

Improving Digital Literacy of Business Actors as a Foundation for E-Commerce Transformation

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Abstract

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Digital transformation has accelerated the development of e-commerce in Indonesia. However, low levels of digital literacy, particularly among MSMEs, remain a serious challenge hindering the optimal use of digital technology. Digital literacy, now as important as basic skills such as reading and writing, is a key foundation for businesses to increase competitiveness, expand markets, and strengthen business resilience in the Industry 4.0 era. This study aims to analyze the role of digital literacy as a foundation for e-commerce transformation and identify strategies for its improvement. This study uses a qualitative method with a literature study approach, through an in-depth review of journals, books, reports, and relevant literature discussing digital literacy and e-commerce. The findings indicate that improving digital literacy contributes significantly to revenue growth, operational efficiency, and business resilience. Policy support, competency-based training programs, collaboration with digital platforms, and cybersecurity education are key strategies to strengthen digital literacy as the foundation for an inclusive and sustainable e-commerce transformation in Indonesia.

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1. Introduction

The COVID-19 pandemic has accelerated the shift in consumer behavior toward online shopping, with around 60% of global consumers turning to digital platforms to meet their needs. In Indonesia, this transformation has contributed significantly to the projected growth of the digital economy, with the e-commerce sector as its main contributor. This rapid growth is supported by a high internet penetration rate, as well as widespread smartphone ownership across various segments of society (Bădîrcea et al., 2021). Local e-commerce platforms such as Tokopedia, Shopee, and Lazada play a major role in facilitating online transactions, opening wider market opportunities for businesses of all scales. MSMEs have become one of the main driving forces, accounting for about 60% of total sellers on various marketplaces (Neumeyer et al., 2020).

Digital transformation has fundamentally changed how businesses operate and interact with consumers. Business actors now rely on digital systems to manage inventory, conduct marketing, and distribute products more efficiently. The presence of social media, marketplaces, and websites creates opportunities for businesses to reach consumers directly without geographical limitations. Marketing strategies have also evolved through data utilization, such as targeted advertising and consumer behavior analytics, which have proven to increase sales conversion rates (Kurniawati et al., 2020). Moreover, digital transformation has given rise to new business models such as dropshipping, subscription-based services, and social commerce. These models allow businesses to start operations with lower capital while gaining the potential for a wider market reach. These changes demand that

business actors continuously improve their digital literacy to adapt and remain competitive in an increasingly digital market (Chaffey et al., 2019; Räisänen & Tuovinen, 2020).

In the digital era, digital literacy has become a basic skill as essential as reading, writing, and arithmetic. Digital literacy encompasses the ability to use digital devices and applications, such as managing online stores on marketplaces, understanding cybersecurity to protect business and consumer data, analyzing sales data for decision-making, and adapting to new technologies such as artificial intelligence and digital payments. Without adequate digital literacy, business actors will struggle to compete in an increasingly digitalized and rapidly changing market (Hackfort, 2021). Digital literacy also plays a key role as a driver of economic inclusion in the Industry 4.0 era, as it opens access to broader and more efficient markets. In Indonesia, business actors with high digital literacy have been shown to earn up to 2.5 times more income compared to those who have not yet fully utilized digital skills (Didenko et al., 2021).

Despite the vast opportunities offered by digitalization, many business actors, especially MSMEs, are still left behind due to limited digital literacy. In Indonesia, only 23% of MSMEs actively use e-commerce platforms, while the majority are hindered by a lack of technological knowledge and uneven internet infrastructure, particularly in rural areas. Resistance to adapt is also a challenge, as many MSMEs still rely on conventional methods due to fear of technology or the perception that digitalization is costly. Moreover, limited capital and minimal access to training make digital transformation even harder to implement, as shown by the fact that only 15%

of MSMEs have ever participated in digital literacy training (Ollerenshaw et al., 2021). A lack of understanding of cybersecurity also leaves MSMEs vulnerable to online fraud and data breaches. These challenges make it difficult for MSMEs to fully leverage the potential of e-commerce and widen the gap with larger businesses that are more ready to adapt. This study aims to analyze the role of digital literacy as a foundation for e-commerce transformation to enable MSMEs to compete more inclusively in the digital era.

2. Methods

This research adopts a qualitative approach with an emphasis on reviewing secondary data sources, aiming to generate a comprehensive understanding of the relationship between digital literacy and e-commerce transformation. The use of qualitative methods is considered appropriate because it enables the researcher to explore complex and multidimensional issues, such as the role of digital literacy in supporting technology adoption, from various perspectives. Rather than relying on numerical data alone, the qualitative approach provides the flexibility to examine ideas, interpretations, and contexts in greater depth. Data were collected through an extensive literature review, which involved examining scientific journals, reference books, research reports, and previous studies relevant to the central themes of digital literacy and the transformation of businesses through e-commerce.

The inclusion of diverse sources not only enriches the scope of analysis but also ensures that the findings are anchored in academically credible and practically relevant evidence. By incorporating both theoretical and empirical studies, this

review makes it possible to trace the evolution of digital literacy concepts and their implications for business practices. The primary objective of this study is to identify key concepts, summarize important findings, and uncover research gaps that remain unaddressed in the existing literature. In particular, the study focuses on the role of digital literacy in facilitating technology adoption among business actors, with an emphasis on the use of e-commerce platforms as tools for competitiveness and business growth. By highlighting these dimensions, the research seeks to contribute to both academic discussions and practical strategies for improving digital skills in the business sector.

For data analysis, the study employs content analysis, a method that involves systematically categorizing information to identify recurring patterns and relationships between concepts. Through this process, key themes such as barriers to digital literacy, enablers of e-commerce adoption, and strategies for enhancing technological capacity can be identified and synthesized. The conclusions drawn from this analysis are then used to formulate strategic recommendations. Ultimately, this approach provides an in-depth overview of how digital literacy functions as a critical foundation for business transformation in the digital era. It also generates practical insights and policy-oriented recommendations that can be adopted by business actors and policymakers to strengthen digital capabilities and accelerate e-commerce-based growth.

3. Results

3.1. Digital Literacy Level of Business Actors in Supporting E-Commerce Transformation

The digital literacy of business actors includes the ability to use digital technology, understand digital information, and apply it to business operations such as e-commerce. In general, the level of digital literacy among business actors in Indonesia remains relatively low, especially among MSMEs. Research by Kim et al. (2019) shows that large businesses tend to have higher levels of digital literacy due to better access to training, infrastructure, and financial resources. However, the digital literacy gap occurs not only between different business scales but also across regions. Business actors in urban areas such as Jakarta and Surabaya have higher digital literacy levels compared to those in rural areas, who often face limitations in internet infrastructure and lack of training opportunities (Neumeyer et al., 2020). Globally, the digital literacy of business actors in developing countries like Indonesia still lags behind that of developed countries, where around 80% of business actors have intensively adopted digital technology (Apriliyanti et al., 2021).

Based on the literature review, several key factors influence the level of digital literacy among business actors. First, access to technological infrastructure such as the availability of internet, devices, and digital applications is a fundamental requirement for learning and implementing technology. However, in Indonesia, internet access only reaches about 78.2% of the population, with significant limitations in rural areas. Second, the level of formal education and opportunities to participate in training also contribute positively to digital literacy, although only a

small proportion of MSMEs, around 15%, have ever participated in specialized training provided by the government or private sector. Additionally, social and institutional support such as encouragement from business communities, business associations, or user-friendly application interfaces has been shown to increase interest in adopting technology. The final factor is the availability of capital; business actors with limited capital often struggle to invest in digital devices or training, resulting in suboptimal use of e-commerce (Garzoni et al., 2020; Wynn & Olayinka, 2021; Zhao et al., 2021).

A review of the literature reveals several key findings regarding the role of digital literacy in supporting e-commerce transformation. First, digital literacy is proven to be an essential prerequisite for the successful development of online businesses, as it enables business actors to utilize technology optimally. Second, MSMEs with high levels of digital literacy demonstrate greater competitiveness and stronger business growth compared to those that have not embraced digitalization. Studies in Indonesia show that the income of MSMEs utilizing digital technology is, on average, 2.5 times higher. Third, government policy support is considered crucial to accelerate the improvement of digital literacy, particularly through the provision of infrastructure, training, and assistance programs that can reach business actors in various regions, including areas with limited access to technology (Xing, 2018; Garzoni et al., 2020; Kurniawati et al., 2020).

Improving digital literacy is a fundamental requirement to ensure the success of e-commerce transformation, especially for MSMEs that still face limitations in knowledge and technology access. Without adequate digital literacy, business actors

will struggle to seize opportunities in digital markets, compete globally, and enhance operational efficiency. Research by Purnomo et al. (2021) indicates that digital literacy not only impacts income growth but also strengthens business resilience in facing disruptions such as the pandemic. Therefore, targeted efforts are needed through large-scale training programs that reach rural areas and equip business actors with practical skills such as digital marketing and cybersecurity. In addition, investment in telecommunications infrastructure must be increased to narrow the digital gap, supported by policies that encourage technology adoption, such as device subsidies and tax incentives (Margiansyah, 2020). Collaboration among stakeholders government, the private sector, and academia is also crucial to create an inclusive digital ecosystem. With strong digital literacy, business actors will be able to optimize e-commerce to expand their markets, increase efficiency, and contribute to the growth of Indonesia's digital economy.

3.2. Digital Literacy Enhancement Strategy as a Basis for Strengthening E-Commerce Competitiveness

A review of the literature reveals several key findings regarding the role of digital literacy in supporting e-commerce transformation. First, digital literacy is proven to be an essential prerequisite for the successful development of online businesses, as it enables business actors to utilize technology optimally. Second, MSMEs with high levels of digital literacy demonstrate greater competitiveness and stronger business growth compared to those that have not embraced digitalization. Studies in Indonesia show that the income of MSMEs utilizing digital technology is, on average, 2.5 times higher. Third, government policy support is considered crucial

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Improving digital literacy is a fundamental requirement to ensure the successful transformation of e-commerce, particularly for Micro, Small, and Medium Enterprises (MSMEs) that still face limitations in knowledge, skills, and access to technology. Adequate digital literacy equips business actors with the ability to utilize digital platforms more effectively, optimize operations, and expand market reach. Without these competencies, MSMEs may struggle to seize emerging opportunities, compete on a global scale, or achieve sustainable growth. Research by Purnomo et al. (2021) confirms that digital literacy not only drives income growth but also enhances business resilience against disruptions such as the pandemic.

Therefore, targeted and sustainable efforts are required to strengthen digital literacy and support e-commerce transformation, especially for business actors in rural and underserved areas. Large-scale training programs should not only provide theoretical knowledge but also equip participants with practical and applicable skills such as digital marketing, financial management using digital tools, and basic cybersecurity awareness. At the same time, investment in telecommunications infrastructure must be prioritized to reduce connectivity disparities between urban and rural regions. This effort should be complemented by policies that actively encourage technology adoption, including device subsidies, tax incentives, and regulatory support (Margiansyah, 2020). Equally important, collaboration among

stakeholders government, private sector, and academia is crucial to establish an inclusive digital ecosystem. With strengthened literacy, business actors can optimize e-commerce to expand markets, improve efficiency, and contribute significantly to Indonesia's growing digital economy.

4. Conclusion

This study shows that digital literacy is a fundamental foundation for supporting the success of e-commerce transformation, especially for small and medium-sized enterprises (MSMEs). The literature review confirms that business actors with a high level of digital literacy are better able to utilize digital platforms for marketing, operational management, and expanding their markets, even internationally. However, various challenges such as limited infrastructure access, lack of training, reluctance to adapt, and low awareness of cybersecurity remain significant obstacles to improving digital literacy, particularly in non-urban areas. Therefore, strategies to enhance digital literacy must be carried out in a targeted manner through competency-based training programs, supportive government policies, collaboration with digital platforms, and ongoing cybersecurity education. By doing so, business actors can fully leverage the potential of e-commerce to increase competitiveness, operational efficiency, business resilience, and make a tangible contribution to the growth of Indonesia's digital economy.

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