

# Optimization Of Digital Marketing Utilization Based on E-Commerce to Enhance Sales and Marketing

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**Abstract**—This study aims to develop and optimize digital marketing strategies through an e-commerce-based system for the Charming Charlotte accessories business in order to enhance sales effectiveness and competitive advantage. The problems identified include the limited use of marketing media that rely solely on social media, the absence of a website capable of supporting online transactions, and manual order recording that increases the risk of data processing errors. This research employs the Business Model Canvas (BMC) to formulate the business model, utilizes Unified Modeling Language (UML) to model system processes, and develops an e-commerce website based on a Content Management System (CMS) using WordPress and WooCommerce integrated with Search Engine Optimization (SEO) techniques. The results indicate that the implementation of the e-commerce system effectively expands marketing reach, improves transaction management efficiency, provides more systematic sales reports, and enhances business visibility through search engine optimization. This research proves that the simultaneous integration of CMS, BMC, UML, and SEO is effective in strengthening digital marketing performance for small businesses.

**Keywords**—Business Model Canvas, CMS, Digital Marketing, E-commerce, SEO

## I. INTRODUCTION

The implementation of website-based online sales applications plays an essential role in supporting economic growth and increasing business competitiveness in the digital era. E-commerce offers significant advantages, enabling rapid and borderless buying and selling activities. According to Turban et al. [1], e-commerce serves as an effective platform for communication, promotion, and customer engagement, allowing businesses to broaden their market reach and strengthen sales performance. Furthermore, e-commerce allows consumers to easily access product information, compare alternatives, and carry out transactions efficiently while reducing operational costs typically associated with conventional marketing approaches.

Charming Charlotte is a women's accessories business established in 2020 that markets products such as necklaces, bracelets, rings, and earrings. Currently, the business relies solely on Instagram and WhatsApp for promotional activities and sales transactions. During the Covid-19 pandemic, sales declined due to increasing competition in the online

accessories industry. The rapid growth of online stores has made social media promotion alone insufficient for maintaining competitiveness. Therefore, an additional digital sales medium in the form of an e-commerce website is required to expand marketing reach and enhance customer trust.

The challenges faced by Charming Charlotte include limited marketing channels that depend only on social media, the absence of an official website that supports online transactions, and manual order recording that increases the risk of data processing errors. In addition, sales reports are not arranged systematically, making it difficult for the owner to conduct performance analysis and make accurate business decisions. To address these issues, an integrated e-commerce system is required to improve marketing effectiveness, streamline transaction processes, and produce structured sales reporting.

This study aims to develop a CMS-based e-commerce website to support online transactions, automate sales data processing, and strengthen digital marketing strategies. As stated by Rerung [2], web-based information systems allow customers to access product information and complete transactions anytime and anywhere. Similarly, Turban et al. [1] emphasize that e-commerce implementation enhances customer satisfaction and expands market reach. To achieve these objectives, this research employs the Business Model Canvas (BMC) to design an integrated business model, utilizes a Content Management System (CMS) for website development, and implements Search Engine Optimization (SEO) techniques to ensure that the website appears on the first page of search engine results and is easily found by potential customers.

Previous research [2] develops a fashion product sales website to expand marketing and increase transaction speed online. The e-commerce website provides complete product information and helps managers manage sales data effectively. Another study [3] states that e-commerce systems assist online promotion for small and medium enterprises and make it easier for customers to get real-time product information.

Research [4] mentions that a web-based sales system improves report-making efficiency, speeds up transaction processes, and securely stores data in an integrated database.

This allows business owners to focus on promotion strategies and product development. Another study [5] shows that e-commerce helps customers find product information, make purchases without visiting stores, and enjoy a better shopping experience with more product choices and flexible payment systems.

Meanwhile, research [6] explains that a web-based system helps business owners sell products quickly and efficiently. It also increases customer satisfaction through easy transactions and order tracking. Research [7] builds a web-based e-commerce system using the waterfall method as an integrated transaction tool, and the results show that the application helps customers make transactions anytime and anywhere.

According to [8], one of the online transaction platforms between sellers and buyers is e-commerce, which represents the real use of information technology in trade. According to [9], a Content Management System (CMS) stores and manages various types of content such as text, images, and videos efficiently and is designed to meet modern information system needs. Stern [10] states that WordPress is one of the most popular open-source CMS platforms, easy to use, and can be developed with plugins such as WooCommerce that support professional online store functions.

The result of this study is a CMS-based e-commerce website that expands marketing reach and increases product sales for Charming Charlotte. The website also integrates all transaction data into a secure and easily accessible system. This research aims to build an e-commerce website that increases sales, strengthens digital marketing strategies, and produces informative sales reports. With the implementation of an e-commerce website and SEO techniques, customers can easily find the Charming Charlotte website, obtain the latest product information, and make transactions quickly and efficiently, contributing to sales growth and business competitiveness.

## II. METHOD

### A. Research Stages

The research stages contain theoretical results from data collection used to solve problems in the sales activities of Charming Charlotte accessories. Based on the collected data, a business plan is created to solve the main problems, which are the limited marketing media and the absence of an integrated online sales system. The first step of the research starts with problem analysis and the determination of research objectives, followed by data collection through interviews, observations, and literature studies. After the data are obtained, business analysis and system design are carried out using the Business Model Canvas (BMC) method and system modeling based on Unified Modeling Language (UML). The result of this study is a CMS-based e-commerce website that helps Charming Charlotte expand marketing reach and increase online sales. The website then applies Search Engine Optimization (SEO) techniques to improve its visibility on Google search engines.

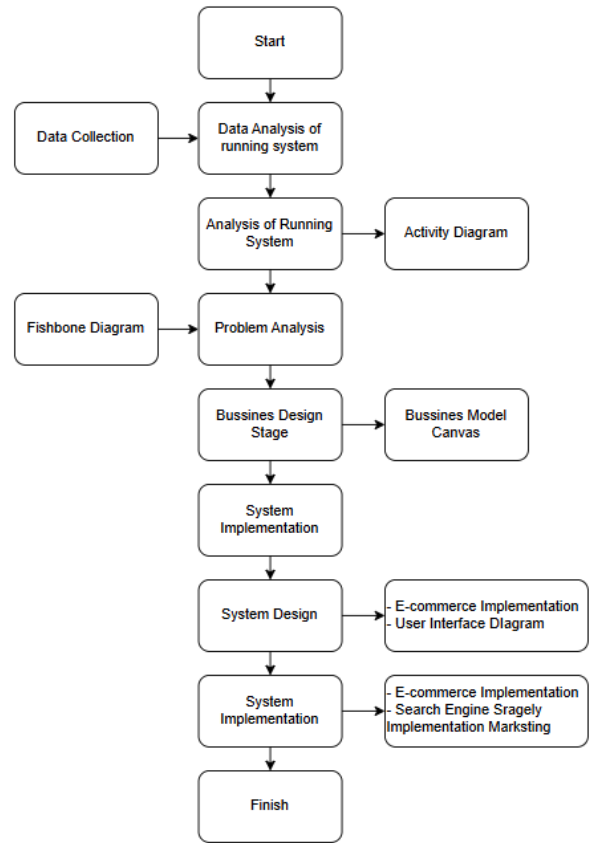


Fig. 1. Diagram Methode

### B. Data Collection Method

The data collection method is one of the important steps in this research. The collected data serve as the basis for analyzing and designing an e-commerce system that fits the needs of the Charming Charlotte business. Data collection is carried out systematically and purposefully so that the research results align with the intended objectives. According to Sugiyono (2018), the data collection method is a way or technique used by researchers to obtain data relevant to the research goals. Based on this, the data collection methods used in this study are as follows:

1. Interview: conducted to obtain detailed information regarding ongoing sales activities, marketing challenges, and expectations related to the e-commerce system being developed. The interview was carried out through a face-to-face meeting with the owner of Charming Charlotte, where the researcher directly asked questions to gain an in-depth understanding of the business processes. The results of this interview serve as primary data for designing the e-commerce system and form the basis for constructing the Business Model Canvas (BMC) to ensure that the proposed solution aligns with the actual needs of the business.
2. Observation: the researcher directly observes operational activities and transactions taking place at Charming Charlotte. This observation aims to understand the

business workflow, promotional media used, and customer interactions through social media and online marketplaces.

3. Documentation Analysis: conducted by collecting sales data, customer order records, and transaction documents that support business processes. This data is then analyzed to identify sales patterns and information needs that must be available on the e-commerce website.
4. Literature Study: conducted by collecting references from various credible sources, including scientific journals, academic books, and authoritative publications related to e-commerce, digital marketing, Content Management Systems (CMS), the Business Model Canvas (BMC), and system modeling using Unified Modeling Language (UML). This literature review incorporates theoretical foundations from Turban et al. [8] on e-commerce, Hutahean [9] on information systems and CMS concepts, Osterwalder and Pigneur [11] on BMC frameworks, and Booch et al. (2005) on UML modeling principles, as well as SEO theory from Stern (2021). The literature study serves as both a theoretical basis and a comparative reference to support the analysis and development of the proposed e-commerce system.

### C. Business Design Stage

After obtaining data from interviews, observations, documentation, and literature studies, the next step is to design the business model using the Business Model Canvas (BMC) method. This method is used to analyze the strengths, weaknesses, opportunities, and threats of the Charming Charlotte business and to map its development strategy.

According to Alexander Osterwalder [11], the Business Model Canvas is a tool that helps organizations describe, design, and develop their business models comprehensively. The BMC consists of nine main components representing business elements: Key Activities, Key Resources, Key Partners, Value Proposition, Cost Structure, Channels, Revenue Streams, Customer Segments, and Customer Relationships.

By applying BMC, Charming Charlotte identifies the factors that influence the success of its digital business, including resource management, marketing strategies, and customer relationship management. All nine BMC blocks are applied in this research to design a CMS-based e-commerce strategy that fits the company's needs.

### D. System Design Stage

The next stage is system design, which is the process of producing a new system model proposed to support the sales and marketing activities of Charming Charlotte products. The proposed new system is based on a Content Management System (CMS) integrated with the WooCommerce plugin to support e-commerce activities.

System design uses the Unified Modeling Language (UML) to visually describe and simplify the business processes. According to Booch, Rumbaugh, and Jacobson (2005), UML is a standard modeling language used to visualize, specify, construct, and document software systems systematically. The stages in the system design include:

1. Activity Diagram: illustrates the workflow of business processes starting from customers selecting products, adding them to the shopping cart, making payments, and the system generating transaction reports. This diagram helps visualize the sequence of activities on the Charming Charlotte website.
2. Use Case Diagram: explains the interaction between users and the system, both from the customer and admin sides. This diagram shows how users log in, view products, place orders, make payments, and how admins manage stock and sales reports.
3. Class Diagram: describes the data structure and relationships between classes in the database, such as User, Product, Order, and Transaction classes. This diagram ensures that all processed data are stored properly and connected logically within the system.

## III. RESULT AND DISCUSSION

### A. Business Model Canvas (BMC)

In developing and building the e-commerce system, the researcher uses the Business Model Canvas (BMC) method to analyze the business model that fits the needs of Charming Charlotte. The BMC analysis results in this study are as follows:

#### 1. Value Proposition

Charming Charlotte offers a range of high-quality women's accessories designed with an elegant and modern aesthetic, yet still affordable for everyday buyers. The brand provides a seamless online shopping experience through its WordPress and WooCommerce-based website, where customers can easily access complete product information, follow a clear checkout process, and receive automated notifications for every transaction stage. For the business owner, the platform also simplifies operational management by providing integrated reports that help track sales performance. In addition, the implementation of SEO strategies increases the brand's visibility, making it easier for potential customers to discover Charming Charlotte through search engines.

#### 2. Customer Segments

The business primarily serves women aged 18 to 35 who actively engage with social media and follow fashion trends. These customers usually seek stylish yet affordable accessories and prefer the convenience of online shopping. Charming Charlotte appeals to buyers who value simple, quick, and hassle-free digital purchasing experiences, especially those who enjoy browsing curated fashion items available through mobile devices and social platforms.

#### 3. Customer Relationships

Charming Charlotte builds strong customer relationships by offering fast and responsive support through live chat and WhatsApp Business. Customers receive automated email notifications throughout their purchase journey, including order confirmations, payment updates, and delivery information. To enhance loyalty, the business also provides promotional programs such as discounts and special offers.

The customer service team actively assists buyers with inquiries related to product availability, order status, and shipping details to maintain satisfaction and trust.

4. Channels

The brand relies on its official e-commerce website as the main platform for transactions. Instagram serves as the primary promotional channel, showcasing products and engaging followers through visual content. To extend reach, the business may also use marketplaces as an additional sales channel. WhatsApp Business supports quick communication and direct selling activities. Meanwhile, organic SEO efforts help attract visitors from Google Search, contributing to consistent traffic growth and customer acquisition.

5. Key Activities

Daily operations include managing product inventory, updating the online catalog, and ensuring smooth processing of orders, payments, and shipments. Digital marketing activities—such as maintaining the website, optimizing SEO, and creating engaging social media content—also play a significant role in reaching potential customers. The business focuses on designing and producing attractive women’s accessories while using system-generated reports to monitor overall sales performance and guide future strategies.

6. Key Resources

The core resources that support Charming Charlotte include its WordPress and WooCommerce-based e-commerce website, complete with essential plugins such as Yoast SEO, payment gateways, and shipping tools. High-quality product photos and descriptions strengthen the brand’s online presentation. The business is supported by a digital marketing or social media management team, along with adequate stock and raw materials for accessory production. A well-maintained customer and transaction database also serves as a valuable asset for marketing and operational planning.

7. Key Partners

Charming Charlotte works closely with suppliers who provide materials for producing accessories. The business also depends on logistics partners for reliable shipping services. Website performance is supported by domain and hosting providers, while WordPress and WooCommerce function as the core technological platform. Additional partners include payment gateway providers that facilitate secure transactions and SEO tools like Google Search Console that help optimize website performance and online visibility.

8. Revenue Streams

The main source of revenue comes from online sales of women’s accessories through the website. Additional income may be generated from special sets or custom packaging options offered to customers. The brand also benefits from upselling and cross-selling opportunities within the catalog, encouraging customers to purchase more complementary products. Seasonal bundles or paid promotional packages may also contribute to revenue when implemented.

9. Cost Structure

The business incurs several operational expenses, starting with the cost of domain and hosting services for the website. Production costs involve purchasing raw materials and

manufacturing accessories. Digital marketing activities—such as running Instagram Ads require regular funding. Website maintenance and development also add to the ongoing expenses. Other costs include shipping fees for delivering products to customers, as well as additional operational needs like packaging materials, production tools, and premium plugin subscriptions when necessary.

|  |   |   |  |   |
|--|---|---|--|---|
| <b>Key Partner</b><br><ul style="list-style-type: none"> <li>Suppliers of accessory raw materials</li> <li>Shipping and logistics partners</li> <li>Domain and hosting service providers</li> <li>WordPress CMS platform and WooCommerce plugins</li> <li>Payment gateway providers (bank transfer or automated payment systems)</li> <li>SEO tools such as Google Search Console</li> </ul>   | <b>Key Activities</b><br><ul style="list-style-type: none"> <li>Managing inventory and updating the product catalog</li> <li>Handling transactions, payment confirmation, and shipping</li> <li>Conducting digital promotions: Instagram, website, SEO, and social media</li> <li>Producing and designing attractive women’s accessories</li> <li>Monitoring sales performance through system-generated reports</li> </ul>            | <b>Value Proposition</b><br><ul style="list-style-type: none"> <li>Providing high-quality women’s accessories with elegant designs at affordable prices</li> <li>Offering a fast, easy, and secure shopping experience through a WordPress-based e-commerce website</li> <li>Delivering complete product information, clear checkout flow, and automated transaction notifications</li> <li>Helping owners manage sales data through systematic and integrated reporting</li> <li>Increasing brand visibility through SEO so customers can easily find the store online.</li> </ul> | <b>Channels</b><br><ul style="list-style-type: none"> <li>Fast customer service via live chat and WhatsApp Business</li> <li>Automated notifications (order confirmations, payment updates, delivery tracking)</li> <li>Promotional programs, discounts, and loyalty initiatives to boost customer retention</li> <li>Responsive assistance regarding stock, orders, and shipping</li> </ul> | <b>Customer Segments</b><br><ul style="list-style-type: none"> <li>Women aged 18–35</li> <li>Active social media users and fashion enthusiasts</li> <li>Customers seeking elegant yet affordable women’s accessories</li> <li>Consumers who prefer simple and fast online shopping processes</li> </ul> |
|  | <b>Key Resource</b><br><ul style="list-style-type: none"> <li>E-commerce website based on WordPress &amp; WooCommerce</li> <li>Supporting plugins such as Yoast SEO, payment gateways, and shipping tools</li> <li>Product content (photos, descriptions)</li> <li>Digital marketing team / social media managers</li> <li>Product inventory and accessory production materials</li> <li>Customer and transaction database</li> </ul> | <b>Customer Relationship</b><br><ul style="list-style-type: none"> <li>Fast customer service via live chat and WhatsApp Business</li> <li>Automated notifications (order confirmations, payment updates, delivery tracking)</li> <li>Promotional programs, discounts, and loyalty initiatives to boost customer retention</li> <li>Responsive assistance regarding stock, orders, and shipping</li> </ul>   | <b>Revenue Stream</b><br><ul style="list-style-type: none"> <li>Sales of women’s accessories through the website</li> <li>Sales of special bundles or custom packaging</li> <li>Upselling and cross-selling opportunities through catalog recommendations</li> <li>Seasonal paid promotions or bundle deals (when applied)</li> </ul>  |   |
| <b>Cost Structure</b><br><ul style="list-style-type: none"> <li>Domain and hosting costs</li> <li>Accessory production and raw-material procurement</li> <li>Digital marketing expenses (Instagram Ads, etc.)</li> <li>Website development and maintenance costs</li> <li>Shipping expenses</li> <li>Other operational costs (packaging, production tools, premium plugins if used)</li> </ul> |   |   |  |   |

Fig. 2. Business Model Canvas

B. Marketing Strategy

The marketing strategy applied on the Charming Charlotte e-commerce website focuses on the use of social media, marketplaces, and the main website as integrated promotional channels. Social media attract new customers, while transactions are directed to the main website so that customer and sales data are automatically recorded in the system. The marketing strategies applied are:

- Scheduling product uploads at peak active user times (noon or evening).
- Using promotional hashtags such as #aksesoriswanita and #fashioncharmingcharlotte to increase search opportunities.
- Adding backlinks to every social media post that directs users to the main Charming Charlotte website to strengthen SEO and transaction conversions.

C. Proposed Business Process

The proposed business system makes it easier for customers to purchase products online. The product ordering process on the website is as follows:

1. Product Ordering Process

Customers access the Charming Charlotte website, select products from the Shop menu, and click the Add to Cart button. The system displays a Cart Page containing order details. Afterward, customers click Proceed to Checkout and fill in the shipping information. The system calculates the total price including the shipping cost and displays the payment page.

2. Payment Process by Customers

Customers select a payment method through the Payment Gateway provided by WooCommerce. The system confirms the payment and sends an email notification. Transaction data are automatically stored in the database and can be accessed by the admin on the backend page.

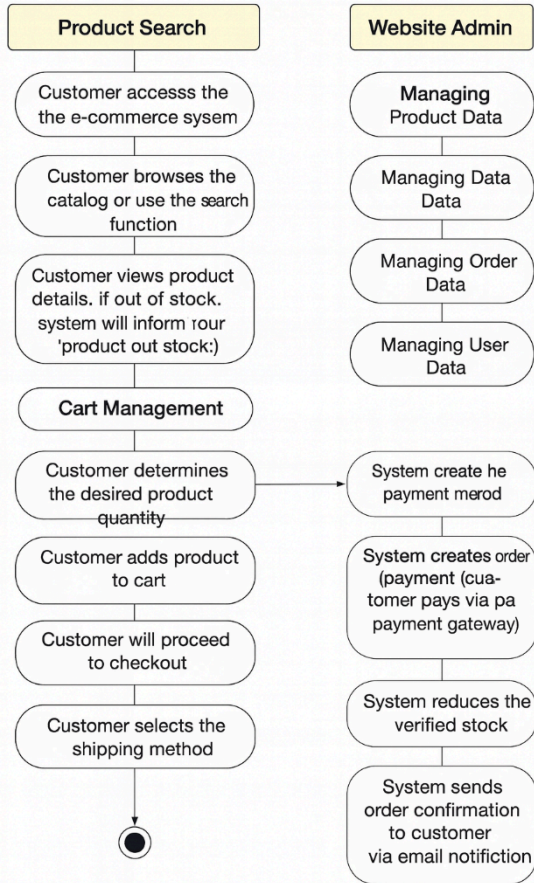


Fig. 3. Activity Diagram

D. Use Case Diagram

The Charming Charlotte e-commerce website consists of two main actors: admin and customer. The admin has access rights to add products, manage orders, and generate sales reports. Meanwhile, the customer acts as a user who orders products, views catalogs, and completes purchase transactions.

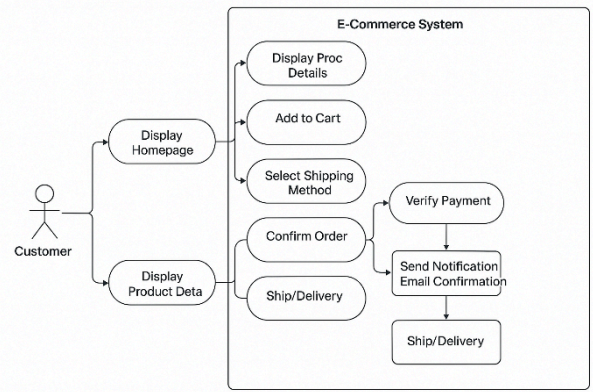


Fig. 4. Use Case Diagram

E. Class Diagram

The class diagram describes the data structure and relationships between entities in the system. The main classes in the Charming Charlotte website consist of User, Product, Cart, Order, and Transaction. The User class connects directly to Order and Transaction, while the Product class relates to Cart and Order to store customer purchase data.

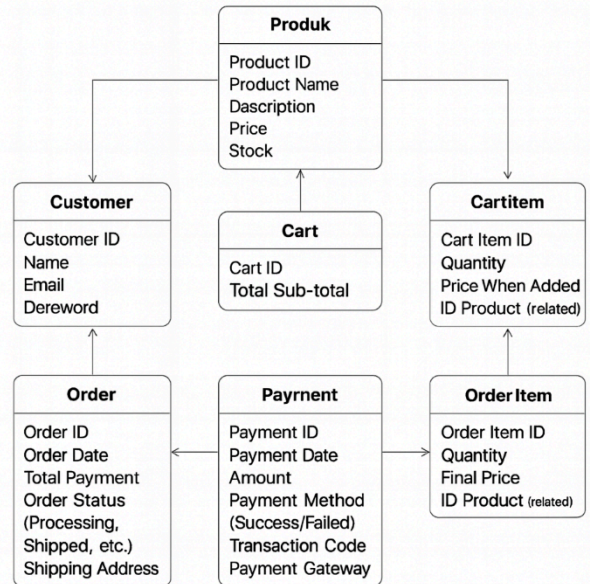


Fig. 5. Class Diagram

F. E-Commerce Website Interface

The Charming Charlotte e-commerce website has two main interfaces: the frontend (for customers) and the backend (for admin).

1. Front-End Interface

The homepage displays the product catalog and main navigation menus such as Home, Shop, About Us, and Contact, along with the Add to Cart button. The design uses soft colors and a responsive layout to

attract customers' attention. The Add to Cart page shows the selected products, total prices, and a Checkout button to continue the transaction.

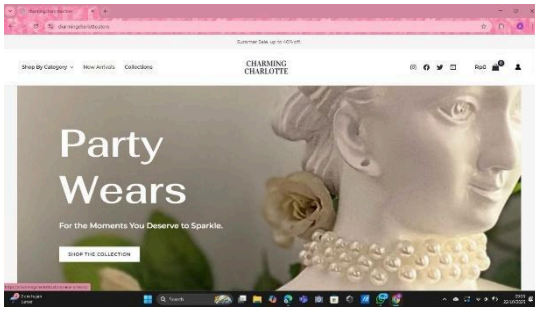


Fig. 6. Main Page Display (Front End)

This indicates that SEO implementation successfully increases website visibility and traffic significantly.

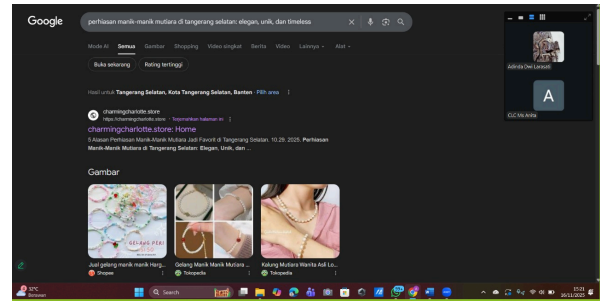


Fig. 8. Backend Display of Sold Product Report

## 2. Back-End Interface

The backend sales report page displays completed transactions, including customer names and purchase dates. The product sales report summarizes total sales for each item over a certain period, and the best-selling products report lists items with the highest sales to help owners plan stock and promotion strategies.

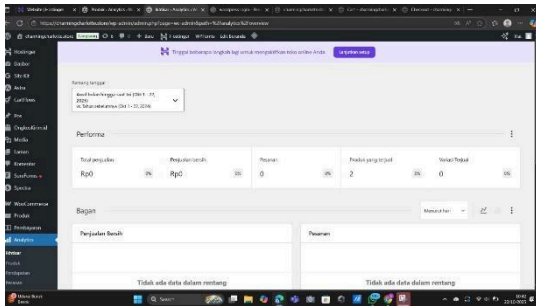


Fig. 7. Backend Display of Sold Product Report

## IV. CONCLUSION

The development and implementation of a CMS-based e-commerce website for Charming Charlotte successfully address the business challenges related to limited marketing channels, the absence of an integrated online sales system, and inefficient manual transaction processing. Through the application of the Business Model Canvas (BMC), Unified Modeling Language (UML), and Search Engine Optimization (SEO), This research proves that the proposed e-commerce system is effective in expanding marketing reach, improving transaction management, and providing structured sales reporting. The integration of WordPress, WooCommerce, and SEO techniques enhances website visibility, increases accessibility for potential customers, and strengthens the overall digital marketing strategy. The system also enables automated data processing, supports faster and more accurate decision-making, and improves customer experience through a responsive and user-friendly interface. Overall, the implementation of this e-commerce solution contributes to increased sales performance and strengthens the business competitiveness of Charming Charlotte in the digital market landscape.

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## G. Search Engine Optimization (SEO)

After the website implementation, the next stage is applying SEO using the Yoast SEO plugin. The goal is to make it easier for search engines like Google to index the Charming Charlotte website. Optimization is done by adding meta descriptions, keyword tags, and focus keyphrases to each product page. The website sitemap is also registered on Google Search Console to speed up the indexing process. The Yoast SEO plugin helps guide content improvements until the SEO status turns green (optimal).

## H. SEO Implementation Testing Stage

This stage aims to find out how well the Charming Charlotte website is indexed by Google. The testing is done by searching keywords such as "Perhiasan Manik-Manik Mutiara di Tangerang Selatan: Elegan, Unik, dan Timeless" The results show that the website appears on the first page of Google, with an increased organic click rate within 16 November 2025.

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