

ANALYSIS OF THE INFLUENCE OF MANAGEMENT INFORMATION SYSTEMS ON THE EFFECTIVENESS OF DECISION MAKING IN E-COMMERCE COMPANIES

Ardiana Rahmadania¹, Devi Aulia Sari², Rayyan Firdaus³

^{1,2,3}Accounting Study Program, Faculty of Economics and Business, Universitas Malikussaleh, Indonesia
Email: ardiana.230420056@mhs.unimal.ac.id¹, devi.230420047@mhs.unimal.ac.id², rayyan@unimal.ac.id³
Corresponding Author: rayyan@unimal.ac.id

Received : 15 Mei 2025

Revised : 5 Juni 2025

Accepted : 30 Juni 2025

Published : 13 July 2025

DOI : <https://doi.org/10.54443/ijset.v4i9.881>

Publish Link : <https://www.ijset.org/index.php/ijset/index881>

Abstract

This study aims to analyze the influence of management information systems (MIS) on the effectiveness of decision making in e-commerce companies. An effective MIS is able to provide accurate, complete, and real-time data to support managers in formulating strategies. A qualitative literature study was conducted by reviewing various relevant scientific sources. The results of the analysis show that MIS has a positive and significant influence on the effectiveness of decision making, with analytical technology, cloud computing, and big data playing an important role. Challenges such as data security, HR competency, and technology readiness still need to be addressed. Proper implementation of MIS can improve operational efficiency, customer satisfaction, and competitiveness of e-commerce companies.

Keywords: *Management Information System, Decision Making, E-Commerce, Effectiveness, Literature Review*

INTRODUCTION

In this increasingly advanced digital era, information technology has become a crucial foundation for the success of business operations and strategies in various sectors, including the dynamic e-commerce industry. A company's ability to manage data effectively and efficiently plays a central role in determining the success of timely and accurate decision-making (Laudon & Laudon, 2020). In this context, Management Information Systems (MIS) are present as one of the main technologies that support the process of processing raw data into high-value strategic information (O'Brien & Marakas, 2017). Management Information Systems (MIS) are one of the key technologies that support the process of processing data into strategic information. E-commerce companies need a system that is able to provide real-time and integrated data in order to respond to market dynamics quickly. Accurate and relevant data will make it easier for managers to make strategic decisions that support the growth and competitiveness of the company (Hidayat et al., 2022). Effective use of MIS can improve the quality of decision-making, which has a direct impact on business sustainability and success.

So far, many e-commerce companies have experienced obstacles in collecting and using data. The inability to integrate data from various sources or the lack of adequate technology is often the cause of suboptimal decision-making (Kurniawan & Pratama, 2023). Therefore, the implementation of the latest technology-based information system is very important in overcoming these obstacles. Furthermore, previous studies have shown that the role of MIS in decision-making is not only as a data provider, but also as an analytical tool that supports the creation of more effective and efficient strategies (Setiawan & Nugroho, 2022). E-commerce companies, especially small and medium-sized ones, still face significant obstacles in collecting, processing, and utilizing data. The inability to integrate data from various sources, such as sales data, inventory data, customer data, and marketing data, or the lack of adequate technology is often the cause of suboptimal and ineffective decision-making (Kurniawan & Pratama, 2023). Therefore, the implementation of the latest technology-based information systems, such as cloud computing, big data analytics, and artificial intelligence, is very important in overcoming these obstacles and improving operational efficiency (Bharadwaj et al., 2013). For example, big data analytics and artificial intelligence can now

provide previously unavailable insights, accelerating even complex decision-making processes. On the other hand, the effectiveness of decision-making is a crucial factor in increasing the competitiveness of a company. Decisions taken quickly and accurately can provide a significant competitive advantage, especially in the highly dynamic and competitive e-commerce industry (Suryana & Kurniawan, 2022). Therefore, it is important to analyze the extent to which the role of management information systems influences the effectiveness of such decision-making. However, although the benefits of MIS are quite large, its implementation does not always run optimally. Many internal and external factors influence the success of implementation, ranging from the availability of human resources to technological readiness and organizational culture (Yuliana & Rachmawati, 2021). Therefore, this study aims to examine this relationship empirically in the context of e-commerce companies in Indonesia. Modern e-commerce companies need a system that is able to provide real-time and integrated data, so that they can respond to market dynamics with speed and accuracy (Hidayat et al., 2022). Accurate and relevant data will significantly facilitate managers in formulating and making strategic decisions that support growth, increase competitiveness, and strengthen the company's position in the market (Porter, 2008). Effective use of MIS not only improves the quality of decision making, but also directly impacts the sustainability and long-term success of the business.

Furthermore, previous studies have shown that the role of MIS in decision-making is not only limited to providing raw data, but also as a sophisticated analytical tool that supports the creation of more effective, efficient, and innovative strategies (Setiawan & Nugroho, 2022). For example, big data analytics and artificial intelligence are now able to provide insights that were previously unavailable or difficult to access, significantly accelerating the decision-making process, even for complex problems (Provost & Fawcett, 2013). Thus, companies can identify emerging market trends, understand customer behavior more deeply, and optimize marketing strategies to increase sales and customer loyalty (Kohavi et al., 2020). On the other hand, the effectiveness of decision-making is a crucial factor in increasing the competitiveness of companies in the increasingly competitive digital era. Decisions taken quickly and accurately can provide a significant competitive advantage, especially in the e-commerce industry which is very dynamic and vulnerable to change (Suryana & Kurniawan, 2022). Therefore, it is important to carefully analyze the extent to which the role of management information systems actually affects the effectiveness of such decision making in e-commerce companies. However, it should be noted that although the benefits of MIS are enormous, its implementation does not always run optimally or produce the expected results (DeLone & McLean, 2003).

Many internal and external factors can influence the success of MIS implementation, ranging from the availability of human resources with appropriate skills and knowledge, to technological readiness, an organizational culture that supports innovation, and support from top management (Yuliana & Rachmawati, 2021). Resistance to change, lack of adequate training, and data security issues can also hinder the effectiveness of MIS (Alalwan et al., 2017). Therefore, this study aims to empirically examine the relationship between MIS and decision-making effectiveness by considering relevant contextual factors in the context of e-commerce companies in Indonesia. By highlighting the importance of the strategic role of MIS in decision-making, this study is expected to provide a clearer and more comprehensive picture of its influence on decision-making effectiveness in e-commerce companies. The findings of this study are expected to be the basis for strategic recommendations for companies in optimizing the use of existing information technology and making more appropriate investments in the development of information systems that can support faster, more accurate, and more adaptive decision-making (Prasetyo & Ramadani, 2023). This is very important for e-commerce companies to be able to face increasingly complex market challenges, adapt to technological changes, and remain competitive in today's rapidly developing digital era.

LITERATURE REVIEW

The development of information technology has become a major driver in business transformation in various sectors, especially in the e-commerce industry which relies on data and information as the main resource (Laudon & Laudon, 2020). Management Information Systems (MIS) play an important role in supporting the processing of this data so that it can be accessed and used effectively in decision making (Hidayat et al., 2022). A quality MIS is able to provide accurate, complete, and real-time data, making it easier for managers to formulate strategies and operational steps. According to Turban et al. (2018), MIS is a combination of hardware, software, data, procedures, and people used to support management decision making. In the context of e-commerce, MIS not only functions as a transaction recorder, but also as an analytical tool that supports the development of marketing strategies, inventory management, and customer experience (Kurniawan & Pratama, 2023). Therefore, the quality and integration of this system are key factors in the success of the company. Several studies have shown that effective use of MIS can improve operational efficiency and accelerate strategic decision-making (Setiawan & Nugroho, 2022). For example, analytical and business intelligence systems enable companies to identify market trends, consumer behavior, and

ANALYSIS OF THE INFLUENCE OF MANAGEMENT INFORMATION SYSTEMS ON THE EFFECTIVENESS OF DECISION MAKING IN E-COMMERCE COMPANIES

Ardiana Rahmadania et al

business opportunities faster than conventional methods (Sharma & Kedia, 2020). This is very important in the dynamic and competitive e-commerce industry. In addition, the application of cloud computing-based technology in MIS increases the flexibility and scalability of the data processed (Prasetyo & Ramadani, 2023). Cloud computing allows companies to manage data from various sources centrally and securely, so that the decision-making process becomes more responsive to changing market conditions (Yuliana & Rachmawati, 2021). This technology also facilitates data access from different locations, supporting decision-making in the field or outside the office.

Furthermore, big data analysis supported by MIS enables companies to process large and disparate volumes of data in a very short time. According to Chen et al. (2019), big data analytics provides insights that cannot be obtained from traditional data analysis, so that decisions taken are more targeted. In the context of e-commerce, this analytics can be used to improve customer experience and strengthen marketing decisions. However, in its implementation, MIS also faces challenges such as data security, human resource competence, and technological readiness in the organization (Yuliana & Rachmawati, 2021). Some companies have not been able to fully utilize the full features of the existing system due to these constraints. Other research shows that organizational readiness and company culture greatly influence the success of MIS implementation (Suryana & Kurniawan, 2022).

In addition, measuring the effectiveness of MIS in supporting decision-making is often associated with the speed, accuracy, and relevance of available data (Hidayat et al., 2022). The speed of data access and processing is very important so that decisions can be made in a timely manner, especially when market conditions change rapidly. Data relevance also affects the quality of the resulting decisions. Other studies state that periodic data analysis can improve control and render decisions more solidly (Sharma & Kedia, 2020). Good system integration and quality user training can increase the effectiveness of information system-based decision-making. Therefore, the success of MIS implementation must be supported by technology and human resource factors. Finally, various studies and existing literature show that management information systems are an important factor that significantly influences the effectiveness of decision-making in e-commerce companies. The development and improvement of MIS quality are absolutely necessary to support fast, accurate, and relevant data-based decision-making (Prasetyo & Ramadani, 2023).

METHOD

The methodology used in this literature review is a qualitative approach and documentation study. Data were collected through a systematic review of various academic sources, such as journal articles, books, research reports, and trusted scientific sources that are relevant to the topic. The source selection process was carried out using inclusion and exclusion criteria to ensure the relevance and quality of the data. Inclusion criteria include publications published in the last 5 years (2019–2023), from indexed scientific journals, and articles that directly discuss the relationship between management information systems and decision making in the context of e-commerce. While exclusion criteria include sources that are not peer-reviewed, theories that are not directly related, or incomplete and irrelevant data. Data collection was carried out electronically through databases such as Google Scholar, ScienceDirect, SpringerLink, and IEEE Xplore. Each document that met the criteria was then critically analyzed and organized based on main themes, such as MIS benefits, challenges, technologies used, and influences on decision making.

Furthermore, the analysis was conducted using a semi-qualitative content analysis method that aims to identify patterns, trends, and relationships between variables from various sources. The results of this literature study are summarized and compiled to answer the research objectives, namely to understand the influence of MIS on the effectiveness of decision making in e-commerce companies. In this process, data integrity and source authenticity are maintained by recording citation and reference details, as well as cross-checking the data obtained. This methodology is expected to provide a comprehensive picture and analyze the relationship between variables holistically based on existing scientific literature.

RESULT AND DISCUSSION

Based on the literature analysis conducted, it was found that in general, management information systems (MIS) have a positive and significant influence on the effectiveness of decision-making in e-commerce companies. Several studies have shown that MIS can accelerate the data processing process and provide accurate, complete, and relevant information for decision makers (Laudon & Laudon, 2020; Hidayat et al., 2022). This allows managers to make strategy adjustments more quickly in the face of dynamic market changes. In addition, the use of analytical technology and business intelligence in MIS opens up great opportunities to improve the quality of decision-making. According to Sharma and Kedia (2020), data that is analyzed automatically and in real time can help companies identify market trends, consumer behavior, and new opportunities more precisely. This shows that MIS not only

functions as a data storage, but also as an analytical tool that supports the development of more accurate and fact-based strategies. The use of cloud computing technology also has a positive impact on the effectiveness of decision-making. The scalability and ease of access to data from multiple locations enable managers and teams in e-commerce companies to obtain up-to-date information anytime and anywhere (Prasetyo & Ramadani, 2023). As a result, decision-making is no longer hampered by geographical limitations or limited technological infrastructure, so that responses to market dynamics can be carried out quickly and more responsively. Furthermore, big data analysis supported by MIS enables companies to process large and diverse volumes of data in a short time. Chen et al. (2019) stated that big data analytics is able to provide insights that were previously unreachable by conventional analysis. In the context of e-commerce, these analytics can be used for marketing personalization, stock optimization, and market trend prediction, all of which contribute directly to the success of strategic decision-making.

However, the success of MIS implementation is not without challenges that must be overcome. One of them is data security and customer privacy, which is a major concern in this digital era (Yuliana & Rachmawati, 2021). Many companies face the risk of data leaks and cyber attacks that can endanger operational continuity and reduce customer trust. Therefore, security factors must be a top priority in the development and management of MIS. In addition to the security aspect, another obstacle is the availability and competence of human resources. Many companies do not yet have sufficient experts in MIS-based data management and analysis (Suryana & Kurniawan, 2022). The lack of training and organizational culture that supports digital transformation also slows down the full utilization of MIS features and capabilities. This shows that the success of MIS implementation depends not only on technology, but also on the readiness of human resources. The measurement of the effectiveness of MIS itself is generally based on the speed of data access, accuracy, relevance, and direct impact on decision making.

Data speed and accuracy are the main factors that determine the success of timely and quality decision making (Setiawan & Nugroho, 2022). In the highly competitive context of e-commerce, a decision delay of even a few minutes can cause huge losses. In addition, good system integration and regular user training also increase the effectiveness of MIS in supporting decision making. Studies show that a high level of technology adoption across organizational positions strengthens the effectiveness of data-driven decision making (Yuliana & Rachmawati, 2021). In other words, success depends not only on technology, but also on the readiness of the organization to adapt and utilize it optimally. Finally, in general, the literature shows that improving the quality and capabilities of MIS has a positive impact on the effectiveness of decision making in e-commerce companies. The availability of fast, accurate data and in-depth analytics allows managers to be more confident in choosing the best strategy and responding quickly to market changes (Chen et al., 2019). Therefore, investment in MIS technology and HR development is a key strategy to increase competitiveness in this digital era.

CONCLUSION

From the results of the literature analysis, it can be concluded that the management information system (MIS) has a crucial role in improving the effectiveness of decision making in e-commerce companies. Integrated and quality MIS is able to provide accurate, relevant, and timely information, thus supporting managers in responding to market dynamics and making strategic decisions.

Suggestion

Based on the research findings, here are some suggestions that e-commerce companies can consider:

1. **Investment in SIM Technology:** Companies must invest in developing and improving the quality of MIS, including the implementation of analytical technology, cloud computing, and big data.
2. **Human Resources Development:** Companies must provide training and development to employees to improve their competency in managing and analyzing MIS-based data.
3. **Data Security:** Companies must prioritize data security and customer privacy in the development and management of MIS.
4. **System Integration:** Companies must ensure good integration between MIS and other operational systems, such as sales, inventory, and logistics systems.
5. **Periodic Evaluation:** Companies must conduct periodic evaluations of the effectiveness of MIS in supporting decision making and make necessary improvements.

Research Limitations

This study has several limitations that need to be considered:

1. **Research methods:** This research uses a qualitative literature study method, so the results may not be widely generalizable.

2. **Literature Coverage:** This study only includes literature available in the databases accessed, so there may be other relevant studies that are not covered.
3. **E-Commerce Context:** This research focuses on e-commerce companies in general, without considering the differences in characteristics and needs between e-commerce segments.
4. **Contextual Factors:** This study did not consider contextual factors such as organizational culture, government regulations, and economic conditions that may influence MIS effectiveness and decision making.
5. **Company Size and Type:** This study did not differentiate between the size and type of e-commerce companies (e.g., startups vs. large enterprises, B2C vs. B2B), which could affect the study findings.

REFERENCES

- Bharadwaj, A., El Sawy, O. A., Pavlou, P. A., & Venkatraman, N. (2013). Digital business strategy: Toward a next generation of insights. *MIS Quarterly*, 37(2), 471-482.
- DeLone, W. H., & McLean, E. R. (2003). The DeLone and McLean model of information systems success: A ten-year update. *Journal of Management Information Systems*, 19(4), 9-30.
- Chen, M., Mao, S., & Liu, Y. (2019). Big data: A survey. *Mobile Networks and Applications*, 24(4), 999-1010. <https://doi.org/10.1007/s11036-018-1087-4>
- Hidayat, R., Setiawan, A., & Agung, P. (2022). Pengaruh sistem informasi terintegrasi terhadap kecepatan pengambilan keputusan di perusahaan e-commerce. *Jurnal Teknologi dan Sistem Informasi*, 8(2), 127-139.
- Kurniawan, A., & Pratama, R. (2023). Cloud computing dan efektivitas pengambilan keputusan pada perusahaan e-commerce di Indonesia. *International Journal of Business and Technology*, 15(1), 45-60.
- Kohavi, R., Tang, D., & Xu, Y. (2020). Trustworthy online controlled experiments: A practical guide to A/B testing. Cambridge University Press.
- Laudon, K. C., & Laudon, J. P. (2020). *Management information systems: Managing the digital firm* (16th ed.). Pearson.
- O'Brien, J. A., & Marakas, G. M. (2017). *Management information systems*. McGraw-Hill Education.
- Porter, M. E. (2008). The five competitive forces that shape strategy. *Harvard Business Review*, 86(1), 78-93.
- Provost, F., & Fawcett, T. (2013). *Data science for business: What you need to know about data mining and data-analytic thinking*. O'Reilly Media.
- Prasetyo, A., & Ramadani, D. (2023). Teknologi big data dan cloud computing untuk pengambilan keputusan bisnis e-commerce. *Journal of Business and Technology*, 13(2), 101-115.
- Setiawan, A., & Nugroho, S. (2022). Pengaruh pemanfaatan sistem informasi terhadap pengambilan keputusan strategis di perusahaan e-commerce. *Jurnal Manajemen Teknologi*, 12(3), 230-245.
- Suryana, R., & Kurniawan, D. (2022). Peran sistem informasi dalam meningkatkan pengambilan keputusan di perusahaan digital. *Jurnal Teknologi dan Sistem Informasi*, 17(1), 43-59.
- Yuliana, S., & Rachmawati, D. (2021). Faktor penghambat implementasi sistem informasi di e-commerce. *Jurnal Manajemen Teknologi*, 12(3), 230-245.