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Digital Transformation of MSMEs in North Sumatra: Building an E-Commerce Platform to Enhance Competitiveness and Market Reach

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Abstract

Micro, Small, and Medium Enterprises (MSMEs) contribute significantly to Indonesia's economy but still face numerous challenges in adopting digital technologies, particularly in North Sumatra. These include low digital literacy, limited access to technology, and lack of tailored platforms. This paper introduces "LokaMart", a local e-commerce platform designed to empower MSMEs in North Sumatra through a community-based ecosystem. Using a descriptive qualitative method and user-centered design, this research outlines the planning and prototyping of LokaMart, evaluates its features such as real-time tracking and user-friendly interface, and discusses its potential in increasing digital inclusion and competitiveness. The findings reveal that platforms like LokaMart are essential in building a more inclusive, competitive, and sustainable digital economy for local MSMEs.

Keywords: Digital Transformation; MSMEs; E-Commerce; North Sumatra; LokaMart

1. Introduction

Micro, Small, and Medium Enterprises (MSMEs) are the backbone of Indonesia's economy. They contribute more than 60% to Indonesia's Gross Domestic Product (GDP) and employ approximately 97% of the workforce. In North Sumatra, about 1.16 million MSMEs play a crucial role in local economic development. However, their digital adoption remains low, particularly in e-commerce, marketing, and production processes. Global e-commerce platforms provide opportunities but also pose threats due to intense competition with imported goods.

To address this, local innovations such as a dedicated e-commerce platform can be an effective solution. LokaMart, a platform built specifically for North Sumatran MSMEs, offers a user-friendly, community-driven space to promote and sell local products. This paper explores the rationale, development process, and benefits of such a digital transformation initiative.

2. Literature Review

2.1 MSMEs in Indonesia

MSMEs are defined based on asset value and annual sales [1]. In North Sumatra, MSMEs dominate the informal economy but face barriers such as low education, limited funding, and lack of digital literacy.

2.2 Digital Transformation in MSMEs

Digital transformation refers to integrating digital technologies into all aspects of business. Digitalization also helps MSMEs expand their markets, reduce costs, and improve operations [2]. Furthermore, it states that technology adoption increases business competitiveness and agility.

Benefits of digital transformation include:

- Improved efficiency and cost reduction
- Development of innovative business models
- Wider market access
- Higher competitiveness

Challenges include infrastructure limitations, lack of digital skills, and high implementation costs [3] [4].

2.3 E-Commerce for MSMEs

E-commerce involves online transactions and digital business models. Only 56.47% of MSMEs in the region use digital marketing, and 43.53% have digitalized production processes [5].

Table 2.3. Number of Enterprises Based on Digitalization Utilization in North Sumatra

Total Businesses	Digital Marketing	Digitalized Production Process
58.041	32.774	25.267
100 %	56,47%	43,53%

Source: Ministry of Cooperatives and SMEs (KEMENKOP UKM)

3. Research Method

This study applies to a descriptive qualitative method to analyze the behaviors, needs, and perceptions of MSMEs regarding digital platforms. Field observations and user experience research were used to develop a prototype using the user-centered design approach.

The system development follows an iterative cycle, integrating findings from MSME interviews and testing stages to ensure the application meets real user needs and local conditions.

4. Results and Discussion

4.1 System Planning

The flow begins with login/registration and proceeds through product browsing (image or keyword-based search), cart, checkout, and payment. A real-time tracking feature allows users to monitor orders.

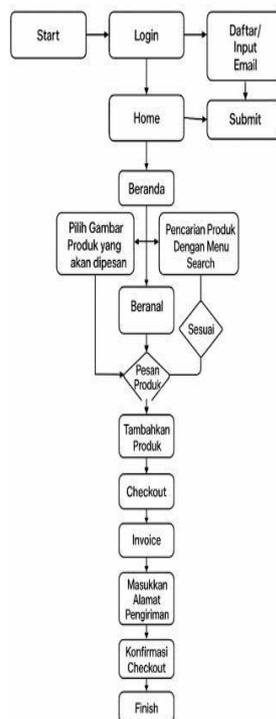


Figure 1. LokaMart System Flowchart

4.2 System Implementation

Key application features:



Figure 2. Login & registration using email



Figure 3. Homepage & product catalog

In Figure 3, there are features such as product search by keyword, digital payment systems, and others.



Figure 4. Real-time order tracking

The platform is currently buyer-oriented but includes plans for admin (seller) features.

4.3 Strategic Value

LokaMart provides localized, inclusive access to the digital market. It enhances trust through transparent delivery systems and real-time updates. By focusing on simplicity, it ensures digital participation among less tech-savvy entrepreneurs.

5. Conclusion

The development of LokaMart demonstrates how digital transformation can empower MSMEs in North Sumatra. The system offers essential features, from intuitive navigation to real-time tracking, that are both accessible and functional. This initiative addresses barriers to digital inclusion and opens new market opportunities. With further improvements such as multi-role access and payment diversification, LokaMart can significantly contribute to strengthening the digital economy.

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