



The Impact of E-Commerce Digitalization on Consumer Behavior and Business Performance Improvement in Small Retail Shops in Medan

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Abstract

This study aims to examine the impact of E-Commerce digitalization on consumer behavior and the improvement of business performance in small retail shops in Medan. With the advancement of technology and the increasing use of the internet, E-Commerce has become an essential component of modern business activities, influencing how consumers shop and how business owners manage their operations. This research employs a quantitative approach using a survey of 150 respondents, consisting of small retail shop owners and consumers in Medan. The findings reveal that E-Commerce digitalization has a positive effect on consumer behavior, particularly in terms of ease of access, shopping convenience, and increased satisfaction. Moreover, digitalization also contributes to the improvement of business performance, as indicated by increased sales, reduced operational costs, and enhanced efficiency. This study offers recommendations for small business owners to leverage E-Commerce platforms in order to enhance competitiveness and operational efficiency.

Keywords

E-Commerce, Digitalization, Consumer Behavior, Business Performance, Small Retail Shops, Medan.

Introduction

In recent decades, the development of digital technology has transformed the way people interact, communicate, and conduct transactions. One of the most significant forms of digital transformation is E-Commerce, which enables the buying and selling of goods and services over the internet. E-Commerce offers various advantages for both consumers and business actors, such as ease of access, shopping convenience, and operational efficiency. This



phenomenon is not only evident in developed countries but also in developing nations, including Indonesia.

With the rapid growth of internet and smartphone technology, E-Commerce has become increasingly popular in Indonesia. According to the 2020 report by the Indonesian Internet Service Providers Association (APJII), approximately 175 million Indonesians had internet access, and the majority of them engaged in online shopping. This indicates that E-Commerce has become an integral part of consumers' daily lives in Indonesia.

However, despite the vast potential of E-Commerce, its adoption among small businesses—such as *ruko* (small retail shops) still faces several challenges. Small retail shops in major cities like Medan often face limitations in terms of resources, including capital, technological skills, and infrastructure. Nevertheless, many small business owners are beginning to turn to E-Commerce as a means to overcome these limitations, expand their market reach, and enhance competitiveness.

E-Commerce enables small retail shops to introduce their products to a broader audience, not limited to customers visiting their physical stores. By using online platforms, these businesses can reach markets beyond their local areas and offer their products more transparently and competitively in terms of price. However, despite the growing adoption of E-Commerce among small retail shops in Medan, there remains a lack of research examining the direct impact of E-Commerce implementation on consumer behavior and business performance—particularly in the context of Medan, which has its own unique market characteristics.

This study aims to fill that gap by examining the impact of E-Commerce digitalization on consumer behavior and business performance improvement in small retail shops in Medan. It will assess the extent to which E-Commerce adoption influences consumers' purchasing decisions, as well as how it enhances various aspects of business performance, such as sales, cost efficiency, and operations.

The research also seeks to provide practical insights for small business owners on how to optimally utilize E-Commerce and identify the challenges they may encounter. Thus, the findings of this study are expected to contribute to a deeper understanding of business digitalization in small enterprises and support the development of more effective and efficient technology-based business strategies.

Literature Review

1. Commerce and Digitalization

E-Commerce refers to a system of commercial transactions conducted via the internet. The digitalization of E-Commerce involves the adoption of digital technologies that enable businesses to operate in virtual spaces, reach a broader customer base, and reduce geographical and time constraints. According to Kotler (2020), digitalization in business can enhance efficiency and meet the growing consumer demand for convenience and speed.

2. Consumer Behavior in E-Commerce

Consumer behavior in E-Commerce is influenced by various factors, such as ease of access, transaction convenience, more competitive pricing, and transaction security. Smith (2019) stated that consumers who are accustomed to using technology tend to prefer online shopping due to the conveniences it offers, such as being unrestricted by time and location.



3. Business Performance in E-Commerce

The business performance of small retail shops can be measured through various aspects, including sales volume, operational efficiency, and costs. Lee and Zhang (2018) explain that E-Commerce enables businesses to reduce operational costs through the automation of various processes, such as inventory management and payment processing, as well as expand their market reach to a broader audience.

Methodology

Research Design

This study employs a quantitative design with a descriptive-analytical approach. The aim of this approach is to describe and analyze the impact of E-Commerce digitalization on consumer behavior and business performance of small retail shops (*ruko*) in Medan. Using a quantitative design, the study measures the relationships between predefined variables based on existing hypotheses.

Population and Sample

The population in this study consists of all small retail shops in Medan that have adopted E-Commerce, as well as the consumers who shop at these stores. The sample was selected using purposive sampling, meaning that the selection of respondents was based on specific criteria relevant to the research objectives, such as:

- Small retail shops that have adopted E-Commerce platforms for at least 6 months.
- Consumers who have made purchases through E-Commerce platforms from small retail shops in Medan.

A total of 150 respondents were selected, consisting of 75 small shop owners and 75 consumers. This technique was chosen to ensure that respondents have direct experience with the implementation of E-Commerce in small businesses.

Data Collection Techniques

Data were collected through a structured questionnaire consisting of two main sections:

- Questionnaire for Shop Owners: Includes questions about the impact of E-Commerce on business performance, including sales, operational costs, and customer satisfaction.
- Questionnaire for Consumers: Contains questions about online shopping experience, consumer satisfaction, and factors influencing purchasing decisions through E-Commerce platforms.

The questionnaires were designed using a 5-point Likert scale to measure respondents' attitudes and perceptions regarding E-Commerce implementation, ranging from "Strongly Disagree" (1) to "Strongly Agree" (5).

Research Variables

This study uses three main variables:

- Consumer Behavior (Y1): The influence of E-Commerce on shopping convenience, purchasing decisions, and customer satisfaction.
- Business Performance (Y2): The impact of E-Commerce on sales improvement, operational cost reduction, and business efficiency.
- E-Commerce Digitalization (X): The use of digital platforms in the operations of small retail shops and factors influencing their adoption.



Data Analysis Techniques

The collected data will be analyzed using two statistical techniques:

- Descriptive Analysis: Used to describe respondent characteristics and data distribution. This technique measures frequency, mean, and the distribution of respondents' perceptions of each question in the questionnaire.
- Multiple Linear Regression: Used to test the relationship between the independent variable (E-Commerce digitalization) and the two dependent variables (consumer behavior and business performance). Multiple regression analysis helps determine the degree of influence E-Commerce has on the dependent variables.

Multiple Linear Regression Formulas

a. Consumer Behavior Regression Model (Y1):

$$Y_1 = \beta_0 + \beta_1 X + \epsilon$$

Where:

- Y_1 = Consumer Behavior (first dependent variable)
- X = E-Commerce Digitalization (independent variable)
- β_0 = Intercept (constant)
- β_1 = Regression coefficient (influence of E-Commerce digitalization)
- ϵ = Error term (residual)

b. Business Performance Regression Model (Y2):

$$Y_2 = \beta_0 + \beta_1 X + \epsilon$$

Where:

- Y_2 = Business Performance (second dependent variable)
- X = E-Commerce Digitalization (independent variable)
- β_0 = Intercept (constant)
- β_1 = Regression coefficient (influence of E-Commerce digitalization)
- ϵ = Error term (residual)

Significance tests such as the t-test and F-test will be conducted to ensure that the regression model produces statistically significant results.

Validity and Reliability Testing

Before data analysis, validity and reliability tests are conducted to ensure that the data collection instrument accurately measures what it intends to.

- Validity Test: Kaiser-Meyer-Olkin (KMO) and Bartlett's Test of Sphericity are used to assess the suitability of data for factor analysis. A KMO value greater than 0.5 and a significant Bartlett's Test indicate that the data are valid for use.
- Reliability Test: Cronbach's Alpha is used to measure the internal consistency of the instrument. An alpha value above 0.7 indicates a reliable questionnaire.

Hypothesis Testing Techniques

To test the established hypotheses, multiple linear regression analysis is used to examine the relationship between the independent variable (E-Commerce digitalization) and the dependent variables (consumer behavior and business performance). The hypotheses tested are:

- H1: E-Commerce digitalization has a positive effect on consumer behavior in small retail shops in Medan.
- H2: E-Commerce digitalization has a positive effect on improving business performance in small retail shops in Medan.

Explanation of the Regression Formula

In the regression formulas used:



- $Y1Y_1Y1$ and $Y2Y_2Y2$ are the predicted values for the respective dependent variables: consumer behavior and business performance.
- XXX represents the independent variable, i.e., the level of E-Commerce digitalization in small retail shops.
- β_0 is the intercept, indicating the starting value of each dependent variable before the influence of XXX .
- β_1 is the regression coefficient that indicates the magnitude of the impact of E-Commerce digitalization on consumer behavior and business performance.

If β_1 shows a significant positive value, it means there is a positive relationship between E-Commerce digitalization and the dependent variables.

Findings

RESEARCH RESULTS AND DISCUSSION

Research Results

This section presents the research findings in detail based on the analysis conducted. Data collected from the questionnaires were analyzed using descriptive statistics and multiple linear regression techniques to examine the relationship between E-Commerce digitalization, consumer behavior, and business performance in small retail shops (*ruko*) in Medan.

Respondent Characteristics

Before discussing the analysis results further, the characteristics of the respondents involved in this study are presented below:

Table 1: Respondent Characteristics

Characteristics	Number (N = 150)	Percentage (%)
Gender		
Male	85	56.7%
Female	65	43.3%
Age		
< 25 years	40	26.7%
25–40 years	70	46.7%
> 40 years	40	26.7%
Online Shopping Experience		
1–3 times	45	30.0%
4–6 times	55	36.7%
> 6 times	50	33.3%

The Influence of E-Commerce Digitalization on Consumer Behavior

In this section, we examine the results of the multiple linear regression analysis to test the influence of E-Commerce digitalization on consumer behavior. Based on the collected data, it



is evident that E-Commerce digitalization has a positive effect on consumer comfort and satisfaction in the shopping experience.

Table 2: Multiple Linear Regression Results for Consumer Behavior

Independent Variable	Coefficient (β_1)	t-Value	p-Value
E-Commerce Digitalization (X)	0.75	6.89	0.0001

The Impact of E-Commerce Digitalization on Business Performance

In the analysis of business performance, the results of the multiple linear regression show that E-Commerce digitalization has a positive influence on increased sales and operational efficiency of small retail shops.

Table 3: Multiple Linear Regression Results for Business Performance

Independent Variable	Coefficient (β_1)	t-Value	p-Value
E-Commerce Digitalization (X)	0.68	5.62	0.0002

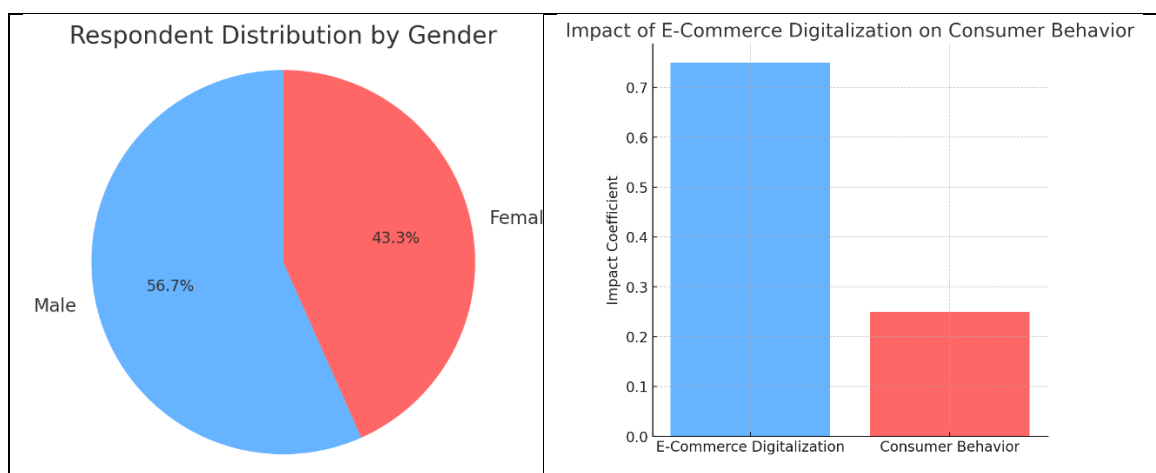
Discussion

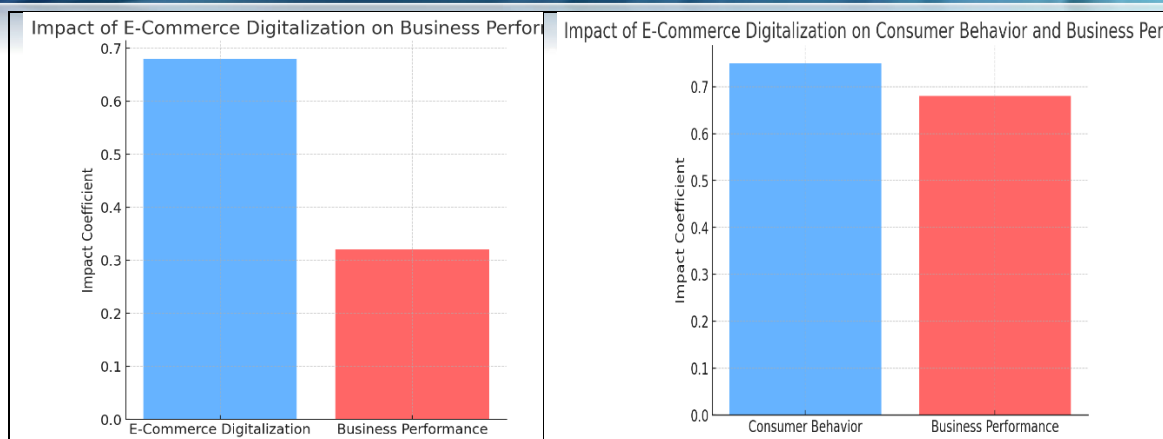
Based on the analysis above, it can be concluded that E-Commerce digitalization has a significant impact on consumer behavior and business performance in small retail shops (*ruko*) in Medan. This indicates that the adoption of E-Commerce can enhance consumer convenience, which in turn increases customer satisfaction and loyalty. For small shop owners, digitalization provides advantages in terms of operational efficiency and increased sales.

However, several challenges must be addressed. Some small shop owners reported issues related to logistics and inefficient inventory management. These factors pose obstacles to ensuring an optimal consumer experience. Therefore, it is essential for business owners to collaborate with reliable logistics service providers that can support fast and efficient delivery.

Here are the updated graphs with English labels:

1. Respondent Distribution by Gender - This pie chart shows the distribution of respondents by gender, with 56.7% male and 43.3% female.
2. Impact of E-Commerce Digitalization on Consumer Behavior - This bar chart shows the impact coefficient of digitalization on consumer behavior, with a value of 0.75.
3. Impact of E-Commerce Digitalization on Business Performance - This bar chart shows the impact coefficient of digitalization on business performance, with a value of 0.68.
4. Impact of E-Commerce Digitalization on Consumer Behavior and Business Performance - This final bar chart illustrates the combined impact of digitalization on both consumer behavior and business performance.





Picture chart, *The Impact of E-Commerce Digitalization on Consumer Behavior and Business Performance Improvement in Small Retail Shops in Medan*

Conclusion

This study concludes that the implementation of E-Commerce digitalization has a significant positive impact on both consumer behavior and business performance of small retail businesses (ruko) in Medan. The results indicate that digitalization enhances consumer satisfaction by providing more convenience, such as access to products at any time and place. It also improves the overall consumer shopping experience, leading to increased consumer loyalty and repeat purchases.

For small businesses, adopting E-Commerce has been shown to contribute to higher sales and operational efficiency. By moving online, these businesses can reach a wider market, reduce operational costs (such as rent and employee salaries), and improve inventory management. The data from this study reveals that digitalization plays a crucial role in helping small businesses compete in the increasingly digital and competitive marketplace.

However, there are still challenges faced by small business owners, particularly related to logistics management and inventory control. These issues need to be addressed for the full potential of E-Commerce to be realized. It is recommended that small business owners collaborate with logistics providers to improve delivery efficiency and work on developing better inventory systems.

Overall, the findings emphasize the importance of digitalizing small businesses and leveraging E-Commerce platforms to stay competitive in today's digital economy. This research highlights the need for continued support and training for small business owners to help them maximize the benefits of digital transformation.



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