Chapter 7

Identification of Green E-Commerce Adoption Among SMEs Based on the TOE Framework With Demographics as Control Variables

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ABSTRACT

This research investigates the adoption of green e-commerce among SMEs in Indonesia through the lens of the technology-organization-environment (TOE) framework. Using a quantitative approach with 126 SME owners who have adopted green e-commerce, the study finds that technology, organization, and the environment significantly influence green e-commerce adoption. Specifically, SMEs are more likely to adopt green e-commerce when they perceive it as useful and aligned with their values, receive organizational support, and face pressure from customers and competitors. Contrary to expectations, the owner's education level, product type, and duration of operations do not significantly impact the adoption decision. The study contributes to theory by reaffirming the TOE framework's relevance in predicting green e-commerce adoption and provides practical insights for stakeholders to enhance SMEs' green business practices and digital transformation efforts.

INTRODUCTION

The development of green businesses in the SME sector is increasingly attracting attention from various quarters as it is considered to play a significant role in the success of a country's economy. Currently, the number of SMEs in Indonesia accounts for over 99 percent of the total business units in other sectors, making the majority of the Indonesian population work in the SME sector (Jayani, 2021). Moreover, the number of Internet users in Indonesia is among the largest in the world, with over 204 million users recorded in 2022 (Riyanto, 2022). The trend of Internet users in Indonesia continues to increase annually. Dihni (2021) states that Indonesia has become the country with the largest retail sales through e-commerce in Southeast Asia. Currently, SMEs in developing countries face various obstacles that are different from SMEs in developed countries. One of the reasons is the topic of e-commerce adoption among SMEs, which has only recently received attention in academic circles, so that many still view it as a threat, not an opportunity, for SMEs in developing countries (Nasution et al., 2021).

Recent findings suggest that green e-commerce will be the sole future of retail sales for SMEs (Lal & Chavan, 2019; Martínez et al., 2020). Green e-commerce is an online business practice that focuses on minimizing the environmental impact of e-commerce activities (Jalil et al., 2024). This covers various aspects, from selecting sustainable products, environmentally friendly packaging, to energy efficient shipping. Green e-commerce presents a unique potential that SMEs can leverage for green business development in green marketing. Currently, more and more companies are aware of the environmental impact of company supply chain activities, but almost no research has analysed green e-commerce criteria to evaluate green supplier performance (Liou et al., 2024). In developed countries, green marketing is an integral part of corporate strategy in an era that prioritizes sustainability, aligns with consumer values, and delivers real benefits. Integration with digital marketing increases transparency and engagement, creating a powerful combination and sustainable competitive advantage in the ever-evolving digital and sustainable marketing landscape (Piccolo et al., 2024). However, attention to this matter is still difficult to find in developing countries. Ocloo et al. (2020) note that many SMEs still face challenges in green marketing their products online through green e-commerce. Despite the importance of utilizing e-commerce in SME product marketing, there is still a scarcity of research on e-commerce adoption among SMEs (Ocloo et al., 2020; Yang et al., 2022), especially in developing countries.

From a practical perspective, this research is highly essential due to the need to encourage SMEs to adopt green e-commerce to survive in the current green business transformation. This was emphasized by Teten Masduki, Minister of Cooperatives and SMEs of the Republic of Indonesia, who highlighted that there are still many SMEs in various regions that are not yet connected to the digital ecosystem. In fact, this digital ecosystem will be very useful for achieving green business among SMEs. Apart from that, SMEs need to be motivated to use digital systems for green marketing their products (Kemenkopukm, 2022).

According to Chandra and Kumar (2018); Purwandari et al. (2019), the TOE (Technology-Organization-Environment) framework is considered a robust model for predicting green technology adoption. The TOE framework was initially proposed by Tornatzky and Fleischer (1990) where innovation adoption can be explained through three contexts: technology, organization, and environment. The TOE framework is highly suitable for predicting green technology adoption (including e-commerce) within the organizational scope (Ali et al., 2020). Several pieces of literature state that technology significantly influences e-commerce adoption (Putra & Santoso, 2020; Qalati et al., 2021). When SMEs perceive e-commerce technology as useful, beneficial, and aligned with their values, they are more likely to adopt e-commerce

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