problems [38], [39].

MSMEs in Indonesia can use several examples of ERP systems to help improve their operational efficiency and business management. One popular example is Odoo, an open-source ERP software with various modules that can be adapted to the business needs of MSMEs, Figure 2. Odoo includes modules for inventory management, accounting, sales, purchasing, and production, which enables MSMEs to manage all their business processes in one integrated platform [40].



Figure 2. Odoo ERP Open-Source [41]

Besides Odoo, SAP Business One is an example of an ERP system popular among MSMEs. SAP Business One, Figure 3, is specifically designed to meet the needs of MSMEs with medium business scales. This system provides complete functionality in financial management, inventory, sales, and production and provides in-depth data analysis for strategic decision-making [42], [43].

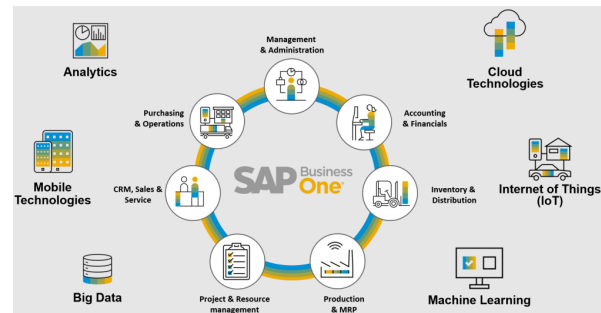


Figure 3. SAP Business One [44]

Furthermore, Zoho One is an example of a cloud ERP system suitable for MSMEs who want to adopt the latest technology without spending much money. Figure 4 Zoho One provides a variety of integrated business applications, including CRM (Customer Relationship Management), accounting, inventory, and team collaboration, which enables MSMEs to manage their business more efficiently and flexibly [45].

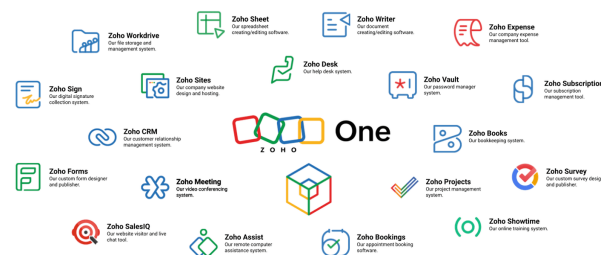


Figure 4. Zoho One ERP cloud [46]

The decision on the right ERP system should be based on the SME's size, needs and resources. Selection and implementation of the right ERP system can help MSMEs in Indonesia to achieve higher operational efficiency, improve strategic decision-making, and achieve sustainable long-term growth. With all these positive contributions, implementing an ERP-based information management system has helped MSMEs in Indonesia become more competitive and efficient in facing global competition and optimizing their growth potential.

3.2. Barriers and Challenges in the Adoption and Implementation of ERP-Based Information Management Systems by Indonesian MSMEs

There are many significant challenges that Indonesian MSMEs must overcome to adopt and operate an ERP-based information management system. One of the

main barriers is associated with high initial investment and implementation costs. Many MSMEs have limited funds, thus requiring appropriate funding to adopt ERP technology [47], [48]. In addition, the need for more human resources trained in IT is also a challenge [49], [50]. SMEs must overcome difficulties finding a workforce with sufficient skills and knowledge to manage and operate ERP systems effectively.

Adopting and implementing an ERP-based information management system for MSMEs in Indonesia sometimes runs smoothly. One of the main obstacles is limited funding and competent human resources. ERP implementation requires a significant initial investment in software, hardware and employee training. Many MSMEs, tiny ones, need more funds to finance this project. In addition, the lack of a workforce with skills in information technology and ERP management can also be an obstacle in adopting and operating the system.

In addition, data safety and privacy concerns are often obstacles for MSMEs to adopt ERP. MSMEs are often doubtful about the security of their data and are reluctant to store sensitive business data in cloud-based systems. Security flaws can cause enormous business losses, so data protection is a top priority in ERP implementations.

To overcome these obstacles, MSMEs need support from external parties, such as the government, business associations, and ERP solution providers. The government can provide incentives and subsidies for MSMEs who wish to adopt ERP to encourage more participation. In addition, training and mentoring in ERP implementation can help overcome employee skills shortages. In addition, ERP solution providers must present products that are easier to implement and more affordable prices, especially for MSMEs on a smaller scale.

3.3. The Impact of Using an ERP-Based Information Management System on Strategic Decision-Making and Long-Term Growth of MSMEs in Indonesia

The use of an ERP-based information management system has been proven to positively impact strategic decision-making and the long-term growth of MSMEs in Indonesia. With fast and accurate access to business data and information, MSME management can make better and more informed decisions [51], [52]. The ERP system's data also help MSMEs identify market trends, consumer behaviour, and new business opportunities [53], [54]. This enables MSMEs to formulate more effective strategies for long-term business growth and development. Furthermore, by increasing operational efficiency and productivity, the use of ERP can help MSMEs increase their market competitiveness and achieve sustainable growth.

The literature review shows that the use of an ERP-based information management system has a positive impact on MSME strategic decision-making in Indonesia. ERP systems help MSME management make better and more informed decisions by providing fast and real-time access to relevant business data. Accurate and up-to-date information enables management to identify business opportunities, deal with risks and anticipate market changes more effectively.

In the long term, using an ERP-based information management system has been proven to support the growth and development of MSME businesses. By increasing operational efficiency and productivity, MSMEs can better allocate their resources and improve the quality of products and services. This contributes to increasing customer satisfaction, expanding market share, and strengthening the company's brand image [55], [56], [57]. In addition, with integrated data and information, MSMEs can better plan their business growth, identify market trends, and adapt to changing consumer needs.

However, remember that this positive impact cannot be guaranteed automatically. The effectiveness of using ERP depends on how MSMEs manage data and implement business processes in the system. Therefore, the right approach in adopting and implementing ERP and management's commitment to wisely utilize the information generated is critical in achieving a significant impact on strategic decision-making and the long-term growth of MSMEs in Indonesia.

4. Conclusion

This study's findings and analysis can provide an in-depth understanding of the ERP-Based Management Information System for MSMEs in Indonesia and become an essential contribution to developing strategies and policies that support the growth and sustainability of the MSME sector in this country. This literature review reveals that implementing an ERP-based information management system can significantly contribute to increasing operational efficiency, productivity, and strategic decision-making within MSMEs in Indonesia. Even though there are several obstacles and challenges in ERP adoption and implementation, the right strategy and adequate support can help MSMEs to overcome these obstacles. Therefore, implementing an ERP-based information management system is essential in supporting the growth and sustainability of MSMEs in Indonesia. Further research can be conducted to investigate more specific aspects of ERP implementation and identify best practices in implementing ERP in Indonesian MSMEs.

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