ANALYSIS OF THE EFFECT OF E-CRM AUTOMATION ON SERVICE EFFICIENCY AT DIAH FASHION STORE

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Abstract: The rapid development of digital technology has brought significant changes in consumption patterns and customer behavior, particularly in the fashion retail sector. Increasing competition and rising cynsumer expectations for fast, accurate, and technology-based services require businesses to innovate and undergo digital transformation. One widely used approach is the implementation of automation-based Electronic Customer Relationship Management (E-CRM). This study aims to analyze the implementation of E-CRM automation and its impact on service efficiency at Toko Diah Fashion, a fashion retail business that still faces service challenges due to manual systems, such as customer data duplication, delayed responses, and difficulty in monitoring transaction history. The research method used is a descriptive qualitative method with data collection techniques through observation, interviews, and documentation. The research focus is limited to aspects of service efficiency, including service speed, accuracy in managing customer data, and ease in customer follow-up. The E-CRM automation system studied is designed using PHP programming language and a MySQL database. The research results indicate that the implementation of E-CRM automation can significantly improve service efficiency. This system facilitates integrated customer data management, speeds up the service process, and supports more personalized communication through notification features and transaction history recording.

Keyword: automation; e-crm; fashion retail; service efficiency.

Abstrak: Perkembangan teknologi digital yang semakin pesat telah membawa perubahan signifikan dalam pola konsumsi dan perilaku pelanggan, khususnya dalam sektor ritel fashion. Persaingan yang semakin ketat serta meningkatnya ekspektasi konsumen terhadap layanan yang cepat, akurat dan berbasis teknologi menuntut pelaku usaha untuk melakukan inovasi dan transformasi digital. Salah satu pendekatan yang banyak digunakan adalah penerapan Electronic Customer Relationship Management (E-CRM) berbasis automasi. Penelitian ini bertujuan untuk menganalisis penerapan automasi E-CRM serta pengaruhnya terhadap efisiensi pelayanan pada Toko Diah Fashion, sebuah usaha ritel fashion yang masih menghadapi kendala pelayanan akibat sistem manual, seperti duplikasi data pelanggan, keterlambatan respons, dan kesulitan dalam pemantauan histori transaksi. Metode penelitian yang digunakan adalah metode kualitatif deskriptif dengan teknik pengumpulan data melalui observasi, wawancara, dan dokumentasi. Fokus penelitian dibatasi pada aspek efisiensi pelayanan, meliputi kecepatan pelayanan, ketepatan pengelolaan data pelanggan, serta kemudahan dalam tindak lanjut pelanggan. Sistem automasi E-CRM yang dikaji dirancang menggunakan bahasa pemrograman PHP dan basis data MySQL. Hasil penelitian menunjukkan bahwa penerapan automasi E-CRM mampu meningkatkan efisiensi pelayanan secara signifikan. Sistem ini mempermudah pengelolaan data pelanggan secara terintegrasi, mempercepat proses pelayanan, serta mendukung komunikasi yang lebih personal melalui fitur notifikasi dan pencatatan histori transaksi.

Kata kunci: automasi; e-crm; efisiensi pelayanan; ritel fashion.

INTRODUCTION

The development of digital technology has brought about a major transformation in the business world, especially in the online shopping sector [1]. As time goes by, people are increasingly relying on technology to carry out various activities in order to obtain information quickly and accurately [2]. Business involves various sectors such as trade, industry, services, agriculture, and digital, and can be started with small capital and careful planning [3]. The objectives include profit, employment, economic growth, and welfare, and can be implemented through physical or online models with sound marketing and financial strategies. [4]. As in existing fashion businesses.

In the context of the fashion business, the high level of competition requires businesses to understand consumer behavior in greater depth [5]. Consumers no longer only consider product quality, but also evaluate how a store provides a satisfying and consistent service experience [6]. This is where the role of E-CRM automation becomes very important [7]. The types of E-CRM automation implemented at Toko Diah Fashion cover several key aspects, namely automation of customer registration and account management, automation of purchase transaction recording and storage, and automation of service communication through notification features and customer interaction history.

The system also allows management to automatically monitor customer activity and service performance based on data stored in the database. Thus, e-CRM automation not only functions as a digital administration tool, but also as a means of supporting decision-making to improve the efficiency and quality of service in the fashion retail business.

Through this automation system, companies can efficiently manage customer data, send targeted promotions, and provide fast and personalized service [8]. With the increase in the number of customers and transactions, the manual service process that has been implemented has become inefficient. Conventional customer data recording often causes data duplication, delays in responding to customer requests, and difficulties in monitoring purchase history [9]. As a result, service becomes less than optimal and leads to a decline in customer loyalty [10].

E-CRM is a collection of knowledge related to the application of CRM principles in the context of the e-commerce environment [11]. Range of E-CRM features from advanced applications to simple applications on web page [12]. The novelty of this research lies in the application of e-CRM automation, which not only functions as a customer data management system but also automates the entire customer interaction cycle in an integrated manner in the context of MSME-scale fashion retail businesses.

Unlike previous studies that generally discuss e-CRM as a medium for customer recording or a means of digital communication, this study emphasizes automation in the customer registration process, transaction recording, interaction history management, and real-time customer service monitoring in a single web-based system. Additionally, this research examines the implementation of e-CRM automation directly at Diah Fashion Store, thereby providing practical contributions in the form of an applicable

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e-CRM implementation model that suits the needs of retail MSMEs, while also enriching empirical studies related to the utilization of e-CRM automation in the small-scale business sector.

To understand customer satisfaction in a digital context, it is necessary to have a clear understanding of what customer satisfaction means [13]. Customer satisfaction is defined as a cognitive evaluation, where some standard comparisons are compared with the actual perceived performance to be expected [14]. If the perceived performance is lower than expected, customers will be dissatisfied.

E-CRM automation is the solution to these problems. This system can automatically integrate various business activities such as customer registration, promotion management, customer follow-up, and satisfaction analysis. With automation, the service process becomes faster and more efficient because the system can execute administrative tasks without excessive manual involvement. In addition, E-CRM can also identify customer behavior based on transaction history, allowing management to design more targeted sales and service strategies.

However, the success of E-CRM automation implementation does not only depend on technology, but also on the readiness of human resources and the data management strategy applied. Lack of training for employees in using the system can cause operational obstacles. In addition, the lack of integration between the E-CRM system and the store database can also cause obstacles in service efficiency. Therefore, E-CRM for service efficiency is important to determine the extent to which the application of this technology can have a positive impact on store operational performance.

Research by [8], [12] and [13] studies have discussed the application of electronic Customer Relationship Management (e-CRM) in improving service quality and customer loyalty. Previous studies have shown that e-CRM can help companies store and manage customer data centrally, speed up service processes, and improve communication between companies and customers. Other studies emphasize that web-based e-CRM can improve marketing effectiveness and customer satisfaction through easy access to information and digital services. However, most of these studies still focus on the function of e-CRM as a tool for recording customer data and a medium of communication, without emphasizing the aspect of comprehensive service process automation [15].

In addition, previous studies were generally conducted on large-scale companies or specific industrial sectors, so the application of e-CRM in the context of micro, small, and medium enterprises (MSMEs), especially in the fashion retail sector, is still relatively limited. There has not been much research examining the implementation of e-CRM automation that integrates customer registration automation, transaction recording, interaction history management, and real-time customer service monitoring in a centralized system.

There is a research gap in the form of a lack of studies that specifically discuss the application of e-CRM automation in fashion retail MSMEs using an integrated and applicable system approach. Therefore, this study aims to fill this gap by developing and implementing an e-CRM automation system at Toko Diah Fashion, which is expected to provide empirical and

practical contributions to the use of e-CRM in small-scale businesses.

This study is expected to provide empirical contributions to Diah Fashion Store in evaluating the effectiveness of implementing the E-CRM system. With an in-depth analysis of service efficiency aspects, the store can identify areas that need improvement and optimize its service strategy to be more competitive than its competitors. In addition, this research can also serve as a reference for other fashion businesses in implementing digital automation as a strategic step towards increasing competitiveness and business sustainability in the era of industry 4.0.

METHOD

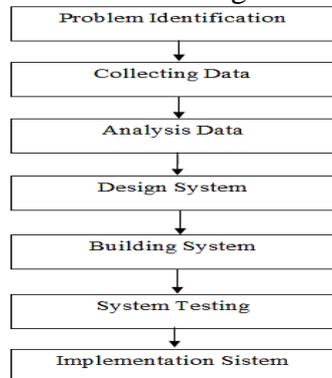This study has several stages, which can be seen in Image 1 below.

Image 1. Research Stage

Problem Identification

Problem identification is the process of determining the core issues of a study. Here, the author identified several problems, including the inefficient manual service process that has been implemented. Conventional customer data recording often results in data duplication, delays in responding to customer requests, and difficulties in monitoring purchase history.

Collecting Data

Primary data collection was conducted through interviews and direct observation to gain an in-depth understanding of business processes and e-CRM automation system requirements.

Semi-structured interviews were conducted with the owner and staff of Diah Fashion Store as parties directly involved in customer management and sales transactions. The interview questions focused on the current customer service process, methods of recording customer and transaction data, problems often encountered in service, and the need for an automation-based e-CRM system.

In addition to interviews, direct observations were conducted on the store's operational activities, particularly on the sales transaction process, customer data recording, and daily customer service. These observations aimed to identify actual workflows, potential recording errors, and inefficiencies in processes that were still being carried out manually. The observation results were used to validate the interview data and form the basis for designing features and automation flows in the developed e-CRM system.

Analysis Data

After collecting data, the author analyzed the data and found a solution to the existing problems, namely by developing an E-CRM system that can help with promotion, efficiency, and customer service at Diah Fashion Store.

Design System

A Use Case Diagram is a sequence of activities performed by actors and systems to achieve a specific goal [16]. The activities performed in a use case only describe what the actors and

systems do, not how the actors and systems perform those activities. The use case diagram can be seen in Image 2 below.
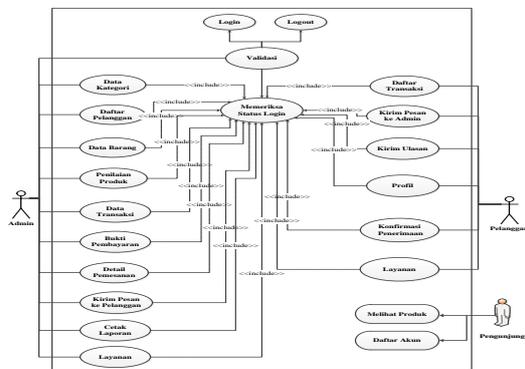

Image 2. Use Case Diagram

Actor Defenition

The definition of actors in the E-CRM design system at Diah Fashion Store is detailed in Table 1 below.

Table 1. Defenition Actor

Actor	Description
Admin	1. Log in to the system.
	2. View customer list.
	3. Manage customer information.
	4. Manage product category data.
	5. Manage product data.
	6. Manage services.
	7. View product reviews.
	8. Manage transactions.
	9. Manage order status.
	10. View transfer receipts.
	11. View and print order transaction reports.
	12. Log out of the system.
Customer	1. Log in to the system.
	2. View customer data/profile.
	3. View order list.
	4. View services.
	5. View transaction list.
	6. Confirm payment.
	7. Confirm receipt.
	8. Change password.
	9. Log out of the system.

Building System

This stage involves developing a system using the PHP programming language and MySQL database management to achieve a goal based on the need for efficient web-based customer service at Diah Fashion, thereby optimizing the service process. The system can also be monitored and adjusted if improvements are needed because it is dynamic in nature.

Testing System

System testing is a process of evaluating whether the system created meets expectations.

RESULT AND DISCUSSION

Implementation System

The implementation of the e-CRM automation system in this study is not only demonstrated through the user interface, but also through the automation mechanism that runs on the back-end. Each feature provided is designed to automate the integrated customer relationship management flow.

Technically, customer data management automation is carried out through a data input and storage process that is directly connected to the database. When a customer makes a transaction, the system automatically validates the customer data and stores it in the customer table without the need for manual recording. This process ensures data consistency and minimizes input errors that often occur in conventional systems.

The transaction automation feature, every sales transaction made is immediately recorded and linked to the relevant customer data. The system automatically creates a history of

customer transactions and interactions, so that purchase information can be traced in real time. This mechanism allows administrators or management to monitor customer activity and purchasing patterns more accurately.

Furthermore, automation is applied to customer service and promotion management features. Administrators can monitor customer activities and design service strategies based on system-generated data. Thus, e-CRM automation not only digitizes business processes but also supports data-driven decision making to improve service effectiveness and customer relationship management.

Registration Menu

This menu is used to register as a new user by filling in the username and password in the fields provided.

Image 3. Registration Menu

Product Page

A product listing page. It displays all products available to customers. customers can view product information by clicking on one of the images.
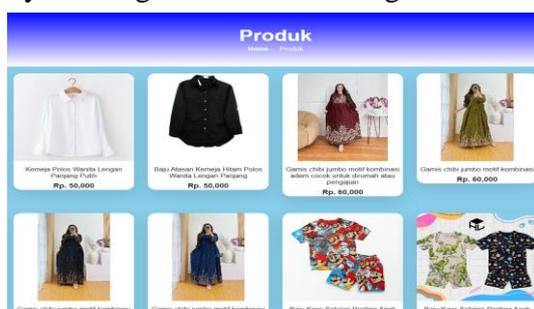

Image 4. Product Page

Category Page

This page used If you want to select products based on category, select one of the product categories.

Image 5. Category Page

Chart Page

This page is a follow-up to the product details page. If a customer places an order for one of the items on the product page, they will be redirected to the order cart page.

Image 6. Chart Page

Checkout Page

This page is a follow-up to the order list. It contains order details, invoice codes, shipping costs, and customer addresses.
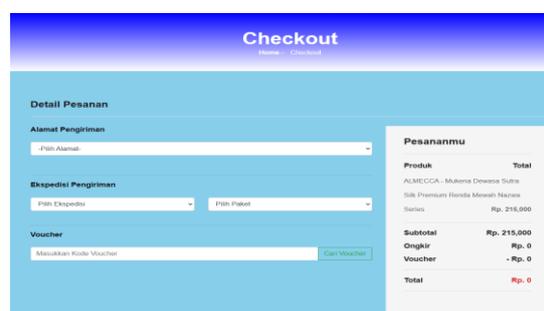

Image 7. Checkout Page

Report Page

This page is used by owners/admins to view stock reports and sales reports.
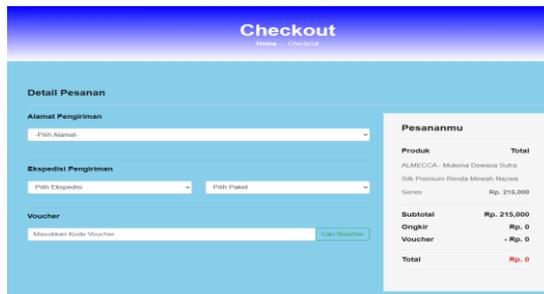
Image 8. Report Page

System Testing

System testing was conducted using the Blackbox Testing method to ensure that all functions in the e-CRM automation system run according to user requirements. The following are the results of blackbox testing.

Table 2. Blackbox Testing Result

Testing Class	Detail of Testing
Testing of product data, categories, orders, transactions, and live chat.	Process product, category, order, transaction, and live chat data by admin.
Testing displays data on products, categories, services, orders, transactions.	Displays input results of displaying product data, categories, orders, transactions and reports by admins and customers

CONCLUSSION

The research conducted can draw various conclusions, including that integrating E-CRM into existing functions within the company can improve customer service, both for new and existing customers. The application of the E-CRM method for product sales at Diah Fashion Store can be seen in several features, such as discounts, sending direct messages, viewing comments from customers who have ordered products, retaining existing customers and attracting new customers, and improving customer service so that customers remain loyal and do not switch to other stores.

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