International Journal Software Engineering and Computer Science (IJSECS)
4 (2), 2024, 656-664
Published Online August 2024 in IJSECS (http://www.journal.lembagakita.org/index.php/ijsecs)
P-ISSN : 2776-4869, E-ISSN : 2776-3242. DOI: https://doi.org/10.35870/ijsecs.v4i2.2661.

RESEARCH ARTICLE Open Access

Web-Based Gamelan Marketing Information System with CRM Strategy and New Product Delivery via Email at Sido Dadi Gamelan Industry in Jatiteken Village

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Received: June 29, 2024; Accepted: July 20, 2024; Published: August 10, 2024.

Abstract: The gamelan industry in Indonesia, as a rich and historical cultural heritage, faces significant challenges in sales and marketing, particularly in terms of efficiency and market reach. This article focuses on the implementation of information technology through the development of a web-based marketing information system supported by a Customer Relationship Management (CRM) strategy in the Sido Dadi Gamelan industry, located in Jatiteken Village, Sukoharjo Regency. This system is designed to facilitate more efficient and effective online sales, with a new product notification feature via email that is expected to expand market reach and enhance customer interaction. Additionally, the system aims to improve customer satisfaction through better relationship management, ultimately contributing to increased company profitability. The implementation of this information technology not only addresses the challenges faced by the gamelan industry but is also expected to strengthen the industry's position in the global market through a more modern and structured marketing strategy.

Keywords: Gamelan; Marketing; Information Technology; Web-Based System; Customer Relationship Management; Online Transactions.

1. Introduction

Gamelan, a cultural heritage from Java, holds significant historical and cultural value and has become an integral part of Javanese society, gaining recognition worldwide. However, despite its cultural importance, the gamelan industry in Indonesia faces substantial challenges, particularly in terms of sales and marketing efficiency. These challenges arise due to the continued reliance on traditional marketing methods, which often fall short in reaching broader markets effectively. Research by Gunawan, Purwanto, and Permatasari (2023) indicates that the implementation of a web-based information system could serve as an effective solution to improve sales management efficiency and expand market reach through more structured and targeted promotion [1]. In this regard, information technology plays a crucial role in addressing the challenges faced by the gamelan industry, particularly in enhancing operational efficiency and managing customer relationships more effectively. Sido Dadi Gamelan, located in Jatiteken Village, Sukoharjo Regency, serves as a relevant example of a gamelan industry that still relies on conventional sales and promotional methods. Currently, the industry primarily uses traditional promotion techniques, such as brochure printing and word-of-mouth marketing. Unfortunately, these methods have proven inadequate in reaching a wider audience, particularly in the digital age where much of the information is accessed through online platforms [1]. Recognizing these limitations, there is a pressing need to innovate marketing strategies by leveraging available information technology. One proposed solution is the implementation of a web-based marketing information system supported by a Customer Relationship Management (CRM) strategy. This system is designed not only to improve efficiency and effectiveness in marketing activities but also to strengthen customer relationships through a more personalized and organized approach.

The proposed online sales system aims to offer advanced features that can facilitate more effective and efficient promotion. One of the key features suggested is the ability to notify registered customers via email about new products. This feature allows the company to directly inform customers about the latest offerings without relying on less effective traditional promotional methods. As a result, customers will always receive the latest updates on products of interest, which is expected to enhance customer satisfaction and loyalty. The primary objective of developing this system is to increase customer satisfaction by managing relationships more effectively. By utilizing CRM, the company can manage customer interactions more efficiently, monitor customer needs and preferences, and deliver more personalized services. This approach not only leads to improved customer satisfaction but also contributes to the overall profitability of the company.

Furthermore, the implementation of this web-based marketing information system is expected to address the various challenges currently faced by the gamelan industry. With an integrated system, companies can enhance operational efficiency, reduce marketing costs, and expand market reach more effectively. Additionally, this system has the potential to strengthen the gamelan industry's position in the global market by leveraging digital technology to improve competitiveness. In the long term, the implementation of information technology through a web-based marketing information system with a CRM strategy is expected to have a significant positive impact on the gamelan industry. It will not only improve operational efficiency and effectiveness but also strengthen customer relationships and expand market share. This approach will enable the gamelan industry to grow and compete in an increasingly digital market environment. Moreover, the successful implementation of this system could serve as a model for other cultural industries facing similar challenges, demonstrating how information technology can be used to overcome traditional obstacles and open up new opportunities for growth and sustainability. Ultimately, the success of this system's implementation will largely depend on the industry's commitment and adaptability in integrating this new technology into their daily business processes.

2. Research Method

In this study, data collection was conducted using several structured methods. The primary approach involved direct observation of the operational systems at Sido Dadi Gamelan Industry, with particular attention to inventory management, transaction processes, and promotional strategies. This observational method allowed researchers to obtain detailed insights into the functioning of these systems within the industry. Additionally, interviews were carried out with key personnel directly involved in the management of the sales system, including the owner, administrative staff, and other employees. These interviews provided specific information on the procedures utilized in the sales management process, thereby offering a clearer understanding of the existing practices. A thorough literature review was also performed, drawing from academic books, scientific journals, and relevant online sources to support the research objectives.

In the subsequent system development phase, a requirements analysis was undertaken to design an e-commerce platform for Sido Dadi Gamelan Industry, which had previously relied on manual paper-based methods for documentation and sales reporting. To facilitate the transition to a digital system, the interface design included several key components such as a homepage, login page, product listings, product details, customer registration, shopping cart, testimonials, and user profiles. Following the analysis of software requirements, the design phase focused on critical aspects of system architecture. Database design was implemented using Entity Relationship Diagrams (ERD) to map out the necessary tables, their relationships, and data types within the system. Unified Modeling Language (UML) was employed to model the software's structure, providing a detailed depiction of the system's architecture. This architecture was subsequently realized through structured programming methods, with component and deployment diagrams used to represent the system's layout. The coding of the e-commerce platform was executed using the PHP programming language, with Visual Studio Code as the development environment. The methods employed in this study are expected to result in the creation of an effective and efficient web-based marketing information system tailored to the needs of the Sido Dadi Gamelan Industry in Jatiteken Village, Sukoharjo Regency. The implementation of this system is anticipated to address the industry's challenges in managing data, streamlining transaction processes, and enhancing promotional efforts, ultimately leading to improved operational efficiency.

3. Result and Discussion

3.1 Results

Currently, the Sido Dadi Gamelan Industry, located in Jatiteken Village, Sukoharjo Regency, does not utilize a website for displaying or purchasing products. The transaction process remains entirely manual, requiring customers to visit the industrial site in person. This method is inefficient in terms of both time and cost, as customers must physically travel to the location to view the available products, which is not convenient. This inefficiency has led to a significant challenge for the industry in maintaining customer loyalty. The inconvenience of the current process causes many customers to opt for other stores where they can complete transactions more easily, directly impacting the industry's revenue. To thoroughly understand the ongoing procedures, a workflow analysis of the current system was conducted, as illustrated in the following diagram.

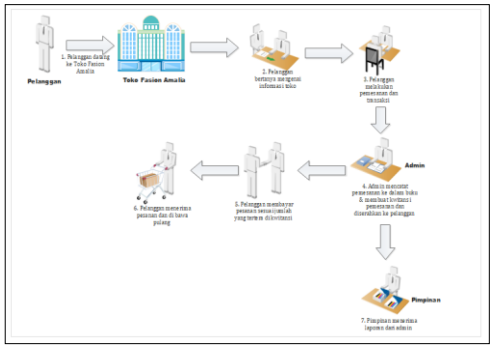

Figure 1. Current System Workflow

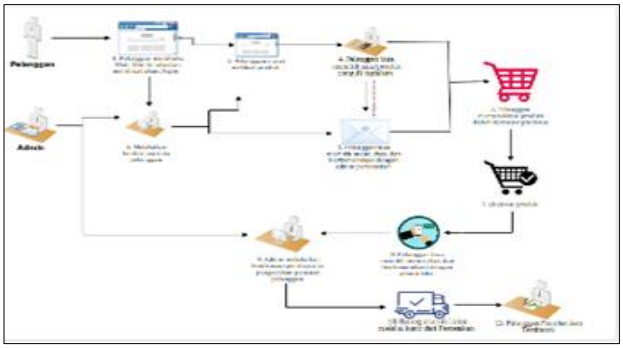

Figure 2. Proposed System Workflow

In the existing workflow, customers must go through several steps to complete a transaction. First, they need to visit the Sido Dadi Gamelan Industry in person and consult with the Customer Service to inquire about the available products. After selecting and purchasing the desired product, the admin records the customer's order. The customer then proceeds with the payment and waits for the purchased product to be delivered or picked up. Understanding this workflow is crucial for developing a new web-based marketing information system that can address these issues and improve both efficiency and customer satisfaction. To enhance customer satisfaction, a web-based marketing information system will be developed with an integrated feature for notifying customers about new products via email. This feature is intended to inform customers of the latest products available at Sido Dadi Gamelan without requiring them to visit the physical store. This approach is expected to significantly improve efficiency by saving both time and costs. The following diagram outlines the proposed workflow for this feature. In the proposed workflow, customers will no longer need to visit the production site directly. Instead, they can access the Sido Dadi Gamelan online store through a website where they can log in using their Gmail account or create a new account if they do not have one. Upon registration,

the system admin will send a verification code to the customer for login. Once successfully logged in, customers will be able to view products from the Sido Dadi Gamelan Industry. The implementation of the new product notification feature will follow these steps:

1) Customer Data Collection
   Email addresses will be collected from customers during the registration process on the website.
2) Product Database Update
   Each time a new product is added, the product database will be updated.
3) Automatic Email Dispatch
   The system will automatically send an email to registered customers when new products become available.
4) Email Content
   The email will contain detailed information about the new product, including images, descriptions, prices, and a direct link to the product page on the website.

With the implementation of this feature, customer satisfaction is expected to increase as they receive the latest information quickly and easily. Additionally, this system is anticipated to boost customer loyalty and increase industry revenue through a higher volume of transactions.

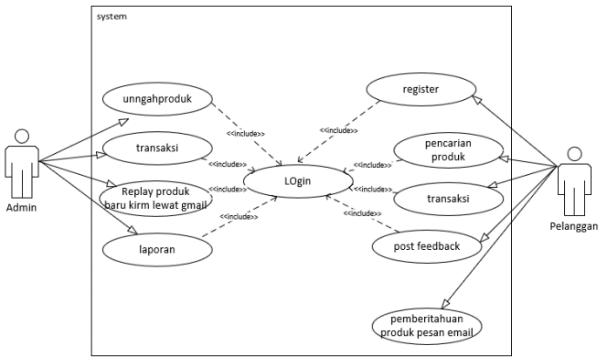

Figure 3. Use Case Diagram

A use case diagram is employed to illustrate the boundaries of the system and its primary functions by modeling the interactions between two actors: the admin and the customer. The admin's responsibilities include managing the login process, updating inventory, processing and confirming payments, and sending out new product information via email. On the other hand, customers can make purchases after logging in and also receive notifications about new products through email if they are registered customers on the e-commerce website.

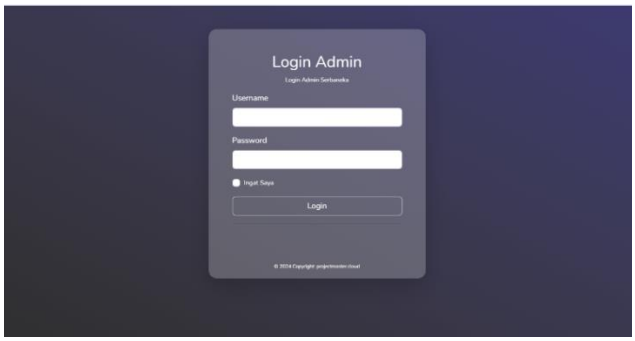

Figure 4. Admin Login Interface Implementation

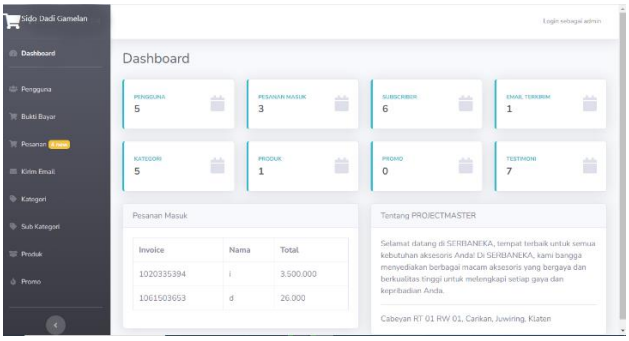

Figure 5. Dashboard Interface Implementation

The admin login interface is designed to ensure that only authorized users can access the system dashboard. Admins are required to enter their username and password on the login page to authenticate their credentials. This process is crucial for maintaining system security and preventing unauthorized access. Figure 4 illustrates the implementation of this login interface. The admin dashboard serves as the central management hub of the system. It includes a variety of menus and tools for overseeing product management, order processing, email notifications, user settings, and other administrative functions. This interface provides a comprehensive

view of key system metrics and facilitates easy navigation between different management areas. Figure 5 showcases the design and layout of the dashboard interface.

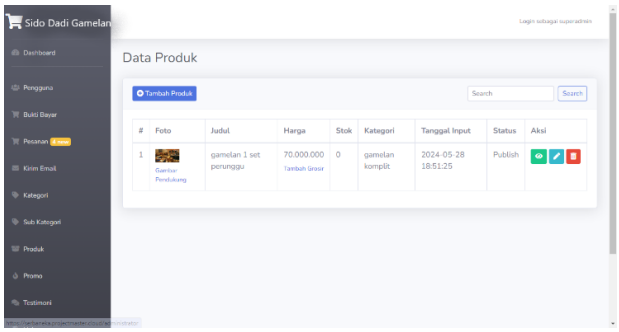

Figure 6. Product Data Interface Implementation

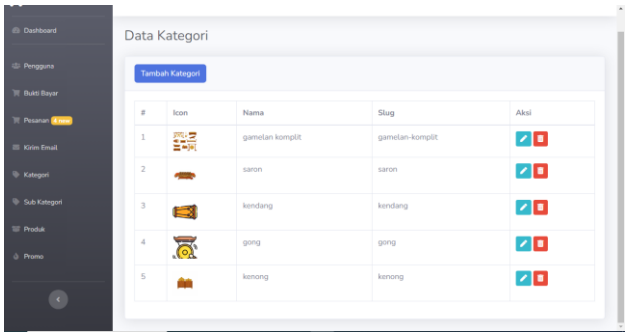

Figure 7. Product Category Data Interface Implementation

On the product data page, admins have the capability to view, add, and edit products. This interface is essential for managing the product catalog efficiently. It includes options for CRUD (Create, Read, Update, Delete) operations, allowing for seamless updates and maintenance of product information. Figure 6 demonstrates the product data interface's functionality and design. The product category data interface is specifically designed for managing the various product categories available for sale at Sido Dadi Gamelan. Admins can add, edit, or remove categories, ensuring that the product catalog is well-organized and accurately reflects the available inventory. Figure 7 depicts the layout and features of this interface.

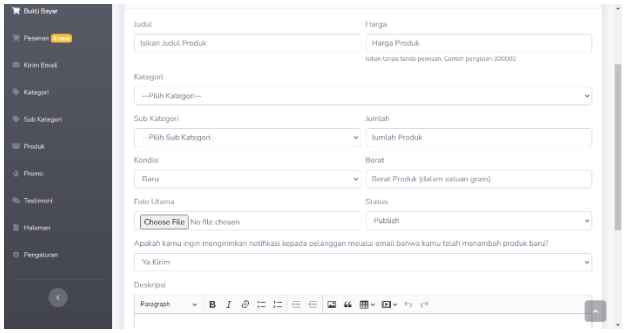

Figure 8. Add Product and Customer Email Notification Interface Implementation

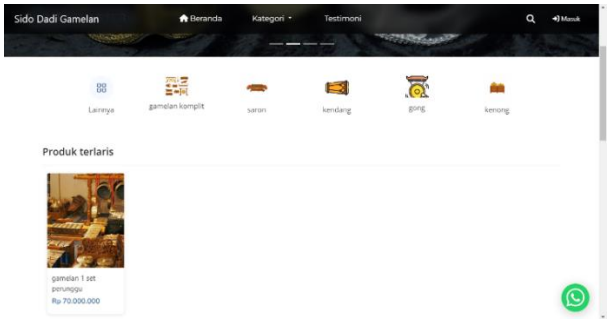

Figure 9. Customer Home Interface Implementation

The add product page is equipped with detailed options for entering new product information. Additionally, it includes functionality for sending email notifications to customers about newly added products. This ensures that customers are promptly informed about product updates and promotions. Figure 8 illustrates the implementation of the add product page and its associated email notification features. The customer home page provides a user-friendly interface for browsing products available for sale at Sido Dadi Gamelan. This page displays product listings and allows customers to explore different items, making it an essential component of the online shopping experience. Figure 9 shows the design of the customer home interface.

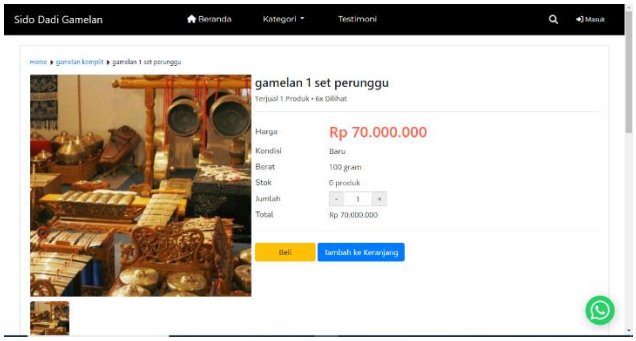

Figure 10. Product Detail Interface Implementation

Figure 11. New Product Email Confirmation Interface Implementation

The product detail page offers customers a comprehensive view of individual product information before making a purchase. It includes detailed descriptions, images, and pricing, helping customers make informed decisions. Figure 10 presents the layout and features of the product detail interface. The new product email confirmation interface is used to verify that email notifications about new products have been successfully sent to customers. Admins can manage these notifications and ensure that customers receive timely updates about new offerings. Figure 11 illustrates the design and functionality of the email confirmation interface. The proposed system, once implemented, is expected to significantly enhance the operational efficiency of the Sido Dadi Gamelan Industry. By streamlining the transaction process and improving customer engagement through timely notifications and a more accessible online platform, the industry can overcome the current limitations of its manual processes. Ultimately, this system will contribute to higher customer satisfaction, improved customer retention, and increased revenue, ensuring the sustainable growth of the Sido Dadi Gamelan Industry in an increasingly digital marketplace.

3.2 Discussion

The current system employed by the Sido Dadi Gamelan Industry presents significant challenges in both operational efficiency and customer satisfaction. As highlighted in the system analysis, the industry relies on a manual process for transactions, requiring customers to visit the physical location to view and purchase products. This approach is time-consuming and inefficient, especially in today's digital age where most businesses leverage online platforms to facilitate quicker and more convenient transactions. The need for physical presence not only increases operational costs for the business but also places a burden on customers who seek convenience and flexibility in their shopping experience. This inefficiency can drive customers away, resulting in decreased loyalty and potential revenue loss for the industry. The manual system also hampers the industry's ability to expand its market reach. In a globalized economy, customers expect businesses to offer online access to their products and services. The lack of an online presence limits the potential customer base, confining the industry to a smaller, local market. Furthermore, traditional methods of promotion, such as brochures, are not effective in reaching a wider audience or conveying real-time updates about product availability. This has created a gap between the industry's potential and its current operational capabilities.

To address these challenges, the development of a web-based marketing information system is proposed. This system integrates an online platform that allows customers to access product information, make purchases, and receive updates without needing to visit the physical store. The implementation of this system will streamline the customer experience, making it more efficient and convenient. Customers can now browse products, place orders, and receive notifications about new items directly from their devices, which reduces the need for face-to-face interactions and provides a more user-friendly shopping experience. One of the key features of this proposed system is the new product notification feature, which sends automated emails to registered customers whenever a new product is added. This not only keeps customers informed but also enhances customer engagement by maintaining a continuous line of communication between the business and its clientele. This system also improves the industry's ability to retain customers by keeping them updated on the latest offerings, increasing the likelihood of repeat purchases and fostering customer loyalty.

Additionally, the use of Customer Relationship Management (CRM) strategies within the system is crucial for improving customer satisfaction and business performance. CRM allows the industry to manage customer data, preferences, and purchasing history, enabling personalized services and targeted marketing. By understanding customer behavior, the Sido Dadi Gamelan Industry can tailor its products and marketing efforts to meet customer demands, which is vital for retaining customers and attracting new ones. From an administrative perspective, the proposed system also streamlines internal processes. The admin interface includes tools for managing product inventories, orders, and customer communications efficiently. This centralized system allows the admin to update product listings, confirm orders, and send notifications through a single platform, reducing manual workload and minimizing errors. The integration of a database using the Entity Relationship Diagram (ERD) ensures that the data is well-organized and easily accessible, enhancing overall business operations. The shift from a manual to a digital system is expected to have a positive impact on the industry's profitability. By expanding the market reach through an online platform, the industry can tap into a broader customer base, both locally and internationally. The increased visibility provided by an online presence, coupled with efficient marketing strategies, will likely lead to higher sales volumes. Furthermore, the system's ability to track and analyze customer data will provide valuable insights into consumer behavior, allowing the business to adjust its strategies for continued growth. The implementation of a web-based marketing information system for Sido Dadi Gamelan Industry offers multiple benefits, ranging from improved operational efficiency to enhanced customer satisfaction and increased profitability. The system not only modernizes the industry's processes but also ensures that it remains competitive in an increasingly digital

marketplace. Through better communication, efficient transaction management, and the integration of CRM strategies, the industry can overcome its current challenges and position itself for sustainable growth in the future.

4. Related Work

Research on the development of marketing information systems for the Gamelan industry, especially those based on CRM websites for sending new products via email, shows several important findings. This study focuses on the application of e-commerce and CRM systems to improve promotion and transaction efficiency, as well as expand market reach. Amin, Soelistijadi, and Priambodo (2012) discuss e-commerce applications in the context of batik in Semarang as an effort for online promotion and transactions. They emphasize that an effective e-commerce system can facilitate widespread product promotion and increase accessibility and transaction efficiency. These findings underlie the understanding that a similar system can be applied to the Gamelan industry to facilitate product promotion and sales [2]. Hastanti (2014) explores the design of a web-based sales system at Tata Distro Pacitan, which shows how an e-commerce system can increase efficiency and expand market reach. This research is relevant to the growing Gamelan industry, underlining the importance of using online platforms to expand market access and increase sales effectiveness [3]. Marlinda (2004) discusses the role of database systems in e-commerce information management. This study highlights the need for an effective database to support online sales systems, including product management and data security. Implementation of a good database system is key to improving user experience and operational efficiency in an e-commerce platform for the Gamelan industry [4]. Rejeki, Utomo, and Susanti (2011) studied the design and implementation of an e-commerce-based sales system at Distro Smith. This study provides guidance on how e-commerce system design can be optimized to support online sales. The findings suggest that good design and efficient system implementation can improve user experience and sales results, which can also be applied to the development of a Gamelan marketing system [5]. Sadeli (2013) discusses the creation of an online clothing store using PHP and MySQL, providing technical guidance for the development of an e-commerce system. This study underlines the importance of selecting the right technology in building an online sales platform. The use of PHP and MySQL as basic technologies can improve platform performance and security, aspects that are very important in a Gamelan marketing system [6]. Sukamto and Shalahuddin (2011) explain software engineering and system development techniques relevant to e-commerce. This study provides a theoretical and practical basis for designing and building effective software systems. The application of good software engineering principles in the development of Gamelan marketing information systems can ensure that the system functions properly and meets user needs [7]. Sutabri (2004) highlights structured programming in the context of software development. This study provides guidance on how to use structured programming techniques to build stable and maintainable systems. The application of this technique in the development of e-commerce systems for the Gamelan industry can improve the quality and sustainability of the system [8]. Warsiti (2013) explores the creation of e-commerce websites for fashion businesses. This study emphasizes the importance of an attractive and functional user interface to support online transactions. These findings are relevant to the Gamelan industry, where good site design can increase marketing appeal and effectiveness [9]. Additional research by Adetunji *et al*. (2019) shows the advantages of online sales systems, such as accessibility from various locations and times, as well as fast transactions between sellers and buyers via email confirmation. These findings reflect the importance of online systems in accelerating transactions and interactions in the digital market [10].

Katniati *et al*. (2021) highlighted the importance of user-friendly website design and social media promotion for online sales platforms, such as Sido Dadi Gamelan. This study shows that a well-designed online presence, supported by active engagement on social media, significantly influences customer perception and business growth [11]. Sugiarti (2023) emphasized the need to integrate advanced features and improve security systems in online sales platforms to improve customer experience and operational efficiency. This study helps businesses better address customer needs and secure digital transactions from potential threats [12]. An assessment of occupational safety and health in the Gamelan industrial center, as described by Rahma and Hasanudin (2019), provides additional context regarding the importance of implementing safety measures to ensure industry productivity and competitiveness. Effective safety practices contribute to a safer work environment [13]. Maharani *et al*. (2019) discussed the socio-economic challenges faced by Gamelan craftsmen in Wirun Village, Mojolaban, highlighting the need for tailored support and resources to improve their livelihoods and business prospects. Agustin *et al*. (2021) also explored customer satisfaction in local markets, emphasizing the role of effective service in increasing community engagement and satisfaction

[14][15]. In the realm of CRM, Fernandes (2023) described the benefits of an effective CRM system in improving customer service, sales efficiency, and revenue. Wahyudin and Irfansyah (2022) emphasized the role of CRM technology in building emotional relationships with customers. Fabriani and Juanita (2020) explored the impact of E-CRM features, such as promotions and loyalty programs, which significantly increased customer loyalty and attracted new clients [16][17][18]. The development of an effective marketing information system, especially for a niche industry such as Gamelan, is essential to achieving competitive advantage and sustainable growth.

5. Conclusion

This study has successfully developed a website-based gamelan marketing information system with a CRM strategy for sending new products via email in the Sido Dadi Gamelan industry, Jatiteken Village. The conclusion of this study shows that the online sales system provides easy access from various locations and times, allowing for fast and up-to-date product information exchange between sellers and buyers. This system also facilitates transactions without the need for direct meetings, saving time and energy. The email confirmation feature for new products facilitates product promotion and advertising, while product, customer, and report management becomes more controlled through this system. To increase the attraction of visitors and buyers, it is recommended that the online sales website be made more attractive with a user-friendly design. Given that this website is still new, wider promotion through social media is routinely needed to increase visibility. In addition, the development of simple website features, such as product details, payment information, and member data security, needs to be done to improve the functionality and security of the system. Further efforts in developing features and implementing better security systems are essential to ensure the success and efficiency of the gamelan marketing system.

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