

## IMPLEMENTATION OF THE E-COMMERCE PLATFORM TO IMPROVE TECHNOLOGY ADAPTATION IN MSMES

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### ABSTRACT

In the digital age, every consumer will select online sales because it is the thing that people are currently most interested in, as it can be accessible from anywhere and at any time as long as they have an internet connection. Customers benefit from the convenience of online shopping because they do not have to travel to the business location to pick up their purchases. In reality, the marketing processes of most micro, small, and medium-sized enterprises (MSMEs) continue to rely on manual transaction processing mechanisms for direct purchases and on conventional transaction recording methods. Implementing an e-commerce information system for MSMEs so that it is easier for MSMEs and customers to conduct online transactions and MSMEs can adapt to the digital era is a research objective aimed at addressing the inadequacy of MSMEs in adapting to information technology. The results of the study indicate that the system features in e-commerce are adapted to the analysis of user needs, i.e., there are product features, ordering features, transaction detail features, and report features that facilitate product purchase transactions through the e-commerce system so that there are superior features of the system to improve quality MSME services and maintain customer loyalty in order to conduct online transactions. Blackbox testing was conducted for five system functionality testing scenarios throughout the system testing phase, with the result that the entire system performed as expected and in compliance with user requirements.

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### 1. INTRODUCTION

The use of information technology is the digital age; in fact, practically every company's operational activities involve the use of information and communications technologies, particularly the use of the internet in a variety of ways to support commercial activities[1]. Information technology has aided numerous human endeavors, including the Micro, Small, and Medium-Sized Enterprises (MSME) sector. MSMEs play a significant role in economic development and expansion. The expansion of microbusinesses contributes to the expansion of job and income options[2], [3]. MSMEs play a crucial part in the government's efforts to combat poverty and unemployment because they employ a large number of workers. UMKM, also known as Micro, Small, and Medium-Sized Enterprises, is a trading firm managed and held by specific business businesses or individuals in order to boost economic productivity. This is governed by Law No. 20 of 2008 on Small and Medium-Sized Businesses[4]. This business activity plays an essential part in the economy[5] because it does not require a substantial amount of money and is therefore flexible, inside the sense that anyone can establish a firm.

The sales transaction procedure can help small and medium-sized enterprises build their businesses. In the digital age, every consumer will select online sales because it's the thing that people are currently most interested in, as it can be accessible from anywhere and at any time as long as they have an internet connection[6]. Customers benefit from the convenience of online shopping because they do not have to travel to the shop to pick up their purchases[7], [8]. This allows for a broader target demographic and the ability to conduct timely promotions to enhance sales volume[9].

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In actuality, the advertising process carried out by MSMEs tends to still utilize the transaction process mechanism, which is still performed manually with direct transactions, with consumers still required to come directly to the store to purchase or order a product. One of them is the Linggamas micro, small, and medium-sized enterprise[10], which manufactures wooden furniture. The issues encountered by Linggama's small and medium-sized enterprises (SMEs) in the past year impacted sales. This will actually result in a loss for the company due to stock accumulation, which is premature given that the bulk of clients have shifted to online transactions due to the existence of an e-commerce platform, causing offline sales to undergo a sharp fall. The organization desires to expand its marketing efforts in order to attract customers from outside the region and throughout Indonesia. It seeks to grow the business and increase revenue. The existence of owned social media is deemed to be suboptimal due to the need to swiftly provide product data[11]. The usage of WhatsApp as a communication medium is also deemed to be ineffective, as clients require a complete product catalog whenever they inquire about a product. Due to the lack of an e-commerce website, the company sends catalogs by sending product photographs one-by-one and discussing them via text messages. This mechanism drastically affects consumer satisfaction, which can impact customer loyalty for future transactions.

Adopting e-commerce is a sort of information and technology that MSME company actors can use to expand their operations[12], [13]. The small and medium-sized enterprise (SME) sector in Indonesia is still far behind in its usage of information technology for company development. The restricted adoption of information technology to energize and advance small enterprises is one of the primary limitations of small firms in Indonesia. In order for MSMEs to adapt to the digital era[14], the goal of this project is to develop e-commerce for Linggamas MSMEs and to be able to employ digital technology, particularly in supporting sales transactions.

## 2. METHOD

### 2.1 E-Commerce

E-commerce, often known as Internet commerce, refers to a method allowing a consumer to purchase the desired goods online using a computer network. E-commerce is also a business process that connects businesses, customers, and the general public through electronic transactions and the electronic exchange and sale of goods, services, and information[15]. E-commerce categories A business-to-consumer (B2C), a business-to-business (B2B), a consumer-to-consumer (C2C) relationship (C2C)[16]. Among the benefits of e-commerce[17], [18] :

1. Communication, e-commerce is the delivery of goods, services, information or payments through the use of computer networks or through other electronic equipment.
2. Business processes, e-commerce is the application of technology that leads to the automation of business transactions and workflow.
3. Services, e-commerce is a tool that fulfills the wishes of companies, consumers and management to cut service costs while improving the quality of goods and increasing the speed of service delivery.
4. Online transactions, e-commerce provides the ability to buy and sell goods or information online through the use of the internet network.

### 2.2 Research Flow

The objective of the research phases is to identify the initial issues facing SMEs so that an analysis can be conducted in terms of both user demands and system requirements. The research stages can describe each process that must be completed in creating problems through data collection so that solutions can be developed based on user requirements for customer-centric e-commerce application features. The research process is depicted in Figure 1 below.

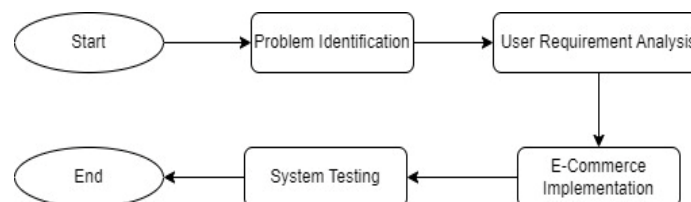


Figure 1. Research Flow

According to Figure 1, it is clear that the stages of problem identification are acquired through the process of gathering interview data and observation data at business sites, allowing for the acquisition of

knowledge about marketing business operations and sales transaction mechanisms. The next step is to conduct an analysis of user requirements for the process being carried out for admin users as well as employee users, MSME owner users, and customer users. This will later enable the system to be built to meet all user requirements for the process as well as system output in the form of reports. In order to test system functionality, a user needs analysis of system features is implemented at the implementation stage.

### **3. RESULT AND DISCUSSION**

#### **3.1 Problem Identification**

The information acquired from the interviews led to the identification of the initial problem, namely a reduction in sales owing to a lack of promotion by the MSME, so that the owner plans to increase marketing efforts and acquire new clients. Due to constraints in business transaction processes that still rely on offline transactions, many customers choose e-commerce platforms, making it impossible for MSMEs to meet the ease-of-transaction requirements of customers. In addition, there is further information regarding product information sold and order records created by MSMEs' sold products, as well as product sales business procedures, client orders, and sales recording processes. Analysis of feature needs for SME-applicable e-commerce systems can benefit from the identification of SME-specific difficulties.

#### **3.2 User Requirement Analysis**

The needs analysis phase is based on problem identification so that there is data and information regarding business processes and an analysis of user requirements pertaining to the use of the e-commerce system. On the basis of an analysis of user needs, system functionality requirements can be formulated to support the primary business operations that MSMEs require for handling items, orders, and transaction procedures. Customers' needs are also analyzed so that it is easier for them to make product purchases via the e-commerce system, and so that there are superior features of the system to enhance the quality of MSME services and preserve customer loyalty, so that they may engage in online transactions. Analysis of the functional requirements of the e-commerce system, namely:

1. Product Features

Prospective customers and members can access product features to view existing products in MSMEs, and there are product search features and product recommendations based on kind, price, quantity, and best-selling product features to assist customers in making product selections. The product characteristics include promotional material for several products. MSME owners can use the promo feature to provide clients with information about discounts and promotions, as well as the duration of the promotion.

2. Ordering Features

Customers use the ordering feature to make purchases; each product that has been selected for purchase can be entered into the checkout process so that it can process payments and decide the kind of delivery for the selected goods. The administrator user for order recording is used to validate orders and summarize transactions.

3. Transaction Details Feature

The detail transaction feature is meant for MSMEs to evaluate transactions daily. This feature also contains tabulations of transaction data and the most often purchased products so as to give information for MSME owners in evaluating product inventories and transaction suitability.

4. Report Features

Reports are necessary for small and medium-sized enterprises (SMEs) to determine monthly recapitulations of both transactions and products acquired by consumers; these recapitulations can be produced as monthly reports and can evaluate daily transactions. The report function is designed to assist SMBs in determining whether total sales and number of transactions match.

#### **3.3 E-Commerce Implementation**

During the implementation phase, e-commerce is adapted to the analysis of user needs pertaining to the business processes of sales and purchase transactions, as well as the analysis of system functional requirements, so that the main features of the system can be developed and each menu option can be accessed in accordance with predetermined business processes. There are various characteristics of e-commerce, including:

1. Product Interface Page

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The product page is the primary interface page. On this page, buyers can select the item they wish to purchase. If a product has been selected, the customer will be taken to the product checkout screen. This is a product selection graphic, also known as a product list page.

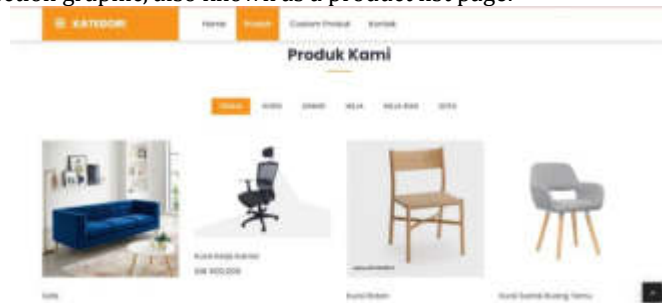


Figure 2. Product Interface Page

## 2. Order Checkout Interface Page

The order page begins with the consumer selecting the product to be purchased, who then checks out by entering their contact information, including their address and cell phone number. This page will reveal the total cost along with the postage due once all fields have been completed. The following is the checkout order page's presentation.

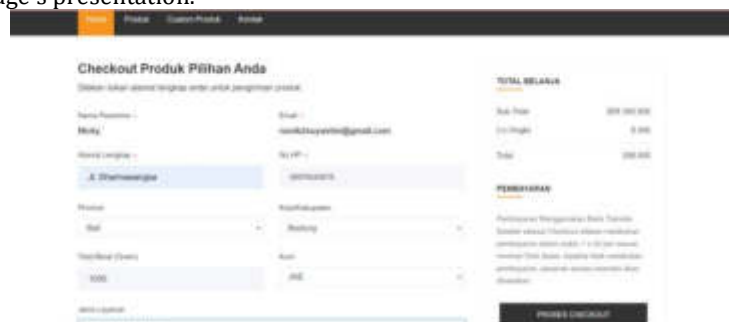


Figure 3. Checkout interface page

After the consumer completes the checkout procedure, there is a phase of order confirmation, which entails entering personal information, the chosen method of shipment, and payment information.



Figure 4. Order Confirmation Page

The prior order confirmation page is shown in Figure 4. The status on the order detail page will read "waiting for confirmation" if the admin has not yet verified the payment. If it has, the status will change to "confirmed," at which point you will only need to wait for the goods to be dispatched.

## 3. Dashboard Pages

The admin user can view the dashboard page. The admin can access all system functions and view graphs of sales progress on the dashboard if the owner and admin are successful in logging into the system. A new order menu, confirmed orders, sent orders, and all orders are among the features in this

part. Another feature is master data, which includes user data menus, category data, and product data. There is a menu for order confirmation, payment confirmation, sent custom orders, and all sent custom orders in the custom order function. The admin can view sales reports and custom order reports in the report menu section. Here is a screenshot of the administrative dashboard.



Figure 5. Dashboard Interface page

#### 4. Transaction Detail Interface Page

On the page detailing the transaction, accessible via the order checking menu. In this area, the administrator will check for incoming orders before awaiting customer payment before finalizing the order. This image depicts the updated order page.

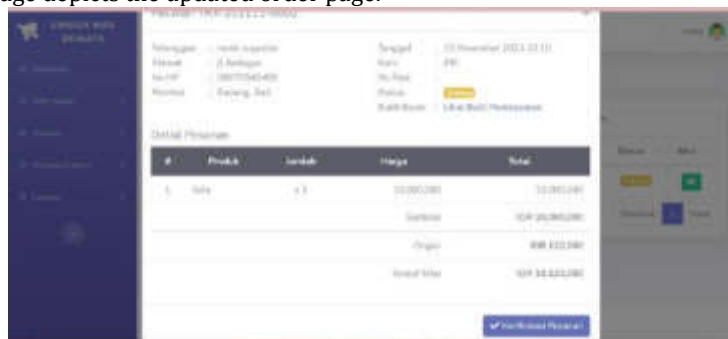


Figure 6. Transaction Detail Interface Page

#### 5. Report Interface Page

The owner and administrator can view transaction data on the report data page by filtering the start and end dates. This website lets admins and owners print transaction and product report data from monthly or incidental transactions based on date filtering.

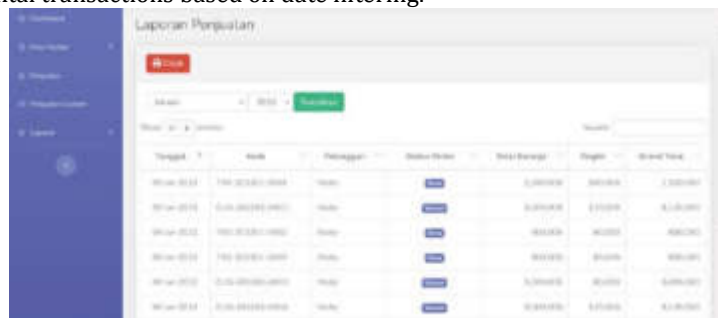


Figure 7. Report Interface Page

### 3.3 System Testing

Blackbox testing checks system functioning for correct use during system testing. Black box testing determines the system's general operation on each page and the function of each button to ensure that the system is error-free and may be changed according to user needs[19], [20]. Table 1 shows blackbox system testing.

Table 1. Blackbox Testing Scenarios

No	System Functionality	Scenario Result	Description of testing
1	Product Interface Page	Success	The system works well
2	Order Interface Page	Success	The system works well
3	Dashboard Interface page	Success	The system works well
4	Transaction Detail Interface Page	Success	The system works well
5	Report Interface Page	Success	The system works well

Based on the information in table 1, it is clear that all system features have been operating properly and are legitimate according to user requirements.

#### 4. CONCLUSION

By implementing an e-commerce information system, the development of the e-commerce system has been successfully developed to aid MSMEs in adapting to information technology. There are system characteristics that are adapted to the research stages beginning with problem identification and user needs analysis of sales and buy transaction business processes. On the basis of an analysis of user requirements, e-commerce has three primary features: product data management, order data management, and transaction details, which assist MSME parties in managing transaction records and consumer users in selecting products and completing purchase transactions. There is a report option designed to assist SMBs in summarizing daily and monthly transactions and determining whether total sales match the number of transactions. At the system testing stage, blackbox testing was performed for five system functionality testing scenarios, with the result that the entire system worked as expected and in compliance with user requirements based on the business processes required to assist MSMEs in handling transactions.

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