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The Effect Of Management Information System Integration on Operational Efficiency And Retrieval Managerial Decisions

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Abstract

This study aims to analyze and describe the influence of Management Information System (MIS) integration on operational efficiency and the quality of managerial decision-making through a descriptive qualitative approach based on literature review. The method employed is a systematic literature review using the PRISMA framework as a guide for literature selection. The results of the literature review consistently demonstrate that MIS integration positively impacts operational efficiency through three main mechanisms: business process automation, data redundancy elimination, and acceleration of cross-functional information flow. Furthermore, MIS integration enhances the quality of managerial decision-making by providing accurate, real-time, and comprehensive information. The literature review also identifies several conditional factors that moderate these relationships, including technology infrastructure readiness, human resource competency, and organizational leadership commitment. This study provides a comprehensive theoretical synthesis that can serve as a foundation for further empirical research and MIS implementation policy decisions in organizations.

Keywords: ***Management Information System, System Integration, Operational Efficiency, Managerial Decision-Making, Literature Review.***

INTRODUCTION

The exponential development of information technology in the last two decades has fundamentally changed the way organizations manage data, information, and knowledge. Management Information Systems (SIMs) have transformed from a simple administrative record-keeping system to a strategic infrastructure that integrates all business functions holistically and *in real-time* (Hera et al., 2024) . This transformation created a new paradigm in organizational management, where the

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ability to thoroughly integrate and analyze information became a significant determinant of competitive advantage.

In the context of increasingly complex and dynamic global competition, organizations face immense pressure to improve operational efficiency while improving the quality of strategic decision-making. These two demands are actually interrelated and can be fulfilled simultaneously through the implementation of a well-integrated driver's license. SIM integration allows for the elimination of redundant processes, accelerates the flow of information between units, and provides a solid analytical foundation for data-driven decision-making. (Sasmita & Nasution, 2025)

Although the relationship between SIM integration and organizational performance has been extensively researched, the existing literature still points to some important gaps. First, most research focuses on one dimension of operational efficiency performance or decision-making without comprehensively exploring the relationship between the two. Second, the specific mechanisms linking SIM integration to performance improvements are often not adequately elaborated. Third, the conditional factors that can strengthen or weaken these relationships have not been systematically synthesized in a single integrated study.

This research is present to answer these gaps through a systematic literature review approach that examines, synthesizes, and interprets findings from various previous studies. By mapping the constellation of relationships between SIM integration, operational efficiency, and overall managerial decision-making, this research is expected to make significant theoretical contributions as well as practical implications that are applicable to organizational leaders.

Objectives

This article intends

1. To describe the mechanism through which SIM integration affects operational efficiency based on the synthesis of the literature
2. To analyze how SIM integration contributes to improving the quality of managerial decision-making
3. To identify the conditional factors that moderate the relationship between SIM integration and the two performance dimensions

LITERATURE REVIEW

Concept and Evolution of Management Information Systems

Management Information Systems (SIMs) are classically defined as computer-based systems that provide structured information for managers to support planning, controlling, and decision-making processes in an organization (O'Brien & Marakas,

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2021). This definition has undergone significant development along with the evolution of technology. Contemporary driver's licenses include not only routine reporting functions, but also predictive analytics, artificial intelligence, big data processing, and interactive information visualization.

Laudon & Laudon (2020) classify SIMs based on the managerial level served: *Transaction Processing System* (TPS) for operational level, management information system (classic SIM) for middle management level, and Executive *Support System* (ESS) for top management. This integration between system levels creates a coherent information architecture and supports decision-making at all levels of the organization.

Turban et al. (2005) emphasizing that the strategic value of SIM lies not in its technology alone, but in its ability to transform raw data into meaningful and actionable information. This transformation process involves a series of activities: data collection, processing, storage, retrieval, and presentation in a format that suits the user's needs. Each stage in this information value chain can be improved through effective system integration.

Information Systems Integration: Dimensions and Tiers

Information systems integration is a technical and organizational process that allows different systems, applications, and databases to communicate, share data, and operate synergistically as a coherent whole. This integration is not just a technical problem of connectivity, but also includes semantic (similarity of meaning of data) and pragmatic (common purpose of data use) dimensions that require careful organizational planning.

Siebel Systems, Inc. (2003) classify the levels of information system integration into four hierarchical levels. The first level is data integration, which ensures consistency and accessibility of data across the system. The second level is application integration, which allows different systems to exchange data and functionality. The third level is business process integration, which aligns workflows across departments and systems. The fourth, most complex level, is the integration of cross-organizational collaboration that connects internal systems with external partners within the broader business ecosystem.

Zhou & Feng (2016) In their study of system integration capabilities, it was confirmed that any increase in the level of integration was consistently correlated with an increase in the resulting informational value. However, the increased level of integration is also accompanied by increased implementation complexity and the need for higher organizational capabilities. Therefore, a tiered and planned integration approach is the key to successful implementation.

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Operational Efficiency in the Perspective of Information Systems

Operational efficiency is a fundamental performance indicator that reflects the organization's ability to optimize the ratio between the output generated and the input of the resources used. In the context of information systems, operational efficiency has several dimensions: process efficiency (reduction of process time and steps), resource efficiency (optimization of asset and labor utilization), cost efficiency (minimization of costs per unit of output), and informational efficiency (speed and accuracy of information flow). (Turban et al., 2005)

Wang et al. (2021) In a comprehensive analysis they identified three main mechanisms through which information systems improve operational efficiency. First, business process automation that shifts repetitive routine work from human labor to computerized systems, freeing up human capacity for higher value-added activities. Second, the elimination of data redundancy through a single centralized source of truth, which eliminates the need for repetitive data entry and reduces the risk of information inconsistencies. Third, accelerating the flow of information which shortens the cycle of communication and coordination between departments.

Septiani et al. (2026) in the Indonesian context, it was found that the digitization of business processes supported by integrated SIM was able to reduce the average process cycle time by 40-60% in organizations that successfully implemented it. This study also emphasizes that the efficiency obtained is not only quantitative (time and cost savings), but also qualitative in the form of improving the consistency and quality of process outputs.

Managerial Decision-Making: Theory and Practice

In its implementation, decision-makers are often faced with limited information, time, and cognitive capacity that result in decisions that are not always optimal. This phenomenon can be understood through the concept of bounded rationality, which argues that humans often choose alternatives that are considered adequate rather than the ones that are truly the most optimal. Simon (1997)

The Management Information System (SIM) is present as a means for organizations to collect, process, store, and present data into useful information for management. The availability of accurate and timely information allows managers to obtain a more complete picture of the condition of the organization, so that the decisions taken can be more objective and measurable. added that SIM acts as an integrated system that presents information effectively and in a timely manner to support various management functions, especially in the decision-making process. The same thing was also expressed by , who stated that information systems play an important role in optimizing data management and transformation, so that

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organizations are able to make more appropriate decisions based on information that has been processed systematically. (Laudon & Laudon, 2022) Berisha - Shaqiri (2014) Rodríguez Torres et al. (2022)

In addition, it highlights that SIM integration is one of the keys to optimizing strategic decision-making, because the integration is able to present more complete information and allow for more comprehensive analysis. If the data is integrated, all work units can have access to the same information, so that the risk of miscommunication can be reduced and consistency in carrying out decisions can be maintained. Through the integration of this information, organizations can also be more agile and appropriate in responding to changes in the business environment (; . On the other hand, the rapid flow of digital transformation has also encouraged the combination of SIM with various supporting technologies, such as Daud et al. (2024) Mother's Market et al., 2025 Sanjaya et al., 2026) *Decision Support System* (DSS), *Business Intelligence* (BI), *big data analytics*, and artificial *intelligence*. These technologies have been proven to strengthen decision-making effectiveness through the provision of faster, more accurate, and data-driven information (Wasesa et al., 2025)

Theoretical Framework

The theory underlying this research is *Information Processing Theory* (IPT) proposed by , used to explain the relationship between Management Information System integration, operational efficiency, and managerial decision-making. According to this theory, an organization is basically a system that is tasked with processing information to reduce the level of uncertainty in carrying out its various activities. The higher the level of environmental complexity faced by an organization, the greater the need for accurate, relevant, and timely information to support coordination, control, and decision-making. On that basis, organizations are required to strengthen their information processing capacity through the use of interconnected technology and information systems (Galbraith, 1973; Galbraith (1973) Daft & Lengel, 1986)

The availability of interconnected information can reduce duplication of work, accelerate information distribution, and encourage the efficiency of organizational resource utilization (Laudon & Laudon, 2022; O'Brien & Marakas , 2013) . In addition, accurate and accessible information in real-time also helps managers in understanding the condition of the organization more completely, so that the decisions taken are faster, more precise, and based on data (; Syahputra et al., 2022 Hamdat et al., 2024)

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Based on this theory, the integration of Management Information Systems can be interpreted as a mechanism that plays a role in integrating and strengthening organizational capacity in processing information. Strengthening this capacity will in turn give birth to operational efficiency through better coordination, as well as supporting the creation of more effective managerial decision-making because it relies on quality information (Galbraith, 1973; Mother's Market et al., 2025)

RESEARCH METHODS

Approaches and Types of Research

This research is designed using a qualitative approach through the type of literature study (*library research*). The selection of this approach is based on a research focus that leads to the understanding and review of concepts, theories, and findings of previous research related to Management Information System integration, operational efficiency, and managerial decision-making.

Creswell & Creswell (2018) Explains that qualitative research basically aims to understand a phenomenon through a descriptive and interpretive analysis process. Meanwhile, it was revealed that literature study is a series of activities to collect, study, record, and process information sourced from various references that are relevant to the research theme being studied (Zed, 2018)

Literature Selection Sources and Criteria

The data used in this study is secondary, compiled from a variety of scientific literature in the form of national and international journal articles, reference books, proceedings, and other academic documents relevant to the topic being studied. The literature collection was carried out through a number of academic databases, including Google Scholar, SINTA, ScienceDirect, SpringerLink, Garuda, and various other reliable scientific sources.

The determination of the literature used refers to several criteria, namely its relationship with the theme of Management Information System integration, operational efficiency, and managerial decision-making; come from credible and academically accountable sources; and make contributions both theoretically and empirically to this research. In the selection process, the researcher prioritizes the latest publications so that the information obtained remains up-to-date, without ignoring the classical references that are the foundation of the main theory in the field of Information Systems and Management.

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Literature Data Analysis Techniques

This study uses content *analysis* as a technique in processing data. The analysis is carried out by identifying, reviewing, comparing, and synthesizing a number of literature that has been selected according to the research topic. Zed (2018) explained that analysis in literature studies is aimed at obtaining a comprehensive understanding of a phenomenon based on various relevant literature sources.

The stages of analysis carried out include: reading and understanding the literature that has been collected, grouping information according to the research theme, and then examining the relationship between management information system integration, operational efficiency, and managerial decision-making. In the next stage, the findings obtained from the literature are analyzed and synthesized to produce conclusions that are relevant to the research objectives (Creswell & Creswell, 2018).

DISCUSSION

Overview of the Literature Reviewed

The literature sources used in this study consist of a number of national and international journal articles, reference books, and various other scientific sources that discuss the integration of Management Information Systems, operational efficiency, and managerial decision-making. The selection of literature pays attention to its relevance to the research topic as well as its contribution in describing the relationship between variables that are the focus of the study. Most of the literature referenced comes from empirical research that examines the application of Management Information Systems in various organizations, both in the public and private sectors.

From the results of the review of the literature, it appears that most studies show that there is a positive influence of Management Information System integration on increasing operational efficiency, both through accelerating information flow, reducing duplication of work, improving coordination between units, and making more optimal use of organizational resources (Hamdat et al., 2024; . Not only that, various research findings also show that an integrated information system can support the managerial decision-making process through the availability of accurate, relevant, and real-time information, making it easier for management to formulate strategies while handling various organizational problems (Syahputra et al., 2022; Pasaribu et al., 2025). Rahmadhan et al., 2025)

Mechanism of Influence of SIM Integration on Operational Efficiency

The literature synthesis consistently identifies three fundamental mechanisms through which SIM integration affects an organization's operational efficiency, including:

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The first mechanism lies in the ability of SIM integration to automate and digitize business processes. Through such integration, various administrative activities can be carried out more quickly and systematically, which ultimately reduces processing time, minimizes manual work, and increases the allocation of resources to functions of strategic value. In the context of SIM integration, it is stated that the increase in operational efficiency achieved not only provides benefits on internal aspects, such as time and resource savings, but also strengthens customer trust and corporate image, thus supporting the increase in company value in the long run. (Supriyadi, 2024) Amir (2024)

Immanuel & Shadow (2025) The second mechanism is data integration and centralization. argues that an integrated system allows data from different parts of the organization to be collected and stored in one centralized database. This helps reduce the occurrence of data duplication, recording errors, and obstacles in the exchange of information between parts. In addition, centralized data allows information to be available more accurately and in real-time, making it easier to coordinate and support faster and more informed decision-making. Through the implementation of a good driver's license, companies can integrate various business processes that previously ran separately into a well-connected and well-coordinated unit. (Apriliadi et al., 2025)

The third mechanism is the acceleration of information flow and cross-functional coordination. The smooth flow of information between units allows organizations to carry out operational activities more quickly and in a coordinated manner. However, cross-functional coordination often faces obstacles because each unit has different priorities and perspectives. Therefore, SIM integration is needed to facilitate the exchange of information between units so that coordination becomes more effective, work processes can take place faster, and organizational operational efficiency increases. In line with this, he explained that SIM is able to connect various organizational functions in one integrated system, so that coordination and information flow between units becomes smoother. (Qotrunnada et al., 2025) Faqih (2025)

The Contribution of SIM Integration to the Quality of Managerial Decision Making

Decision-making is the main function in leadership, where the higher a person's position in the organization, the greater the responsibility in making decisions. In this regard, SIM integration contributes to providing accurate, relevant, and timely information thus helping to improve the quality of managerial decision-making. Management Information System (SIM) is a strategic instrument that has an important role in improving organizational operational efficiency while supporting the improvement of the quality of decision-making in various industrial sectors. This is

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because SIM is able to provide more accurate, complete, and real-time information through an integrated system, thereby minimizing errors and duplication of data. (Lipursari , 2013) (Imanuel et al., 2025)

According to , SIM not only functions as a data recording tool, but also as an analytical instrument that helps organizations understand conditions more comprehensively. In addition, SIM is also able to improve the flow of information accurately and in real-time to users without going through third parties or intermediaries. Through an integrated system, various operational data from several parts can be collected and processed in one integrated system so that the information produced becomes more complete and accessible. This allows the management to obtain a more accurate and comprehensive picture of the condition of the organization. With the availability of more quality information, the decision-making process can be carried out more precisely, objectively, and data-driven, thereby supporting increasing the effectiveness of managerial decisions. Harahap - Snoop Doggy (2026) (Sakti & Dwihanus , 2023)

Facing the development of the current digital era, educational institutions have also utilized the Management Information System (SIM) to improve the quality of educational governance. Through the implementation of a driver's license, various academic processes can be managed more easily, structured, and organized. In addition, the use of this system also increases the work efficiency of education personnel, because various administrative work can be carried out more quickly and systematically. SIM also supports an accurate and real-time data-driven decision-making process, while strengthening coordination between work units and increasing transparency in school management. In other words, the integration of Management Information Systems (SIM) makes a significant contribution to improving the quality of managerial decision-making more broadly. The availability of integrated, accurate, and real-time information allows management to not only respond to operational needs more quickly, but also formulate more precise, objective, and data-driven decisions. This shows that the better the level of SIM integration in an organization, the higher the quality of the information produced, which ultimately has an impact on improving the effectiveness of the overall managerial decision-making process. (Natavia et al., 2025)

Conditional Factors Affecting the Effectiveness of SIM Integration

Hanongan - Snoop Doggy (2026) According to , the success of SIM integration is influenced by a number of interrelated conditional factors. In this case, the quality of data and information plays an important role, because valid, complete, and timely data is able to produce credible information to support decision-making at

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the management level. In line with that, it is stated that accessibility contributes to the effectiveness of SIM which can be seen from the ease of users in accessing information systems. Wibowo & Ali (2024)

The user's level of knowledge and skills in operating and understanding the system will determine the extent to which the SIM can be optimally utilized to support activities and decision-making in the organization. Therefore, the competence of human resources also plays an important role in the effectiveness of SIM integration. In addition, an organizational culture that supports innovation and is open to technological changes also makes an important contribution to the success of SIM implementation. In line with this, it was stated that the effectiveness of SIM implementation is not only determined by technological aspects, but also influenced by organizational factors, the quality of human resources, and support from management. (Seattle, 2024) (São Paulo et al., 2023) Silvia (2026)

Wijoyo et al. (2023) According to , the effectiveness of SIM integration is also influenced by continuous monitoring and updates. Given that information systems are dynamic and constantly evolving, regular evaluations of system performance are needed to identify aspects that still need improvement and make appropriate updates so that SIM remains relevant to organizational needs and can function optimally. A similar opinion is also expressed by the fact that periodic evaluation and updating are important in optimizing the implementation of SIM, so that the performance of the system needs to be continuously reviewed and adjusted to technological developments and existing needs. Sagala & Paradise (2024)

CONCLUSION

Based on the results of the literature review, the integration of the Management Information System (SIM) has a positive influence on the operational efficiency of the organization. SIM integration is able to increase efficiency through business process automation, data centralization, and acceleration of information flow between parts. These conditions help organizations reduce duplication of work, minimize recording errors, speed up work processes, and optimize resource utilization. Thus, organizations can carry out operational activities more effectively, coordinated, and productively.

In addition to improving operational efficiency, SIM integration also plays an important role in supporting the quality of managerial decision-making. The availability of accurate, complete, relevant, and real-time information allows management to obtain a more comprehensive picture of the condition of the organization so that the decisions taken become faster, objective, and data-based. However, the effectiveness of SIM implementation is also influenced by the readiness of technological

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infrastructure, human resource competence, leadership commitment, and the quality of continuous system implementation and evaluation. Therefore, managing these factors is key in maximizing the benefits of SIM integration for improving organizational performance.

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