

# CONTRIBUTION OF MANAGEMENT INFORMATION SYSTEMS IN IMPROVING CUSTOMER RELATIONSHIP MANAGEMENT (CRM) IN E-BUSINESS THROUGH E-COMMERCE SYSTEMS

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## Abstract

The development of information technology has driven a major transformation in the business world, especially through the use of e-commerce in carrying out e-business activities. One of the crucial elements in maintaining the competitiveness of digital companies is customer relationship management or Customer Relationship Management (CRM). This article discusses the contribution of Management Information Systems (MIS) in supporting and improving the effectiveness of CRM on e-commerce platforms. By integrating MIS, companies can manage customer data in real-time, analyze consumer behavior, and design more personalized and responsive marketing strategies. Through a qualitative descriptive approach, this article highlights how MIS plays a role in data-based decision making, improving customer service, and building long-term loyalty in the context of e-business. The results of the discussion show that the implementation of a structured and integrated MIS can provide significant added value to the CRM strategy, which ultimately has a positive impact on the growth and sustainability of digital businesses.

**Keywords:** *Management Information Systems, Customer Relationship Management, E-Business, E-Commerce, Customer Loyalty.*

## INTRODUCTION

Digital transformation has revolutionized all aspects of business activities, from production processes, distribution, to patterns of interaction between companies and customers. One of the main forms of this transformation is the emergence of e-business, which makes information technology the main basis for running business operations. In e-business, e-commerce plays an important role as a platform that allows companies to sell products and services online, reach consumers without geographical boundaries, and increase the efficiency of the transaction process. However, success in e-business is not only determined by the ability to sell products digitally, but also by the extent to which companies can build, maintain, and manage long-term relationships with their customers effectively.

Customer Relationship Management (CRM) emerged as a strategic approach aimed at improving the quality of interactions with customers, with a focus on personalizing services, increasing loyalty, and sustaining long-term relationships. In the context of e-commerce, CRM allows companies to collect customer data from various digital channels, process this information to understand customer behavior and preferences, and design more relevant and responsive interactions. However, effective CRM implementation cannot be separated from adequate information technology support. This is where the Management Information System (MIS) plays an important role as an infrastructure that supports the operationalization of CRM strategies in an integrated and efficient manner.

MIS enables companies to systematically store and manage customer data, monitor transactions, analyze consumer behavior trends, and generate information needed for strategic decision making. Without a good MIS, companies will have difficulty processing large amounts of data and using it to create added value for customers. Previous studies have shown that companies that adopt CRM-based e-commerce systems with structured MIS support are able to increase marketing effectiveness, accelerate customer service, and build stronger loyalty. This is achieved through the integration of various important features such as customer registration systems, product catalogs, online ordering systems, customer discussion forums, and digital complaint management. On the other

hand, many companies still face challenges in building sustainable relationships with customers due to limitations in storing transaction data, delays in responding to customer needs, and suboptimal digital media used to establish two-way communication. As a result, companies lose the opportunity to maximize customer loyalty, which is actually one of the most strategic business assets. Modern business competition is no longer just a matter of competing on price or product quality, but rather a matter of speed and depth of relationships with customers. Therefore, a CRM strategy supported by a sophisticated MIS is an important combination in facing the fast-paced and dynamic digital era.

CRM strategies generally include three main stages, namely acquiring (getting new customers), enhancing (improving relationships with existing customers), and retaining (retaining profitable customers). Each of these stages requires an information system that can support its functionality. For example, in the acquiring stage, MIS is needed to manage the customer registration process, provide complete and interesting product information, and record initial customer preferences. In the enhancing stage, MIS helps manage communication forums, respond to questions or complaints, and deliver personally tailored information. Meanwhile, in the retaining stage, this system can monitor purchase history, offer loyalty programs, and provide consistent and quality service.

Given the importance of integration between CRM and MIS in e-commerce systems, it is necessary to conduct an in-depth study on how MIS contributes to increasing the effectiveness of CRM in e-business. This study is relevant to answer business challenges in the digital era, where customers have high expectations for speed of service, personalization, and ease of transactions. Therefore, this article aims to analyze the contribution of Management Information Systems in strengthening Customer Relationship Management strategies in e-business through the implementation of e-commerce systems. The main focus is to describe how MIS helps optimize customer data management, supports individual needs-based services, and creates interactions that drive sustainable customer loyalty.

## **LITERATURE REVIEW**

### **1. Management Information System (MIS)**

Management Information System (MIS) is a system designed to support the decision-making process in an organization through the collection, processing, storage, and presentation of relevant and timely data. According to Laudon and Laudon (2016), MIS is a computer-based system that provides information for managers to assist in planning, controlling, and evaluating organizational performance. MIS acts not only as an administrative tool, but also as a strategic instrument in directing the direction and policies of the company as a whole. In general, MIS consists of three main components, namely hardware, software, and human resources (brainware). All three work in an integrated manner to ensure that the information produced can support operations and decision-making effectively. Hardware includes computers, servers, networks, and other input-output devices. Software includes database systems, data processing applications, and business analytics tools. While human resources include system users, information analysts, system administrators, and managers who interpret data to make strategic decisions.

In the current era of digital and economic globalization, MIS plays an increasingly crucial role, especially in the management of technology-based systems such as e-business and e-commerce. MIS allows organizations to manage information from various sources in real-time, including sales data, customer preferences, digital activity logs, and online marketing campaign performance. This makes MIS the backbone of big data management and the main foundation in the company's digital transformation process. Furthermore, in the context of customer relationship management, MIS becomes an important tool for creating adaptive and customer-based services. MIS allows companies to develop personalized services, loyalty programs, and customer retention strategies by reading previously recorded historical and preference data. With MIS, companies are not only able to respond to customer needs, but are also able to anticipate those needs through predictive analytics. Overall, MIS is no longer just a supporting tool, but rather a strategic component in building a company's competitive advantage in the digital era. The integration of MIS with CRM in an e-commerce system provides a direct contribution to customer satisfaction, business process efficiency, and sustainable growth of the organization. Therefore, understanding and implementing optimal MIS is an important requirement for companies that want to succeed in an increasingly complex and dynamic e-business ecosystem.

## **2. Customer Relationship Management (CRM)**

Customer Relationship Management (CRM) is a management approach that focuses on creating and maintaining long-term, valuable relationships between a company and its customers. This concept was born from the realization that retaining existing customers is much more economical than continually seeking new customers. In the era of digital business, CRM has become a strategy that is not only operational, but also strategic and analytical, and involves the intensive use of information technology to understand and serve customers more personally and efficiently. According to Buttle (2009), CRM is an approach that integrates marketing strategies, business processes, and information technology to improve customer acquisition, retention, and loyalty. CRM involves processing information collected from various customer touch points such as websites, mobile applications, social media, email, and service centers to form a comprehensive picture of customer preferences, behavior, and transaction history. This information is then used to design services and interactions that are more in line with the individual needs of customers.

In general, CRM is divided into three main types, namely:

- Operational CRM, which focuses on automating marketing, sales, and customer service processes.
- Analytical CRM, which aims to analyze customer data to support strategic decision making.
- Collaborative CRM, which integrates multiple customer communication channels so companies can respond consistently across platforms.

CRM implementation is very important in e-business, especially on e-commerce platforms, where interactions between customers and companies take place entirely online. In e-commerce, customers not only buy products, but also evaluate the quality of service based on the speed of response, ease of site navigation, and relevance of product offerings. Therefore, a CRM system must be able to manage customer information in real-time and respond to customer needs proactively. In previous studies, CRM has been proven to be able to improve customer service efficiency, strengthen customer loyalty, and support differentiation strategies based on user experience. Harimurti and Wuragil's (2014) study shows that companies that adopt web-based CRM are able to facilitate online customer registration, management of discussion forums, digital promotions, and management of customer orders and complaints more systematically. This has an impact on increasing customer satisfaction and the potential for higher repeat purchases.

CRM also plays an important role in the customer lifecycle, which is generally divided into three stages:

- Acquisition: Companies attract new customers through targeted promotions and personalized offers.
- Enhancement (Value Enhancement): Ongoing interactions are used to expand relationships with existing customers, for example through loyalty programs or product recommendations (cross-selling & upselling).
- Retention: Companies retain customers by offering superior after-sales service, rewards for loyalty, and ongoing communication.

In a CRM system integrated with digital technologies, such as chatbots, automated notifications, and email marketing systems, companies can maintain continuous communication without having to rely entirely on human interaction. In fact, modern CRM technology allows the use of artificial intelligence (AI) to analyze customer behavior patterns and provide predictive business decision recommendations.

## **3. E-Business and E-Commerce**

Digital transformation has changed the way companies conduct their operations, especially through e-business and e-commerce. Although often equated, the two have important differences. E-business encompasses all uses of information technology in business activities, including internal processes and relationships with partners and customers. Meanwhile, e-commerce is a part of e-business that specifically refers to the transaction of buying and selling goods and services over the internet. According to Kalakota and Robinson (2001), e-business includes all company activities supported by digital technology, such as production, finance, to customer relations, with the help of systems such as ERP, CRM, and MIS. Meanwhile, e-commerce, as explained by Adi Nugroho (2007), focuses on the exchange of goods and services through electronic platforms, including various models such as B2C, B2B, C2C, and G2C. E-commerce makes it easier for customers to shop anytime and anywhere and helps companies reach a wide market at an efficient cost. The development of e-commerce is greatly driven by the increasing number of internet users and mobile devices. Statista data (2024) recorded the global e-commerce transaction value reaching more than USD 6 trillion. In Indonesia, this sector dominates the digital economy, contributing more than 70% of total digital transactions according to a report by Google, Temasek, and Bain & Company (2023). However, this development also poses challenges such as the need for customer experience management, data security, and service personalization. In facing these challenges,

information technology such as CRM and MIS play an important role. CRM supports digital customer relationship management, while MIS provides strategic information for decision making. Both systems help companies not only focus on transactions, but also build strong and sustainable customer relationships, while increasing operational efficiency and effectiveness.

#### **4. Customer Loyalty**

Customer loyalty is one of the main indicators of a company's success in maintaining business sustainability amidst increasingly competitive market competition. Loyalty is defined as the emotional and behavioral attachment of customers to a brand or company, which is demonstrated through the tendency to make consistent repeat purchases and reject offers from competitors. Oliver (1999) defines customer loyalty as "a deeply held commitment to repurchase a preferred product or service consistently in the future, despite situational influences and marketing efforts having the potential to cause switching behavior." This means that loyalty does not only reflect momentary satisfaction, but also shows the stability of customer preferences for a business entity in the long term. In the context of e-business and e-commerce, customer loyalty is very important due to the high level of digital competition and low switching costs for customers. Consumers can easily compare prices, features, and product reviews across multiple platforms in a matter of seconds. Therefore, maintaining customer loyalty requires more than just a good product, but also a comprehensive experience, personalized interactions, and responsive service. CRM strategy plays an important role in building customer loyalty with an individual and data-driven approach. Through CRM, companies can identify the needs and preferences of each customer, provide relevant offers, and build two-way communication. CRM technology integrated with Management Information Systems (MIS) allows companies to track purchase history, satisfaction levels, and customer engagement levels on digital platforms. Thus, CRM is not only a tool for managing customer data, but also a strategy that focuses on increasing the long-term value of each customer interaction.

Customer loyalty in the e-commerce ecosystem can be built through the following approaches:

- **Personal and Consistent Service:** Customers feel valued when they receive a personalized experience that is consistent in quality over time. MIS provides the information needed to provide services that are tailored to the customer's profile and history.
- **Loyalty and Reward Programs:** Point systems, exclusive discounts, or premium memberships can be incentives to retain existing customers. MIS serves to record and manage these loyalty activities systematically.
- **Quick Response to Issues and Complaints:** Customer satisfaction is greatly influenced by how a company handles complaints. With a CRM system connected to MIS, companies can respond to complaints quickly and based on customer history, not just general.
- **Emotional Engagement and Community:** Customer loyalty is also strengthened by non-transactional interactions, such as user communities, discussion forums, educational content, or value-driven marketing campaigns. Information systems support tracking of these activities as part of a retention strategy.

Previous studies have shown that loyal customers have a much higher customer lifetime value (CLV) than new customers. They are also more likely to recommend products to others (word of mouth), provide positive reviews, and are more tolerant of minor errors during service. Therefore, focusing on loyalty management through CRM and MIS is a strategic step for e-commerce companies that want to build a long-term position in the digital market.

#### **5. Integration of Management Information System (MIS) and Customer Relationship Management (CRM) in E-Commerce Platform**

Integration between Management Information Systems (MIS) and Customer Relationship Management (CRM) in an e-commerce platform is one of the most important strategies in managing and maintaining long-term relationships with customers effectively and efficiently in the digital era. In today's fast-paced and competitive business world, customers demand personal, fast, and consistent service across multiple channels. To meet these needs, companies cannot simply rely on a separate CRM system, but must integrate it with MIS in order to process, manage, and utilize customer data optimally. According to Laudon and Laudon (2016), Management Information Systems act as the foundation of information technology that connects various managerial processes, including decision-making, operational oversight, and strategic planning. While CRM, as explained by Buttle (2009), is a structured approach to managing the entire customer interaction cycle, from acquisition to retention. When both are integrated into an e-commerce platform, the result is an integrated system



that is not only capable of storing and processing customer data, but can also provide real-time insights for proactive and personalized actions.

The integration of SIM and CRM provides various strategic benefits for companies, including:

- Improved Customer Data Accuracy
- Faster and More Responsive Information Processing
- Customer Driven Business Process Automation
- Improved Customer Experience and Loyalty
- Data-Driven CRM Strategy Measurement and Evaluation

A study by Harimurti and Wuragil (2014) showed that companies that implement integration between MIS and CRM in e-commerce platforms experience increased effectiveness in customer management and product promotion. A structured information system allows companies to segment customers, personalize offers, and monitor results directly from the management dashboard. Deloitte's research (2023) also supports this finding by stating that organizations that adopt information system-based customer data integration experience a 27% increase in loyalty and up to 30% in marketing cost efficiency. In the context of ever-growing e-business, the integration of MIS and CRM is not only an operational advantage, but also a long-term strategy to create added value through solid customer relationships. With data as a strategic asset, companies can map customer behavior, build predictions of needs, and respond quickly to market changes. Therefore, investing in an information system integrated with CRM is an important step for sustainable e-commerce success.

## **METHOD**

This study uses a qualitative descriptive approach with a library research method, which aims to analyze in depth the relationship between Management Information Systems (MIS) and Customer Relationship Management (CRM) in the context of e-business through an e-commerce platform. This approach was chosen because it is appropriate for systematically reviewing concepts, theories, and previous research results in order to understand the phenomenon holistically and comprehensively. The data sources in this study are secondary, obtained from various relevant scientific references, such as national and international journals, textbooks, industry research reports, conference articles, and official documents discussing MIS, CRM, and e-commerce. Literature searches were conducted by utilizing academic databases such as Google Scholar, ScienceDirect, ResearchGate, ProQuest, and the Garuda portal, with the criteria of the latest publication year (2008–2024), relevance to the main topic, and the quality of sources that can be academically accounted for.

The data analysis technique used is content analysis, which is by identifying, classifying, and comparing the main concepts contained in the library sources. The analysis process is carried out by compiling a matrix of relationships between variables, then drawing conclusions from the tendencies of previous findings regarding the integrative role of MIS and CRM in supporting customer growth and loyalty in the e-business realm. In addition, to strengthen the relevance of the discussion, this study also refers to published case studies, especially related to the application of information systems in CRM strategies on e-commerce platforms. The case studies are analyzed as complementary empirical evidence to the theoretical framework developed, although the data used do not come from direct field research. With this approach, it is hoped that the study can provide a conceptual contribution to the understanding of MIS and CRM integration and its implications in effective customer relationship management in e-commerce-based e-business.

## **RESULTS AND DISCUSSION**

### **1. Real-Time and Structured Customer Data Management**

Integration of Management Information System (MIS) in CRM provides major benefits in terms of real-time customer data management. With an integrated system, every customer interaction whether through transactions, inquiries, or other digital activities is directly recorded and stored in a centralized database. This allows companies to monitor customer development and behavior comprehensively and accurately. The data stored in the SIM is not only historical, but also automatically updated, making it very relevant to support quick decision making. Information such as purchase frequency, favorite products, and responses to certain promotions can be directly processed by CRM to adjust more targeted communication strategies. This is important in improving work efficiency and the quality of services provided. In addition, good data management minimizes duplication, input errors, and loss of important customer information. Every part of the organization such as marketing, customer service, and management can access the same and up-to-date data without having to rely on manual reports. This integration of information creates synergy between work units and improves coordination in serving customers.

Overall, MIS is the backbone of CRM systems in providing a strong, accurate, and easily accessible data foundation. With real-time and structured data management, companies can build relationships with customers more consistently and professionally, while increasing the speed of response to customer needs and complaints across various service channels.

## **2. In-depth Consumer Behavior Analysis**

In an increasingly competitive digital era, a deep understanding of consumer behavior is one of the most strategic assets for a company. Management Information Systems (MIS) play a vital role in collecting, managing, and analyzing customer transaction and interaction data from various channels. Through integration with Customer Relationship Management (CRM), MIS not only records customer activity, but is also able to identify purchasing trends, product preferences, the most active transaction times, and responses to various promotional campaigns launched by the company. These data are an important foundation in understanding consumer behavior holistically. With the analytics features available in MIS, companies can segment customers based on their behavior and economic value. Customers can be grouped into various categories, such as loyal customers, potential customers, seasonal customers, or at-risk customers. This segmentation allows companies to treat each group with a customized strategy. For example, loyal customers can be given exclusive programs, while at-risk customers can be targeted with special incentives to increase their engagement.

Furthermore, properly analyzed consumer behavior data can be used to design more effective retention strategies. For example, if the system identifies that customers are less likely to make a purchase after the last three months, the CRM system can automatically trigger a personalized email campaign to bring them back. MIS can also provide insights into the types of products that are most frequently purchased by a particular segment, so companies can adjust stock, bundle offers, or provide relevant product recommendations. One of the strategic advantages of an MIS integrated with CRM is its ability to predict potential churn or customer movement. By utilizing predictive models based on historical data, the system can provide early warning signals of potential customer loss. For example, if a customer starts to reduce the frequency of purchases or does not respond to promotions as usual, the system will mark them as a risky customer. The company can then respond quickly through a more personalized approach, such as special discounts, additional loyalty programs, or direct contact from the customer service team. Overall, consumer behavior analysis through MIS integrated with CRM not only increases marketing effectiveness but also strengthens long-term relationships with customers. By understanding customer needs and habits in real-time, companies can create more relevant experiences, increase satisfaction, and drive sustainable consumer loyalty.

## **3. Personalization of Marketing and Service Strategy**

Amidst increasing customer expectations for relevant and personalized experiences, companies are required to change their mass marketing approach to a more individual and contextual strategy. In this context, the role of Management Information Systems (MIS) integrated with Customer Relationship Management (CRM) becomes very crucial. Through comprehensive customer data processing, companies can design marketing and service strategies that truly suit the needs and preferences of each individual. This kind of personalization not only increases the effectiveness of communication, but also creates an emotional closeness between customers and brands. One concrete form of personalization is providing product recommendations based on purchase history. By utilizing the analytical algorithms embedded in the SIM, the system can identify customer purchasing patterns and suggest the most relevant products. For example, customers who frequently purchase household products will be given specific recommendations for similar products, which can even be combined in the form of promotional bundles. This not only simplifies the customer's shopping process but also significantly increases the likelihood of repeat purchases.

In addition, sending promotional emails tailored to customer interests is an increasingly common personalization strategy. SIM allows companies to track customer interests through interaction data on websites, applications, and social media. Based on this information, CRM can automate the sending of emails containing offers or product information that suits each customer's preferences. Personalized email campaigns like this have been shown to have a much higher conversion rate than mass emails because they are more targeted and feel personally relevant. Equally important, handling customer complaints that refer to previous interaction history shows a level of maturity in customer service management. When a customer contacts the help desk, the CRM system integrated with SIM will immediately display the history of interactions, complaints, or recent purchases from that customer. This allows the service team to provide fast, accurate, and empathetic solutions because they

understand the context of the problem as a whole. Customers also feel appreciated because they do not need to repeat the explanation from the beginning every time they contact the service. By providing personalized service and marketing experiences, companies create added value that not only satisfies customers but also builds long-term loyalty. Customers who feel understood tend to be more loyal and reluctant to switch to competitors. Furthermore, they are also more likely to recommend the company to others through word of mouth. Therefore, personalization is not just a trend, but a fundamental strategy in building competitive advantage in today's digital economy.

#### **4. Data-Driven Decision Making**

In a dynamic and competitive business environment, timely decision-making based on accurate information is a key factor for success. Integration between Management Information Systems (MIS) and Customer Relationship Management (CRM) provides a strategic advantage for companies by presenting real-time customer and operational data. This system not only records customer transactions or interactions, but also processes them into managerial information through analytical reports, interactive dashboards, and data visualizations such as consumer behavior trend graphs. Quick access to this information allows company leaders to make decisions with a strong foundation, not just based on intuition. One of the main benefits of this integration is the ability to evaluate the effectiveness of digital marketing campaigns objectively and measurably. Through campaign performance reports presented in the SIM dashboard, management can review important metrics such as conversion rates, customer engagement, and return on investment (ROI) from each promotion run. That way, companies can easily identify which strategies are working and which ones need to be improved, while allocating marketing budgets more efficiently.

In addition to marketing, the data collected by SIM-CRM is also very helpful in making decisions related to product development. Market demand recorded in the system such as best-selling products, locations with the highest demand, and customer reviews provide a concrete picture of consumer needs. With this information, management can determine which products need to be improved, developed, or even discontinued. This approach helps companies adjust product offerings more responsively to market dynamics. Finally, SIM and CRM serve as the foundation for long-term service strategy planning based on actual data. Management can create a service development roadmap by referring to historical data and customer service usage trends. For example, increasing demand for digital customer service can trigger companies to strengthen online channels such as chatbots or mobile applications. This makes SIM-CRM not just an administrative tool for recording data, but a strategic system that supports comprehensive, sustainable, and evidence-based business decision-making.

#### **5. Increasing Loyalty and Customer Lifetime Value (CLV)**

In the midst of increasingly tight market competition, retaining existing customers is often more effective and economical than attracting new customers. In this context, Management Information Systems (MIS) integrated with Customer Relationship Management (CRM) become a strategic tool to create superior and sustainable customer experiences. Personal, fast, and relevant experiences will build a deep positive impression, encourage customers to remain loyal and continue to make purchases. This loyalty not only creates long-term relationships, but also increases the economic value of each customer. Through data integration between MIS and CRM, companies can build long-term emotional relationships with customers. The system is able to recognize customer preferences, record important moments such as birthdays or purchase anniversaries, and automatically send personalized greetings or special offers. This approach not only makes customers feel appreciated, but also strengthens the emotional attachment to the brand. This deeper and more personal relationship is one of the main foundations in creating sustainable customer loyalty.

Additionally, a sophisticated CRM system allows companies to reward and incentivize loyal customers in a measurable and fair manner. By leveraging historical data from MIS, companies can identify customers with the highest purchase frequency and value, and then design a customized loyalty program. Examples include a points system, exclusive rewards, or access to VIP promotions. Relevant and personalized rewards not only increase satisfaction but also encourage customers to make repeat purchases for additional benefits. Furthermore, the integration of SIM into CRM also allows companies to monitor satisfaction levels and identify repeat purchase opportunities. The system can collect customer feedback through automated surveys or sentiment analysis from social media, which is then used as a reference in improving services. By continuously adjusting offers based on customer satisfaction, companies create a positive loyalty cycle. Ultimately, loyal customers will provide a high Customer Lifetime Value (CLV), which is the total value of the company's profits during the relationship with the

customer. High CLV is one indicator of the success of a customer relationship strategy and has a direct impact on long-term business growth.

## **6. Implementation Challenges**

Although the integration of Management Information Systems (MIS) and Customer Relationship Management (CRM) offers various strategic advantages for companies, the implementation process is not free from various complex challenges. Implementing this technology is not only about installing the system, but also concerns the readiness of the organization as a whole. Without thorough readiness, the full potential of MIS–CRM will not be achieved, and can even create new inefficiencies. Therefore, it is important to understand the main challenges that may be faced during the integration process. One of the main challenges is the readiness of human resources in operating an integrated digital system. Many organizations still rely on manual procedures or conventional systems, so adopting new technologies requires a change in work culture. Employees who are not familiar with digital technology may experience resistance or difficulty in using system features. Therefore, the change process must be accompanied by a good communication approach, as well as leadership that is able to encourage gradual and inclusive adoption of technology.

The next challenge is related to the need for regular training and ongoing technical support. MIS and CRM are systems that continue to evolve along with technological advances and customer needs. This requires companies to routinely provide training for staff, not just once at the beginning of implementation. Without adequate training, system use can be suboptimal, even causing errors in data processing. On the other hand, technical support such as troubleshooting, system updates, and cross-platform integration must be managed professionally so that the system runs smoothly and efficiently. Although these challenges are inevitable, with a mature managerial approach and continuous investment, companies can overcome them progressively. Commitment from top management, involvement of all departments, and adjustment of business processes are the keys to success in implementing this system. When challenges are addressed strategically, MIS and CRM serve not only as technological tools, but as an important foundation for data-driven business growth, strong customer relationships, and competitive advantage in the digital era.

## **CONCLUSION**

Based on the results of the study and analysis of literature, it can be concluded that the Management Information System (MIS) has a strategic role in supporting and improving the effectiveness of Customer Relationship Management (CRM) in the context of e-business through an e-commerce system. MIS allows companies to manage customer data in a structured, real-time, and integrated manner, which then becomes the basis for designing more personal, responsive, and individual-needs-based customer services. The integration between SIM and CRM in an e-commerce platform has proven to create synergy in customer relationship management. Through SIM support, CRM is able to provide superior user experience through service personalization, automation of interaction processes, and rapid response to customer complaints and preferences. This has a positive impact on increasing satisfaction, loyalty, and customer lifetime value (CLV) in a sustainable manner. The findings also show that companies that adopt MIS-CRM integration in e-business tend to have higher operational efficiency, sharper analytical capabilities, and better resilience in facing digital market dynamics. In other words, MIS is not just a technical tool, but is part of a customer-centric business strategy that is essential in the digital economy era.

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