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Optimization of Digital Transformation and Digital Competence in Business Sustainability

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Abstract

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The development of digital technology has driven fundamental changes in the business world, particularly in the e-commerce sector. Digital transformation is not only a supporting factor but also a key driver in shaping new business models that are more adaptive and competitive. This study aims to analyze the impact of digital transformation on the development of e-commerce business models, with a focus on market reach, operational efficiency, and customer experience enhancement. The research method employed is a literature study with a qualitative approach, by reviewing journals, articles, and research reports related to digital transformation and its implementation in the e-commerce sector. The analysis was conducted to identify trends, challenges, and opportunities that arise in the process of business digitalization. The findings indicate that digital transformation plays a significant role in expanding global market access, improving business process effectiveness through automation and system integration, and creating more personalized and interactive customer experiences. In conclusion, the adoption of digital technology is the key to the success of e-commerce businesses in the digital economy era.

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1. Introduction

The era of technological disruption has brought major changes to the global business landscape. Rapidly evolving innovations such as artificial intelligence, big data, and the Internet of Things have shifted traditional business models toward systems that are more digital, connected, and data-driven (Qattan et al., 2021). Companies are required to adapt quickly to remain relevant, as failure to transform can result in a loss of competitiveness and even marginalization from the market. This disruption creates challenges while also opening new opportunities for growth and innovation, particularly for e-commerce players who are highly dependent on digital technology (Choi et al., 2022). With proper utilization of technology, companies can enhance operational efficiency, expand market reach, and provide better customer experiences (Galanakis et al., 2021; Ivanov & Dolgui, 2021).

Păvăloaia and Necula (2023) explain that although digital transformation has advanced rapidly and become a key strategy in modern business, many e-commerce actors still face serious obstacles due to limited digital competence. Not all business players possess sufficient understanding of how to leverage digital technologies to optimize their business processes (Bongomin et al., 2020; Mondal et al., 2023). The lack of digital literacy often causes transformation strategies to be ineffective or even fail. This is evident in the low ability to manage digital platforms, utilize customer data, and adopt the latest technologies to enhance competitiveness (Brougham & Haar, 2020).

Digital transformation has now become an essential element for economic actors, as it offers various strategic benefits that support business sustainability.

Through the adoption of digital technologies, companies can improve operational efficiency by automating business processes, accelerating workflows, and reducing production and distribution costs (Aoun et al., 2021). In addition, digital transformation enables broader market expansion through the use of e-commerce platforms, social media, and various other digital channels, allowing products and services to reach consumers across regions and even across countries (Kivimaa et al., 2020; Palmié et al., 2020). Another advantage is the enhancement of competitiveness, where companies can deliver innovation, more personalized services, and faster responses to consumer needs. Conversely, companies that are reluctant to transform risk falling behind competitors, losing relevance in the eyes of consumers, and missing out on growth opportunities (Dewi & Lusikooy, 2023).

Digital competence is a key factor for e-commerce players in facing the dynamics of competition in the digital era. With strong digital competence, business actors are able to effectively utilize technology to adapt to rapid market changes (Priambodo et al., 2021; Davis, 2022). This competence not only includes technical skills in using various e-commerce platforms, social media, or digital marketing applications, but also an understanding of consumer trends, data analysis, and relevant online marketing strategies. E-commerce players who master digital competence can improve operational efficiency through service automation, smarter inventory management, and more responsive customer interactions (Choi et al., 2022). In addition, digital competence also plays a role in creating more personalized and satisfying customer experiences, thereby increasing consumer loyalty (Mikl et al., 2021).

The purpose of this research is to provide an in-depth explanation of the relationship between digital transformation and digital competence in enhancing the performance and success of e-commerce businesses in the era of technological disruption. Through this study, it is expected to gain insights into how the implementation of digital transformation-which involves the adoption of modern technologies across various operational aspects-can be more effective when supported by adequate digital competence among business actors. Furthermore, this research also aims to identify the various challenges still faced by e-commerce players, such as limited digital literacy, lack of technical skills, and barriers to adopting new technologies.

2. Methods

This research employs a qualitative method with a literature review approach. The literature review method is considered appropriate because it allows the researcher to explore theoretical foundations, core concepts, and previous empirical findings related to the topic of digital transformation and digital competence, particularly in the context of e-commerce. By relying on secondary data, this approach provides the opportunity to synthesize and critically evaluate various perspectives that have been presented in earlier studies, thereby generating a more comprehensive and in-depth understanding. The data sources used in this study are entirely secondary, meaning that they are not obtained directly through fieldwork, but rather through existing documents and scientific publications.

These sources include peer-reviewed international and national journals that specifically address issues of digital transformation, digital competence, and e-commerce; academic books that provide conceptual and theoretical discussions; as well as conference papers, research reports, and other relevant scholarly articles. The inclusion of both international and national perspectives ensures that the study does not only capture global trends, but also remains contextualized within Indonesia's digital economy environment.

The process of reviewing this diverse literature involves several stages. First, the researcher identifies relevant keywords such as digital transformation, digital competence, e-commerce, digital economy, and online business. Second, the search is conducted systematically through academic databases, university repositories, and credible online resources to ensure the reliability and validity of the selected materials. Third, the obtained literature is screened based on its relevance, recency, and contribution to the research focus, especially those published within the last 10 years to capture contemporary developments.

Through this structured process, the study aims to build a solid conceptual framework that explains the relationship between digital transformation and the success of e-commerce enterprises. In particular, the study highlights how digital competence acts as a key enabling factor that strengthens the ability of businesses to adapt to technological change, optimize operations, and enhance competitiveness in a rapidly evolving market environment. Thus, the literature review does not merely summarize existing studies but also synthesizes them to provide new insights and directions for future research.

3. Results and Discussion

3.1. Digital Transformation as the Foundation of E-Commerce Success

Digital transformation has had a significant impact on the development of e-commerce business models by introducing new ways of managing and growing enterprises (Yang et al., 2023). Through the use of digital technologies, e-commerce players are able to automate various business processes, ranging from inventory management, payment systems, to customer service, thereby making operations more efficient and cost-effective (Davis, 2022; Zohir & Ait Nasser, 2023). In addition, digital technologies enable companies to expand their market reach, no longer confined to specific geographical areas, but extending to national and even global markets through online platforms. Digital transformation also creates opportunities to enhance the quality of customer experience. Furthermore, it provides flexibility in business strategies, allowing e-commerce to quickly adapt to changing market trends and consumer behavior (Raji et al., 2023).

The adoption of digital technologies has become a key catalyst in the fundamental transformation of e-commerce business models. This transformation not only delivers short-term efficiency but also reshapes how companies operate, compete, and interact with customers. In terms of market expansion and reach, digital technologies open opportunities for business globalization at relatively low costs. Through e-commerce platforms, even small and medium-sized enterprises can reach consumers across borders, offering products in real time without geographical barriers (Bongomin et al., 2020; Tam et al., 2020). Moreover, the utilization of big data and artificial intelligence algorithms enables more precise targeting, where

companies can identify potential market segments, personalize offerings, and dynamically optimize marketing campaigns (Ivanov & Dolgui, 2021).

From the perspective of operational efficiency, business process digitalization has brought significant changes. Automation, such as through modern Enterprise Resource Planning (ERP) systems, enables real-time synchronization of data across departments. This not only reduces production and distribution costs but also minimizes human error that often occurs in manual processes (Mondal et al., 2023). Supply chain management has also become more efficient with IoT (Internet of Things)-based digital tracking systems, which allow companies to predict stock needs, optimize distribution, and accelerate delivery services (Aoun et al., 2021).

Furthermore, data analytics for decision-making has become a competitive advantage that differentiates companies undergoing digital transformation from those that do not. Through the integration of big data analytics, e-commerce businesses can identify market trends, measure the effectiveness of sales strategies, and even predict future consumption patterns. Business decisions that were previously based on intuition can now be made using more accurate empirical evidence, thereby reducing business risks and enabling the optimal use of new opportunities. In addition to technical aspects, the adoption of digital technologies also drives innovation in business models. Many e-commerce companies are shifting from being merely buying-and-selling platforms to becoming digital ecosystems that integrate financial services, logistics, entertainment, and even community-based technologies.

3.2. Digital Competence as the Key to Adaptation for E-Commerce Players

Digital competence can be understood as an individual's ability to utilize digital technology effectively, ethically, and responsibly for various purposes, ranging from learning and work to active participation in social life. This competence not only includes technical skills in operating digital devices and applications but also the knowledge and attitudes that support the productive use of technology (Păvăloaia & Necula, 2023; Stefani et al., 2023). In this context, digital literacy becomes an essential dimension with a broad scope. Digital literacy encompasses ICT literacy, which refers to basic skills in using technological devices; internet literacy, which involves the ability to understand and use online networks safely; information literacy, focusing on the ability to search, evaluate, and use information appropriately; and media literacy, which includes skills in understanding, analyzing, and producing media content. The combination of these aspects forms a crucial foundation for both individuals and organizations to thrive in the fast-paced and competitive digital era (Qattan et al., 2021).

Mikl et al. (2021) explain that limited digital literacy poses a serious barrier to the effectiveness of digital transformation, particularly in the e-commerce sector. Low levels of digital literacy make it difficult for entrepreneurs to fully utilize technology, whether in managing digital platforms, using data for decision-making, or adopting technology-based marketing strategies. Moreover, a lack of ability to access, understand, and critically evaluate information can lead to mistakes in setting business directions, including in choosing the right technology or responding to market trends (Kivimaa et al., 2021). These barriers also restrict the active

participation of entrepreneurs in the digital economy ecosystem, which demands speed, accuracy, and innovation. As a result, many opportunities are missed, from expanding markets to improving customer service quality. Therefore, enhancing digital literacy becomes a critical prerequisite for ensuring that digital transformation can be implemented effectively and truly deliver positive impacts on the success of e-commerce.

Enhancing digital competence is a key factor for e-commerce players to survive and grow in the era of technological disruption. The rapid changes in consumer behavior and technological developments demand that entrepreneurs continuously adapt and master digital skills in order to remain relevant and competitive. Digital competence is not limited to technical abilities but also includes strategic understanding of how to leverage technology, the internet, social media, and e-commerce platforms to optimize business performance (Valarezo et al., 2020).

First, digital competence is crucial for adaptation to change, as entrepreneurs must be able to understand dynamic consumer trends and adjust their business strategies accordingly. Second, in terms of operational efficiency, the use of digital systems such as online point-of-sale platforms, automated inventory management, and financial reporting applications can reduce costs while improving accuracy. Third, digital marketing through social media, interactive content, and online campaigns allows e-commerce businesses to reach a wider audience and build closer relationships with customers. Finally, innovation plays an essential role, where digital competence enables the creation of new products, services, and business models that provide a competitive advantage (Cahen & Borini, 2020; Gu, 2022; Yang et al., 2023).

4. Conclusion

Digital transformation has brought significant changes to the e-commerce business model, providing companies with broader opportunities to thrive in the digital economy. Through the use of technology, e-commerce can expand its market reach without geographical limitations, making products and services more easily accessible to consumers. Furthermore, digitalization also improves operational efficiency, from supply chain management and payment systems to increasingly integrated logistics services. Furthermore, customer experiences are becoming more personalized and interactive thanks to technologies such as big data and predictive analytics, which enable companies to understand consumer needs more deeply. This can increase customer satisfaction and boost business loyalty and competitiveness. Thus, digital transformation can strengthen e-commerce competitiveness and create a more inclusive, adaptive, and sustainable business ecosystem in the modern era.

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