



E-CRM System Development Strategy As An Effort To Improve Computer Services And Sales

Azmi Ainul Rifky
 Information System
 University Royal
 Asahan, Indonesia
azmirifky2@gmail.com

Herman Saputra
 Computer System
 University Royal
 Asahan, Indonesia
hermansaputra4@gmail.com

Elly Rahayu
 Information System
 University Royal
 Asahan, Indonesia
ellyrahayu68@gmail.com

Abstract—The rapid development of digital technology has significantly influenced business strategies and customer behavior, particularly in the context of service and sales management. However, many businesses still face challenges in managing customer data that is not integrated, which affects service quality and marketing effectiveness. This study aims to design and implement an Electronic Customer Relationship Management (E-CRM) system to improve customer service and sales performance. The research method used is descriptive analysis with data collection conducted through observation and interviews to identify system requirements and existing problems. The system was developed using a web-based approach to integrate customer data, transaction history, and communication processes. The results show that the implemented E-CRM system is able to improve customer data management, facilitate customer behavior analysis, enhance service responsiveness, and support more targeted marketing strategies. In addition, the system contributes to increasing customer satisfaction and loyalty through better interaction and personalized services. In conclusion, the development of a web-based E-CRM system provides an effective solution for optimizing customer relationship management and improving business competitiveness in the digital era.

Keywords— E-CRM, Media Data Computer, Customer Loyalty, Service, Sales.

I. INTRODUCTION

Technological developments bring changes to many sectors, one of which is the business/enterprise world [1]. Technology changes the business patterns both from the perspective of the entrepreneurs themselves and from the perspective of customers. Consumer behavior is increasingly changing along with the times and the increasingly massive development of technology [2]. In the past, when people needed something or wanted to buy something, they would go to a store or market to get it; now, with the various conveniences brought by technology, buyers do not have to visit a store or market to obtain the desired goods, as many things can be done remotely simply through smartphone devices [3].

E-CRM is one way of managing the relationship between a company and its customers to increase customer loyalty in order to enhance the consumption loyalty of the products or services offered by the company by utilizing electronic media [4]. With the development of the times and the increasing competition in the era of globalization, CRM becomes one of the things that play an important role for companies [5]. With CRM, we can know every profile of our customers, the desires of the customers, the needs of the customers, and maintain those customers to stay connected with the company [6].

Therefore, it is important for business actors to design effective strategies to maintain and increase profits sustainably in the long term [7]. This strategy includes efforts to retain the loyalty of existing customers, facilitate business growth in increasing sales profit, improve customer service, and attract more new customers through the implementation of an Electronic Customer Relationship Management system [8].

The absence of a system that supports customer relationship management also limits Media Data Computer's ability to formulate accurate marketing strategies. Promotional activities carried out are still general in nature and not based on customer data analysis, resulting in effectiveness that has not yet reached optimal results. In the midst of business competition in the digital era, deep understanding of consumer behavior and preferences becomes a key factor in increasing customer loyalty. Therefore, a system is required that not only functions as a customer data storage, but also is capable of generating strategic insights to support the improvement of service quality and drive sales growth [9] [10].

Currently, customer management at Media Data Computer is not yet optimally integrated into a comprehensive system. Although transaction and communication processes have utilized technology, sales data storage is still scattered across various platforms that are not interconnected. As a result, the service process becomes less efficient, product information is often not conveyed properly, and the company struggles to conduct a thorough analysis of customer needs. Without a centralized system to manage customer data, these conditions indicate the lack of an integrated E-CRM system capable of effectively supporting customer satisfaction analysis, complaint management, and the generation of data-driven product recommendations [11].

Sales of computer products and supporting devices at Media Data Computer experience inconsistent fluctuations from month to month. Some product categories show an increase in sales, while other categories actually experience a decline in the following period [12] [13]. This instability indicates that sales achievement has not been fully optimal and is still influenced by various factors, both from the side of consumer needs and preferences, as well as from the effectiveness of the service and marketing strategies implemented by the company [14] [15]. This condition shows that Media Data Computer needs a more directed and systematic strategy in managing customer relationships [16].

In addition, the increasing number of competitors in the Kisaran area offering various attractive promotions, fast services, and more structured online ordering has put Media Data Computer in a more pressured position. Customers tend to choose providers that offer the best experience, not just cheaper prices. The company's unpreparedness to adopt digital technology can lead to a decline in customer loyalty and may impact overall sales. This is increasingly evident as many customers switch to making purchases through marketplaces that offer transaction convenience, product reviews, and automated after-sales services [17].

To address these challenges, the development of an E-CRM system has become one of the highly needed solutions [18]. E-CRM allows companies to integrate customer data, transaction history, service notifications, and interactive communication through digital platforms [19]. This system can also be used to analyze customer behavior so that companies can formulate product offering strategies that are more targeted [20]. The implementation of E-CRM also supports the improvement of two-way communication between customers and companies, whether in handling complaints, service requests, or the process of purchasing new products [21].

II. METHODOLOGY

Media Data Computer is a business that operates in the sale of computers and information technology devices. This business serves various customer needs such as purchasing computers, laptops, and supporting accessories, as well as device repair services. Along with the increasing public demand for digital technology, especially in the

fields of education, work, and business, the demand for computer products has also increased. However, on the other hand, Media Data Computer faces significant challenges in retaining existing customers while attracting new ones. These challenges are related to the importance of structured and integrated customer relationship management to understand customer needs, preferences, and satisfaction levels. This situation causes the service process to become less efficient and makes it difficult for the company to analyze customer behavior, needs, and satisfaction levels. This research has the following stages:

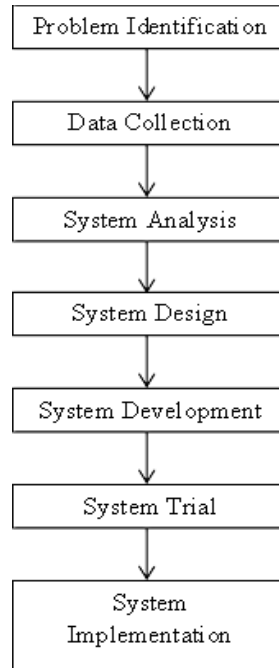


Figure 1. Research Stages

A. Problem Identification

Problem Identification is a crucial stage in the research process. At this stage, researchers identify problems experienced by Media Data Computer. One of the problems at Media Data Computer is income instability, which requires different strategies to increase sales profit, improve loyalty, and attract new consumers.

B. Data Collection

At this stage, data collection was carried out through interview and observation methods at Media Data Computer, located in Kisaran, Indonesia. Observations were conducted to directly examine the ongoing service, sales, and customer management processes, particularly in how customer data is recorded, managed, and utilized in daily operations. In addition, interviews were conducted with the business owner and staff to gather detailed information regarding existing system limitations, customer service challenges, and marketing strategies currently applied. The data were collected to identify key problems related to customer relationship management, including data fragmentation, lack of integration, and limitations in analyzing customer behavior. These findings serve as the basis for designing an appropriate E-CRM system that aligns with the actual needs and conditions of the business.

C. System Analysis

After data collection, the researcher continued by analyzing the system implemented by Media Data Computer. In this way, it is hoped that the researcher can find solutions and solve the problems being faced.

D. System Design

System design is an activity that designs and determines how an information system is processed from the results of system analysis so that this system can meet user needs. At this stage, the researcher designs a system that can be used by Media Data Computer. This application helps business owners provide accurate and timely information to customers in real-time. In addition, this application also makes it easier for business owners to track sales and customer data [22]. Thus, business owners can provide services that meet customer needs.

E. System Development

In system design, there are several software programs used, including: the Laravel framework, XAMPP, Chrome, Sublime Text, PHP MySQL [23]. In addition, some hardware used in the design process includes an Intel Core i3 processor, 8GB memory, Mouse, Keyboard, and Printer.

F. System Trial

System testing is a process carried out by researchers to ensure that the system created meets expectations [24]. Thus, if there are errors in the system, they can be minimized. Researchers conduct this system testing to obtain results that are accurate, precise, and appropriate.

G. System Implementation

System implementation is the process carried out to realize the approved system design, such as conducting testing, installation, and starting the use of the new system. System implementation is the stage where the system is prepared to be operated.

III. RESULT AND DISSCUSSION

A. Analysis Data

The following is the sales data at Media Data Computer which can be seen in Table 1 below.

Table 1. Transaction Data

No	Category	Sales (Unit)									
		Jan 2025	Feb 2025	Mar 2025	Apr 2025	May 2025	Jun 2025	Jul 2025	Aug 2025	Sep 2025	Oct 2025
1	Laptop	5	4	3	5	3	6	4	6	4	4
2	Computer	4	3	3	4	3	2	4	3	3	4
3	Accessories	3	3	4	5	3	4	5	3	4	6
4	Printer & Periferal	2	3	1	5	4	2	4	2	3	4
5	Service & Installation	4	4	4	3	3	4	2	5	4	3
	Total	18	17	15	22	16	18	19	19	18	21

B. Design System

The design of this E-CRM system uses a use case diagram with the aim of explaining the system users in detail [25]. The following is the design of the use case diagram in figure 2.



Figure 2. Use Case Diagram

C. Implementation System

1. Account Registration Page

The customer account registration page is a website page view that can be accessed by users if they want to create a new account to log in to the website.

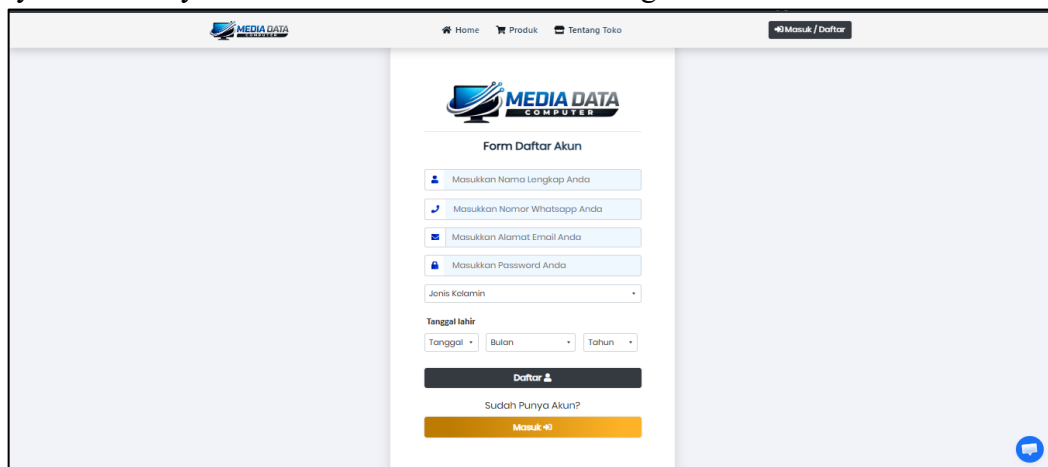


Figure 3. Account Registration Page

2. Login Page

The customer login page is the website page view that will be accessed by users to enter the main page of the website, after performing account verification to log in to the main page view of the website after logging in.

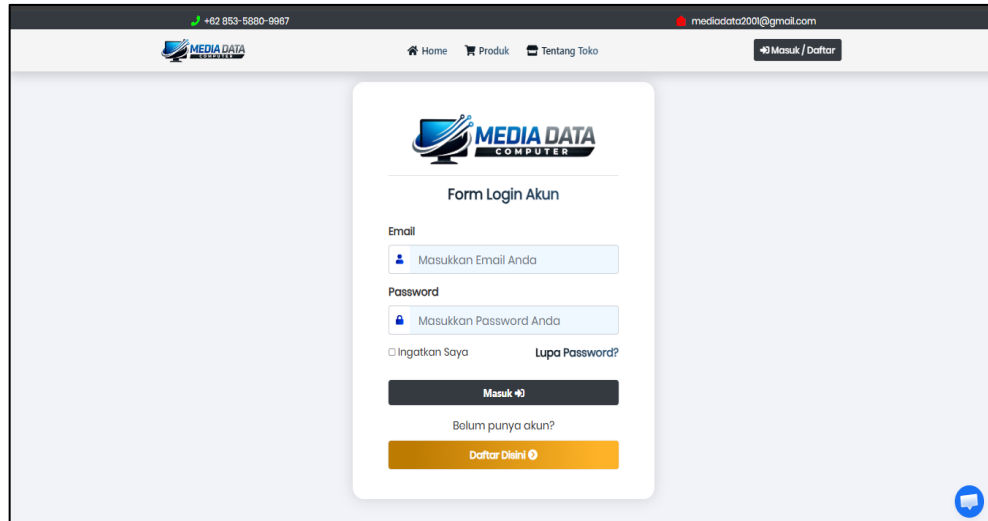


Figure 4. Login Page

3. Home Page

The main page of the website after login is the webpage view that can be accessed by users once they have verified their account to log in to the main page view of the website after login.

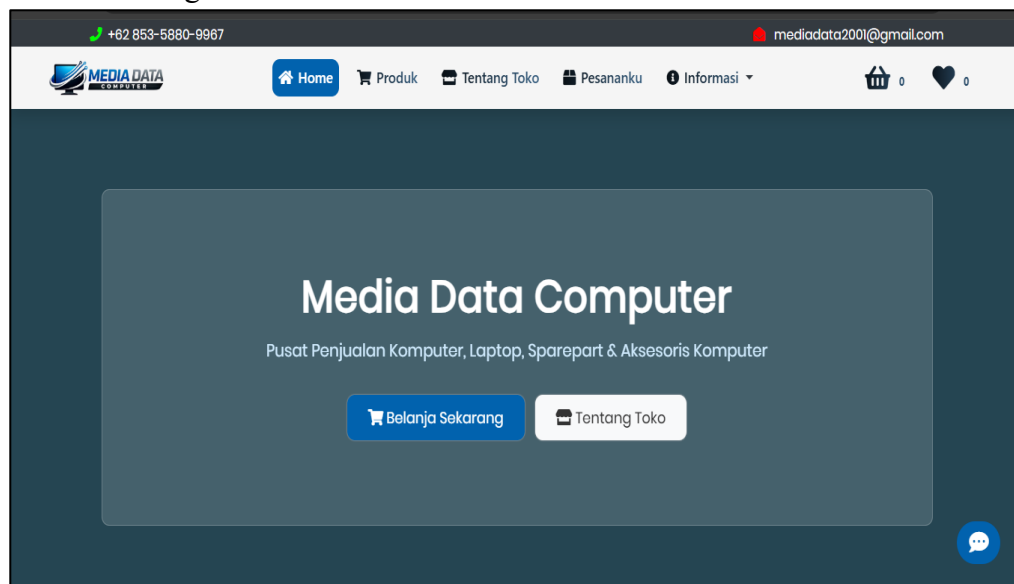


Figure 5. Home Page

4. Product List Page

The product list page is a website page display that will show all the products available in the store.

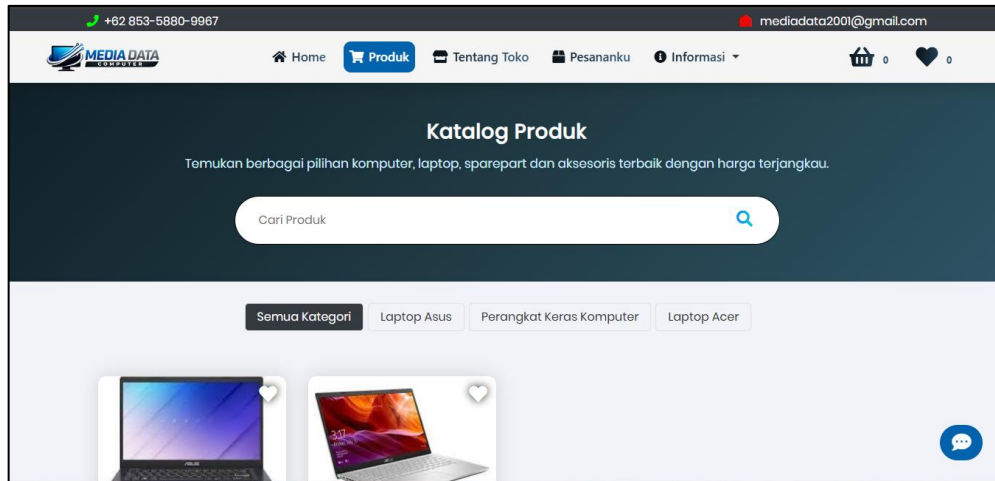


Figure 6. Product List Page

5. Order Cart Page

The order cart page is a website page view that will display the follow-up from the product detail 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.

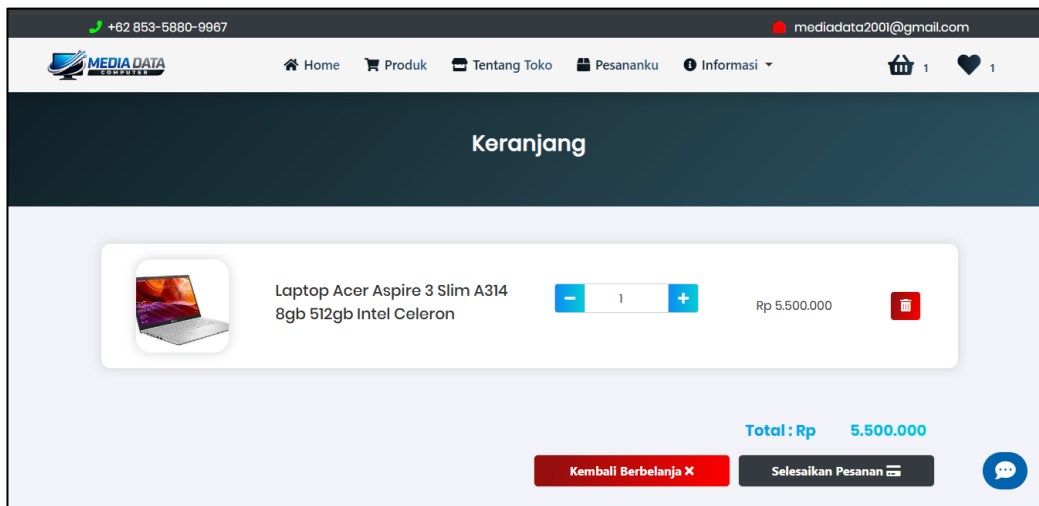


Figure 7. Order Cart Page

6. Order Checkout Page

This page is a follow-up from the order list. It contains order details, invoice code, shipping cost, and the customer's address.

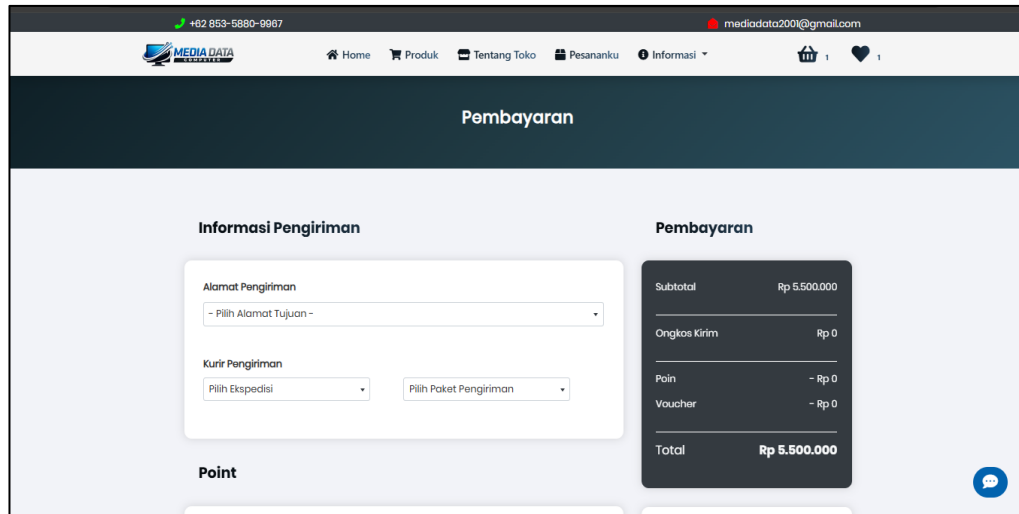


Figure 8. Order Checkout Page

7. Customer Transaction Page

This page is a follow-up to the checkout page display. On this page display, there is a list of all orders from unpaid to completed orders.

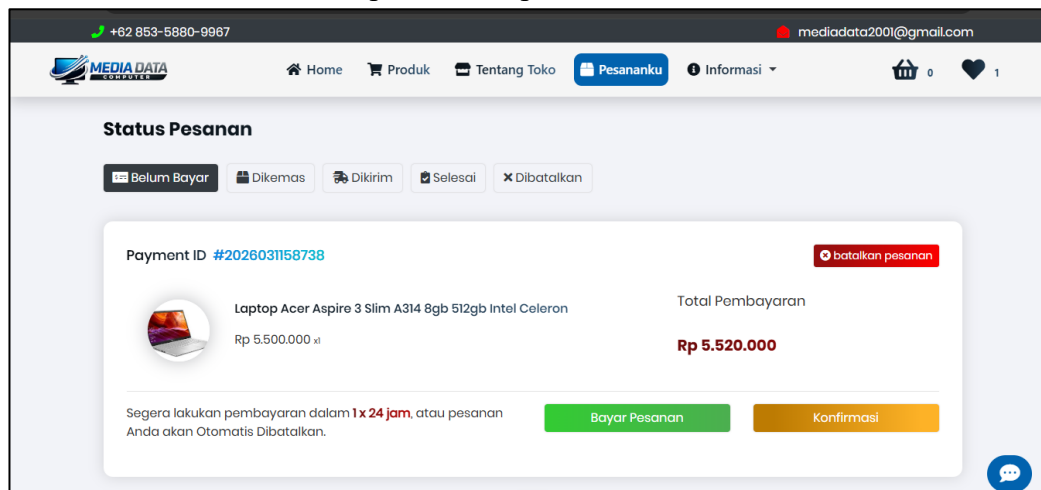


Figure 9. Customer Transaction Page

8. Payment Proof Upload Page

The payment proof upload page is the website page display that will appear when the customer has confirmed making a payment for an order on the payment transaction page display.

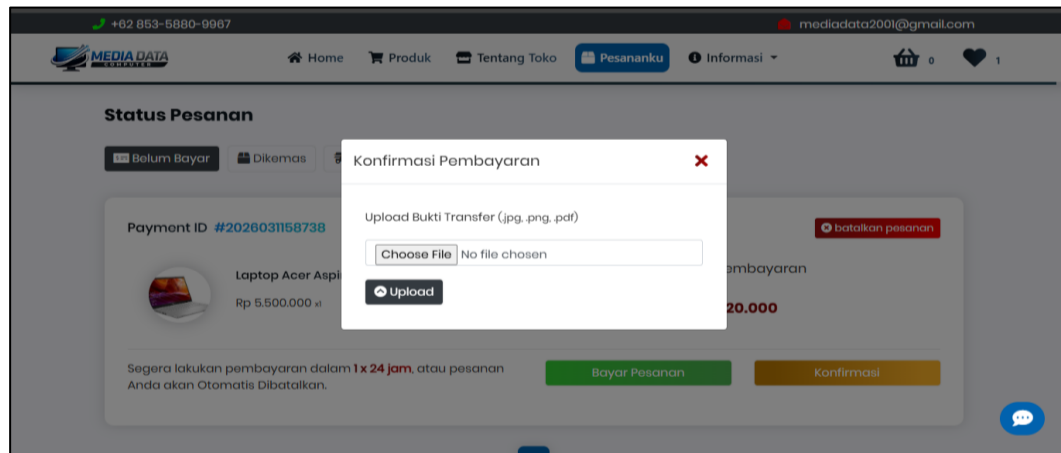


Figure 10. Payment Proof Upload Page

9. Product Review Page

The product review page is used for customers to provide ratings and comments about the service and quality of the products they have ordered.

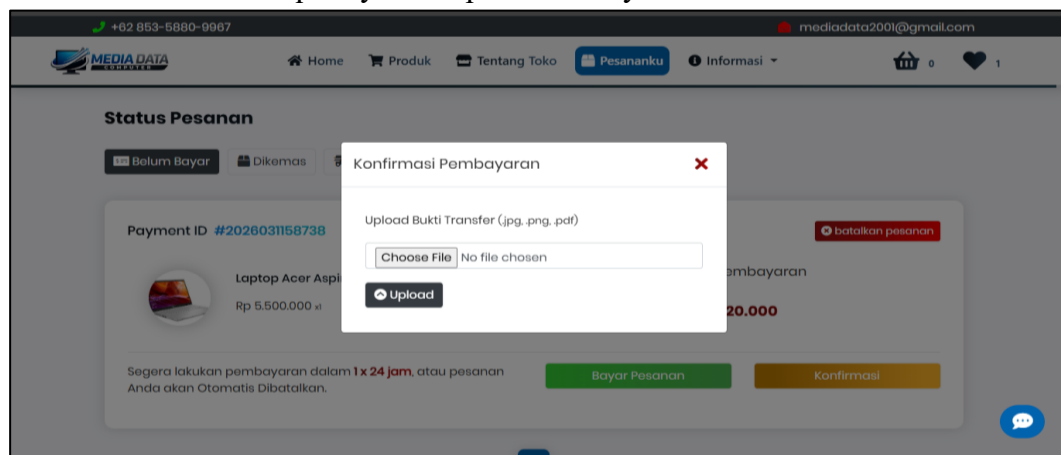


Figure 11. Product Review Page

Discussion

The implementation of the E-CRM system at Media Data Computer provides significant improvements in customer service and sales management. Based on the results of system implementation, customer data that was previously scattered across different platforms is now integrated into a centralized database, allowing easier access and more efficient data management. This integration enables the company to better understand customer profiles, transaction history, and purchasing behavior.

Furthermore, the availability of features such as product reviews, live chat, and transaction tracking enhances interaction between customers and the company. These features improve service responsiveness and allow customers to obtain information more quickly and accurately. As a result, the quality of customer service increases, which contributes to higher customer satisfaction.

In terms of sales performance, the system supports more targeted marketing strategies by utilizing customer data analysis. Promotional features such as discounts, vouchers, and reward points encourage repeat purchases and strengthen customer loyalty. In addition, the online ordering system simplifies the purchasing process, making it more convenient for customers and potentially increasing transaction volume.

Therefore, the implementation of the E-CRM system successfully addresses the initial problems related to data fragmentation, inefficient service processes, and less effective marketing strategies. The system contributes to improving operational efficiency, enhancing customer relationships, and supporting business competitiveness in the digital era.

IV. CONCLUSION

Research on the application of E-CRM for the marketing system at Media Data Computer Kisaran store leads to several conclusions, namely that with the implementation of the E-CRM method at Media Data Computer Kisaran store, customers find it easier to search for information regarding products and items available in the store. Customers can also place orders directly without having to come to the Media Data Computer Kisaran store in person, and the implementation of the E-CRM method in the marketing system of Media Data Computer Kisaran store includes E-CRM features in the store's marketing system, which comprises several services aimed at improving customer relationships. The system provides discount features that can attract customers' interest in making purchases. Additionally, there is a live chat feature that allows customers to communicate with the store to inquire about product information. Customers can also leave comments after making orders so that they can serve as a reference for other customers. This system is also equipped with a product delivery tracking feature so that customers can know the status of their ordered items. In addition, there is a customer testimonial page that displays user experiences regarding the products or services provided. To increase customer loyalty, the system provides vouchers and reward points that can be used as discounts on the next purchase. The system also provides a dedicated blog containing various information about products and the developments in electronic technology available at Toko Media Data Computer Kisaran.

REFERENCES

- [1] R. A. Lestari and S. Saroyo, "Pengaruh Customer Relationship Management (CRM) Terhadap Customer Loyalty Pada Pembelian Unit CV Yamaha Surya Prima Tanjung Kabupaten Tabalong," *J. Mhs. Adm. Publik dan Administrasi Bisnis*, vol. 7, no. 2, pp. 1515–1527, 2024.
- [2] L. A. Anggraeni, "Tantangan Kompetisi dan Risiko Monopoli dalam Transformasi Digital E-Commerce dengan Studi Kasus Aplikasi TikTok di Indonesia," *Sains J. Manaj. dan Bisnis*, vol. 16, no. 1, p. 87, 2024, doi: <https://doi.org/10.35448/jmb.v16i1.23398>.
- [3] A. Rona, M. Sihombing, I. Kelana Jaya, I. S. Dumayanti, and H. Artikel, "Penerapan Customer Relationship Management (CRM) Pada Toko Premium Kids Berbasis Web," *J. Ilm. Sist. Inf.*, vol. 3, no. 1, pp. 52–58, 2023, [Online]. Available: <http://ojs.fikom-methodist.net/index.php/methosisfo>
- [4] S. S. Lubis, F. S. Lubis, and B. Hendrik, "Customer Relationship Management Dalam Meningkatkan Loyalitas Pelanggan Pada Doorsmeer Keluarga Nasution Menggunakan Metode Algoritma K-Means," *Jised J. Inf. Syst. Educ. Dev.*, vol. 1,

- no. 2, pp. 33–40, 2023.
- [5] D. Sakharia, R. E. Supeni, and A. H. Hafidzi, “Studi Empiris Customer Relationship Management (CRM) Citra Merek dan Kepuasan terhadap Loyalitas Pelanggan The Body Shop Jember,” *ULIL ALBAB J. Ilm. Multidisiplin*, vol. 2, no. 10, pp. 4688–4695, 2023, [Online]. Available: <https://journal-nusantara.com/index.php/JIM/article/view/2211>
- [6] G. Hasan, C. Wijaya, D. Dyfan, M. Noviani, and Y. Yendiarti, “Penerapan Customer Relationship Management (CRM) pada UMKM Mie Pangsit Ayam Bangka Mr Ong Batam,” *El-Mal J. Kaji. Ekon. Bisnis Islam*, vol. 5, no. 1, pp. 390–404, 2023, doi: <https://doi.org/10.47467/elmal.v5i1.3903>.
- [7] P. Del Vecchio, G. Mele, E. Siachou, and G. Schito, “A Structured Literature Review on Big Data for Customer Relationship Management (CRM): Toward a Future Agenda in International Marketing,” *Int. Mark. Rev.*, vol. 39, no. 5, pp. 1069–1092, Oct. 2022, doi: <https://doi.org/10.1108/IMR-01-2021-0036>.
- [8] P. R. Siregar, N. Irawati, and I. R. Harahap, “E - CRM Penjualan Keripik Kemuning Pada Usaha Kecil Menengah (UKM),” *J-Com (Journal Comput.*, vol. 2, no. 3, pp. 195–204, 2022, doi: <https://doi.org/10.33330/j-com.v2i3.1937>.
- [9] D. P. Ramadhani, H. Syafwan, and C. Latiffani, “Penerapan Metode E – CRM Pada Toko Wati Collection,” *JATISI (Jurnal Tek. Inform. dan Sist. Informasi)*, vol. 9, no. 4, pp. 3503–3518, 2022, doi: <https://doi.org/10.35957/jatisi.v9i4.2839>.
- [10] F. Firmansyah and S. F. W. Herdin, “Pengaruh Customer Relationship Management (CRM) Terhadap Kepuasan Pelanggan Produk Sepatu Converse,” *J. Bisnis dan Pemasar.*, vol. 11, no. 1, p. 11, 2021.
- [11] D. Pertiwi, Y. Siagian, and A. K. Syahputra, “E-CRM For Sales Of Fashion At Jannah Simpang Four Boutique,” *J. Tek. Inform.*, vol. 3, no. 4, pp. 929–937, 2022, doi: <https://doi.org/10.20884/1.jutif.2022.3.4.474>.
- [12] I. A. Pangestu and G. T. Mardiani, “Sistem Informasi Rekomendasi Produk Dengan Pendekatan Customer Relationship Management Di Cv. Xyz,” *Komputa J. Ilm. Komput. dan Inform.*, vol. 10, no. 2, pp. 78–86, 2022, doi: <https://doi.org/10.34010/komputa.v10i2.6807>.
- [13] F. L. D. Cahyanti, F. Sarasati, W. Widiastuti, and E. Firasari, “Perancangan E-Commerce Sebagai Media Pemasaran Kerajinan Bambu,” *Edumatic J. Pendidik. Inform.*, vol. 5, no. 1, pp. 70–79, 2021, doi: <https://doi.org/10.29408/edumatic.v5i1.3275>.
- [14] T. Ayuninggati, N. Lutfiani, and S. Millah, “CRM-Based E-Business Design (Customer Relationship Management),” *Int. J. Cyber IT Serv. Manag.*, vol. 1, no. 2, pp. 216–225, 2021, [Online]. Available: <https://iiast-journal.org/ijcitsm/index.php/IJCITSM/article/view/58>
- [15] D. R. Wicaksono, “Implementasi Customer Relationship Management (CRM) di Atria Hotel Malang,” *J. Kaji. dan Terap. Pariwisata*, vol. 2, no. 1, pp. 19–26, 2021, doi: <https://doi.org/10.53356/diparojs.v2i1.41>.
- [16] R. A. Anindira and A. I. Imran, “Strategi Dan Implementasi CRM Melalui Aplikasi KAI Access Dalam Meningkatkan Kepuasan Pelanggan PT. KAI,” *e-Proceeding Manag.*, vol. 8, no. 4, pp. 4232–4241, 2021.
- [17] M. Warsela, A. D. Wahyudi, and A. Sulistiyawati, “Penerapan Customer Relationship Management Untuk Mendukung Marketing Credit Executive (Studi Kasus: PT. FIF Group),” *J. Teknol. dan Sist. Inf.*, vol. 2, no. 2, p. 78, 2021, [Online]. Available: <http://jim.teknokrat.ac.id/index.php/JTSI>
- [18] N. A. A. Anggara, J. Hutahaean, and M. Iqbal, “Penerapan Customer Relationship Management (CRM) Dalam Sistem Informasi Penjualan Kosmetik Berbasis Web,” *Build. Informatics, Technol. Sci.*, vol. 3, no. 4, pp. 480–488, 2022, doi: <https://doi.org/10.47065/bits.v3i4.1440>.
- [19] E. Rahayu, W. M. Kifti, and R. Rohminatin, “Analisis Implementasi Customer

- Relationship Management Pada Safira Bakery,” *J. Sci. Soc. Res.*, vol. 5, no. 1, p. 37, 2022, doi: <https://doi.org/10.54314/jssr.v5i1.812>.
- [20] D. Ngelyaratan, D. Soediantono, S. Staf, K. Tni, and A. Laut, “Customer Relationship Management (CRM) and Recommendation for Implementation in the Defense Industry: A Literature Review,” *J. Ind. Eng. Manag. Res.*, vol. 3, no. 3, pp. 2722–8878, 2022, [Online]. Available: <http://www.jiemar.org>
- [21] A. M. Ariska, N. Irawati, and A. Muhazir, “Penerapan Elektronik Customer Relationship Management (E-CRM) Dalam Penjualan Roti Berbasis Web,” *J. Media Inform. Budidarma*, vol. 6, no. 2, p. 1090, 2022, doi: <https://doi.org/10.30865/mib.v6i2.4002>.
- [22] N. Musthofa and M. A. Adiguna, “Perancangan Aplikasi E-Commerce Spare-Part Komputer Berbasis Web Menggunakan CodeIgniter Pada Dhamar Putra Computer Kota Tangerang,” *J. Ilmu Komput. dan Sci.*, vol. 1, no. 03, pp. 199–207, 2022, [Online]. Available: <https://journal.mediapublikasi.id/index.php/oktal>
- [23] A. S. Putra, “Sistem Manajemen Pelayanan Pelanggan Menggunakan PHP Dan MySQL (Studi Kasus pada Toko Surya),” *Tekinfor J. Bid. Tek. Ind. dan Tek. Inform.*, vol. 22, no. 1, pp. 100–116, 2021, doi: <https://doi.org/10.37817/tekinfor.v22i1.1190>.
- [24] Rina Noviana, “Pembuatan Aplikasi Penjualan Berbasis Web Monja Store Menggunakan Php Dan Mysql,” *J. Tek. dan Sci.*, vol. 1, no. 2, pp. 112–124, 2022, doi: <https://doi.org/10.56127/jts.v1i2.128>.
- [25] R. Hermiati, A. Asnawati, and I. Kanedi, “Pembuatan E-Commerce Pada Raja Komputer Menggunakan Bahasa Pemrograman Php Dan Database MySQL,” vol. 17, no. 1, pp. 54–66, 2021.