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Abstract

Micro, Small, and Medium Enterprises (MSMEs) are the backbone of Indonesia's economy, contributing over 60% to the national GDP and employing approximately 97% of the workforce. In North Sumatra, particularly in Medan and Deli Serdang, MSMEs play a vital role in supporting local economic resilience. However, challenges arise due to low digital literacy levels and increasing environmental concerns, especially regarding textile waste. This study explores empowerment strategies for MSMEs by integrating digitalization and sustainable practices such as fashion textile waste recycling. Using a qualitative descriptive approach through digital content analysis, the research reveals that combining digital platform utilization with circular economy principles creates significant opportunities for MSME development. The study concludes that a holistic strategy involving digital training,sustainability innovation, and strong stakeholder collaboration is essential for empowering MSMEs in North Sumatra, thereby contributing to Sustainable Development Goals (SDGs) 8, 12, and 13.

Keywords: MSMEs; Digital Transformation; Textile Waste; Circular Economy; Sustainable Fashion

1. Introduction

Micro, Small, and Medium Enterprises (MSMEs) significantly contribute to Indonesia's economic growth and stability. However, the ongoing wave of globalization and digital transformation requires MSMEs to adapt swiftly to remain competitive. In North Sumatra, particularly in Medan and Deli Serdang, MSMEs face dual challenges: low adoption of digital technologies and limited initiatives for sustainable waste management, especially concerning textile waste [1]. Addressing these issues through integrated digitalization and sustainable business practices becomes critical for building resilient MSMEs.

The objectives of this research are:
1. To identify the key challenges and opportunities for MSMEs in adopting digital and sustainable practices. 2. To explore strategies for integrating digital platforms with textile waste recycling.
3. To evaluate the impact of these strategies on MSME competitiveness and sustainability.

2. Literature Review

2.1 Digitalization and MSMEs

Digitalization has become an essential tool for enhancing the competitiveness of MSMEs in the global market. According to [2], MSMEs that leverage digital platforms such as e-commerce, digital marketing, and online payment systems are better positioned to expand their market reach and improve operational efficiency.

2.2 Circular Economy and Textile Waste Management

The circular economy concept focuses on minimizing waste and maximizing the use of resources through recycling, reusing, and redesigning products. [3] Emphasized that shifting towards a circular economy model could significantly mitigate environmental degradation while opening new business opportunities.

2.3 Previous Studies on Sustainable MSME Development

Previous research has indicated that the integration of digitalization and sustainability practices can greatly enhance MSME resilience. [4] Found that MSMEs adopting innovative and eco-friendly business models tend to survive longer in competitive markets. [5] Also highlighted that raising environmental awareness among entrepreneurs directly contributes to responsible consumption and production patterns.

3. Research Method

This research adopts a qualitative descriptive method using a comparative case study design. Data were gathered by tracing and analyzing digital content from two MSMEs in North Sumatra that engage in textile waste recycling and digital marketing activities. Sources include social media content, websites, and online marketplaces (Instagram, Shopee, etc).

4. Result and Discussion

4.1 Digitalization among MSMEs in Medan

Medan hosts over 196,700 MSMEs (Dinas Koperasi dan UMKM Sumatera Utara, 2023), yet digital adoption remains uneven, especially in suburban districts like Medan Marelan and Medan Labuhan. Only around 30% of these MSMEs effectively utilize digital platforms for marketing and transactions.

4.2 Textile Waste Management for Sustainable Fashion

Deli Serdang MSMEs demonstrate creative approaches to recycling textile waste into value-added fashion products. Approximately 70% of young consumers are willing to purchase recycled fashion items if designed attractively.

4.3 Integration of Digitalization and Sustainability

The combination of digital platforms and sustainable practices enables MSMEs to access broader markets while promoting environmentally responsible products. Developing digital skills, enhancing creative capacities, and strengthening stakeholder collaboration are essential strategies for MSME empowerment.

Table 1. Summary of Findings

Aspect	Current Condition	Challenge	Recommended Solution
Digitalization	30% suburban MSMEs using digital tools.	Low digital literacy, infrastructure limitations.	Digital training programs, government initiatives.
Textile Waste Recycling	Emerging sustainable fashion MSMEs.	Negative public perception, limited branding.	Consumer education, creative design development.

Source: Researcher Processed Data

5. Conclusion

Integrating digital transformation with fashion textile waste recycling providies a viable path for empowering MSMEs in North Sumatra. A holistic empowerment strategy that includes skill development, technology provision, financial support, and sustainability innovation is critical. These efforts not only bolster MSME competitiveness but also contribute to achieving SDGs 8, 12, and 1

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