Financial and Economic Risk in Developing Markets
Volume 2, Number 2, 2023

Digital Economy and Management Innovation in the Era of Transformation

Tirta Wahyono[1]

[1] Universitas Diponegoro, Semarang, Indonesia

Abstract

Article history:
Received: July 13, 2023
Revised: August 27, 2023
Accepted: September 29, 2023
Published: December 30, 2023

Keywords:
Artificial Intelligence,
Big Data,
Cloud Computing,
Digital Economy,
Management Innovation.

Identifier:
Zera Open
Page: 171-188
https://zeraopen.com/journal/ferdm

The digital revolution has brought major transformations in the global economic order, characterized by the integration of Information and Communication Technology that affects almost all aspects of life. The digital economy emerges as a key force reshaping traditional business models, driving efficiency, and opening new opportunities through the use of the internet, big data, Artificial Intelligence, cloud computing, and mobile platforms. Indonesia, with its large population, rapid internet penetration, and strong government support, is projected to become one of the largest digital markets in Southeast Asia. However, this growth also requires adaptive and sustainable management innovation. This article aims to examine the definition and context of the digital economy, identify current trends in managerial innovation, and compare regional and global developments. The method employed is a literature review of recent studies. The findings reveal that the adoption of digital technology not only impacts operational efficiency but also requires business strategy and management transformation to achieve sustainable competitiveness.

1. Introduction

The digital revolution marks a fundamental change in global social, economic, and cultural systems. The shift from analog to digital technology is not merely technical but also strategic in shaping a new economic landscape that is completely different from previous eras. Digitalization not only affects how individuals communicate but also transforms business interaction patterns, trade models, and even the overall social order. In this context, information and communication technology (ICT) is the main driver facilitating this massive transformation. ICT enables the collection, processing, and dissemination of information on a massive scale and in real-time. The presence of the internet, cloud computing, big data, artificial intelligence (AI), and mobile devices has revolutionized how organizations interact with consumers, build vast business networks, and manage company operations more efficiently and transparently (Jindala & Sindhu, 2022).

The digital economy is then defined as an economic system that utilizes digital technology as the main basis for business activities, transactions, and social interactions. This definition broadens the understanding that the digital economy is not only limited to the aspect of technology infrastructure but also includes a fundamental change in traditional business models. The old, rigid models are now shifting toward a more adaptive, flexible, and innovative ecosystem in responding to global challenges (Yang et al., 2022). The presence of big data, for example, allows for the birth of predictive analytics that can help companies understand consumer behavior patterns, anticipate changes in market trends, and create more targeted marketing strategies (Zhang et al., 2022). On the other hand, AI and machine learning

technologies accelerate the automation of work processes, increase organizational productivity, and create a more personalized user experience through services tailored to individual needs (Wijayaningsih et al., 2024).

Indonesia itself has great potential in developing a digital economy in the regional and global arena. According to a report by Margiansyah (2020), Indonesia's digital economy value is projected to reach more than USD 130 billion, making it the largest in Southeast Asia. The main drivers of this growth are a relatively digitally savvy young population, a rapidly growing middle class, and an increasingly widespread internet penetration to various regions. The e-commerce, online transportation, digital financial services, and social media sectors are the most dominant contributors to the national digital gross domestic product (GDP) growth (Barefoot et al., 2018). The presence of innovative digital startups also enriches Indonesia's technology-based economic ecosystem.

Although the opportunities are so great, the challenges faced are no less complex. Companies are not only required to adopt digital technology but also need to innovate in organizational management to be able to face global competition (Tohãnean et al., 2020). Managerial innovation becomes a crucial aspect because it can help companies respond to market dynamics, create operational efficiency, and develop new business models that are relevant to the demands of the times (Cosenz & Bivona, 2021). In this increasingly competitive era, companies that fail to adapt to digital changes will potentially lose competitiveness, fall behind competitors, and even be unable to survive in the long run. Therefore, digital transformation is not only

about technology but also about the managerial ability to integrate innovation into every line of the organization.

Based on these conditions, this research aims to examine more deeply the relationship between the development of the digital economy and management innovation. By using a literature review method, this article seeks to discuss the definitions, context, and latest trends in the application of the digital economy, as well as make comparisons at the regional and global levels related to its implementation. The main focus of this study is how organizations can leverage the progress of digital technology through appropriate managerial innovation practices, thereby being able to create sustainable competitive advantages, support national economic growth, and provide a broader positive impact on society.

2. Literature Review

2.1. Digital Economy and Technological Transformation

The digital economy is understood as a complete integration of digital technology into all aspects of economic activity, from the production process, distribution channels, to the final consumption stage by the community. This transformation does not only emphasize the use of technological devices as tools but also changes work patterns, interaction methods, and the mechanism for creating economic value in various industrial sectors. A study by Acs et al. (2021) confirms that digital platforms function as the main backbone of modern economic transformation because their presence allows companies to expand their market network to a wider

area, even beyond traditional geographical boundaries, while increasing internal efficiency through more effective resource management.

In addition, Samadi-Parviznejad (2022) shows that big data has a very important strategic role because it provides essential analytical capabilities to support digitalization. This technology facilitates information-based decision-making by providing accurate, real-time data that can be processed in-depth to find hidden patterns. Through big data, companies are not only able to understand consumer needs better but also can design marketing strategies, product innovation, and risk management more precisely. Thus, the digital economy presents a great opportunity to create a more inclusive, efficient, and highly competitive business ecosystem, as long as it is accompanied by continuous innovation in the use of technology.

2.2. Management Innovation in the Digital Era

Management innovation refers to the process of adopting new methods, practices, and structures within an organization aimed at adapting to the needs and challenges of an increasingly complex digital era. This concept is not only limited to the application of technology but also involves a change in mindset, leadership strategy, and the way organizations manage resources to remain relevant amid global disruption. According to Rêgo et al. (2022), management innovation includes various important aspects, ranging from long-term strategic changes, automation of previously manual work processes, to the development of technology-based business models that are more adaptive to market changes.

In Indonesia, a study by Cosenz & Bivona (2021) specifically highlights the role of managers in integrating digital technologies, including cloud computing, big data,

and artificial intelligence (AI), into company operational systems. This integration is proven to increase productivity, accelerate decision-making, and create significant efficiency in the supply chain. Not only that, these technologies also open up new opportunities for companies to develop innovative services that are more in line with consumer needs. Furthermore, Barefoot et al. (2018) emphasize that the success of Indonesia's digital economy development is highly dependent on managerial capabilities in adopting and implementing innovation consistently. Without visionary leadership and organizational readiness to change, digital technology will not be able to provide maximum added value. Thus, management innovation is the main foundation in ensuring the sustainability and competitiveness of the national digital economy in the era of globalization.

3. Methods

This research uses a literature review method with a descriptive-analytical approach that focuses on the search, collection, and study of relevant scientific sources. This method was chosen because it is able to provide a broader understanding of the concepts, trends, and developments of the digital economy and management innovation from both academic and practical perspectives. The literature sources used were obtained from reputable national and international journals that have been officially published, so their validity and credibility can be accounted for. The literature selection process was carried out systematically by using the Google Scholar database as the main search tool. From the search results, as many articles were selected that were considered most relevant to the research topic. These

articles were then analyzed thematically to identify the trends, opportunities, and challenges that arise in the implementation of the digital economy and management innovation in various contexts.

The literature analysis was carried out through three interconnected stages. The first stage is the grouping of literature based on the determined core topics, namely the definition of the digital economy, the role of digital technology in supporting the transformation, management innovation as a key success factor, and the regional and global context that provides a comparison. The second stage is to synthesize the findings of previous studies to find connections, similarities, and differences between the studies. This synthesis process is important to build a more complete understanding framework while clarifying the position of this research among existing studies. The third stage is to compile an analytical narrative that combines the findings with the Indonesian context, so that the article is not only descriptive but also provides a critical interpretation that is in line with national reality. By using this approach, the research is expected to provide a comprehensive overview of the dynamics of the digital economy, as well as highlight the important implications for management innovation at the organizational level. The results of this literature review are not only useful as a theoretical basis but also can be a practical reference for policymakers, business actors, and academics in understanding the challenges and opportunities offered by the era of digitalization.

4. Results

The results of the literature review show that the digital economy is one of the main pillars of modern global economic transformation, which has a significant impact on consumption patterns, production processes, and the mechanism for distributing goods and services in various sectors. This transformation is not only related to technological developments but is also closely related to changes in community behavior, business strategies, and government policies at the global level. A study by Yang et al. (2022) emphasizes that the digital economy does not only rely on the existence of technology infrastructure such as the internet or hardware but also requires an innovation ecosystem that is able to support cross-sector collaboration. This ecosystem involves companies, governments, educational institutions, and the wider community who interact with each other in building the foundation of a digital-based economy. Thus, the existence of technology can only provide maximum value if it is managed in an integrated innovative ecosystem.

At the macro level, the existence of the digital economy has been proven to make a real contribution to the growth of gross domestic product (GDP) in various countries, especially in the Asian region which currently has a very high level of internet penetration. Countries in this region utilize digitalization to expand markets, increase efficiency, and create service innovations that can be widely accessed by the public. For example, Indonesia is projected to become the largest digital economic power in Southeast Asia, with a value estimated to reach more than USD 130 billion (Margiansyah, 2020). This projection is not just a statistical figure but shows Indonesia's strategic position in the regional and global digital economic landscape.

The main drivers are a young population who are familiar with technology, high smartphone penetration, and increasing adoption of digital platforms in daily life.

The results of the study also confirm that digital technology has a complementary role and cannot be separated in strengthening the foundation of the digital economy. The internet, for example, is the basic infrastructure that enables widespread access to information and creates global connectivity without boundaries. The existence of the internet allows for the creation of a more open digital market, where small and large businesses can compete on a relatively equal footing. Big data functions as a strategic resource that allows companies to perform predictive analysis to understand consumer behavior, market trends, and potential risks. Zhang et al. (2022) highlight that big data can improve the quality of managerial decision-making by identifying consumer trends and market patterns that were previously difficult to detect with conventional methods. Through big data analysis, companies can minimize uncertainty, accelerate responses to market changes, and create more effective marketing strategies.

In addition to big data, artificial intelligence (AI) also expands this analytical capability by presenting solutions based on automation, in-depth pattern recognition, and the creation of a more personalized customer experience. AI allows companies to provide services that are tailored to individual preferences, for example in the form of product recommendations, smart chatbot services, and automated systems that can adapt to user needs. Meanwhile, cloud computing plays an important role in providing infrastructure that is flexible, scalable, and cost-effective. With cloud computing, companies can optimize their business processes without having to make large

investments in hardware and physical infrastructure. Cloud-based solutions also enable easier cross-location collaboration, support remote work flexibility, and accelerate innovation because companies can quickly access digital resources as needed.

In Indonesia, the use of digital technology has brought about a real impact that can be observed in various sectors of life. The e-commerce sector has become one of the fastest growing sectors in recent years, driven by a change in community shopping patterns that are increasingly shifting toward digital transactions. Consumers now prefer to shop through online platforms because they offer convenience, speed, and a wider variety of products. Application-based transportation is also an important indicator of the success of the digital economy in Indonesia. The presence of companies like Gojek and Grab not only changes the urban mobility ecosystem but also creates new job opportunities, expands access to services, and encourages the integration of various digital services in one platform.

Digital financial services, especially through the development of fintech, also have a significant impact on financial inclusion. People who previously did not have access to formal banking services can now make digital transactions, save money, and get loans online. This helps reduce the gap in financial access while accelerating the growth of the community's economy. Social media and digital entertainment platforms are no less important. These two sectors have opened up new monetization opportunities, both for individuals who act as content creators and companies that use social media for promotion and direct interaction with consumers (Shreffler & Mccullough, 2021).

Although the opportunities that Indonesia has in the digital economy are very large, the results of the literature review also highlight a number of significant challenges that must be overcome to optimize this potential. First, the aspect of cybersecurity is a major issue that cannot be ignored. The increasing number of digital transactions is always accompanied by an increasing risk of data leakage, cybercrime, and digital attacks on critical infrastructure. Without an adequate cybersecurity system, public trust in digital services can decrease (Taddeo, 2019). Second, there is still a digital gap, especially in remote areas that do not yet have adequate internet access. This condition has the potential to cause unevenness in the distribution of the benefits of the digital economy, because only people in urban areas can access technology optimally. Third, the readiness of human resources is also a serious obstacle. Most of the workforce in Indonesia does not yet have adequate digital skills to face very rapid changes (Gayatri et al., 2022). Lack of training, low digital literacy, and limited technology-based education are obstacles that need to be addressed immediately.

In this context, management innovation emerges as a relevant answer to face these challenges. The results of the literature review show that companies that are able to adopt managerial innovation consistently tend to be more adaptive in facing digital changes. According to Rego et al. (2022), managerial innovation includes organizational restructuring to be more responsive to change, the application of automation technology to increase efficiency, and the development of flexible and innovative digital-based business models. Acs et al. (2021) found that companies that successfully integrate digital platforms comprehensively into their operational

management experience a significant increase in performance compared to companies that only rely on innovation in certain products or services. Literature studies from Indonesia show a similar pattern that strengthens global findings. Gayatri et al. (2022) emphasize that the success of digital transformation in local companies is highly dependent on the manager's ability to change the organizational mindset. This change includes the ability to adopt new technologies, empower employees to be able to adapt, and create an organizational culture that supports the birth of innovation.

Organizations that fail to build an innovative culture will usually face difficulties in maintaining competitiveness. On the other hand, Shreffler and Mccullough (2021) add that managerial innovation not only improves performance but also opens up new revenue opportunities by creating more flexible business models, such as subscription-based platforms and integrated digital services that can meet the needs of modern consumers. However, without managerial innovation, these opportunities cannot be optimized to the maximum. Management innovation acts as a determinant factor that ensures that the potential of digital technology can be transformed into a real competitive advantage. In other words, technology is the foundation, but innovative management is the key to transforming that foundation into a strong and sustainable building.

Indonesia is currently in a strategic position to take advantage of the global digital economy trend. With a large population, an increasing level of technology adoption, and a broad market potential, Indonesia has the opportunity to become a major player in the regional digital economy. However, long-term success is largely determined by the country's ability to overcome existing challenges, especially related

to cybersecurity, the digital gap between regions, and the readiness of human resources to master digital skills. If these challenges can be overcome through appropriate policies, investment in digital infrastructure, and the development of technology-based education, then Indonesia has a great chance to not only become a consumer of technology but also a producer and innovator in the global digital ecosystem. Thus, it can be concluded that the digital economy and management innovation are two aspects that cannot be separated. The digital economy provides space, opportunities, and new infrastructure, while managerial innovation ensures that these opportunities can be utilized optimally to create a sustainable competitive advantage. The synergy between the two will determine the future direction of Indonesia's economy in the digital era

5. Discussion

The discussion from the results of the literature review shows that the digital economy is essentially inseparable from management innovation. The two have a close, mutually reinforcing relationship. The adoption of digital technology does bring great opportunities for economic growth, market expansion, and increased efficiency, but without proper management through innovation in the field of management, these opportunities can actually turn into a burden for the organization. This is in line with the view of Acs et al. (2021) who emphasize that digitalization is not just a technical process related to the application of technological devices, but is a strategic transformation that touches all aspects of the organization. This transformation

demands innovation at the managerial level so that organizations are able to adapt, survive, and thrive amid very rapid changes.

First, the integration of digital technology demands significant changes in organizational structure. Companies that still rely on traditional hierarchical patterns, with rigid bureaucracy and long decision-making paths, will face great difficulty in adapting to the dynamics of the digital economy. In contrast, organizational models that are flatter, more flexible, participatory, and collaborative have proven to be much more effective in dealing with rapid changes. An adaptive structure allows for a smoother flow of information, shorter coordination, and a more agile response to the demands of the digital market. These initiatives should also improve organisational approach, assignment of tasks, timely services to improve customer satisfaction, and open new and wide market in the society, directly contributing to the organization's financialstatus and growth. Additionally, using the Agile structure for the new innovation encourages positive structural change synchronised along with the organisational goal (Holbeche, 2019)

Second, the existence of big data and artificial intelligence (AI) demands the birth of new competencies at the management level. Decision-making that was previously based on intuition, experience, or personal estimates must now be supported by valid, accurate data, and the results of predictive analysis that can provide a clearer picture of market direction and consumer needs. Managers are required to not only understand technology but also have the ability to interpret data, analyze trends, and translate data results into concrete strategies. Third, cloud computing provides a great opportunity to increase cost efficiency, operational

flexibility, and service speed. However, the adoption of the cloud also demands new risk management, especially related to data privacy, information security, and compliance with regulations. This means that management must be able to anticipate risks, formulate appropriate security policies, and build a strong data protection system so that the company remains trusted by consumers.

In the Indonesian context, the potential in the digital economy is very large, but there are also unique challenges. One of them is the digital gap that risks widening the economic inequality between advanced urban areas and rural areas that still have minimal infrastructure. Therefore, the role of the government becomes very important. The government needs to actively expand internet access to remote areas, strengthen regulations related to digital security, and provide various digital skills improvement programs for the workforce. Without this intervention, the benefits of the digital economy will only be concentrated in certain groups, thereby exacerbating inequality. Managerial innovation ultimately proves to be a key factor in maximizing the benefits of the digital economy. Companies that successfully carry out digital transformation generally have visionary leadership, an adaptive organizational culture, and a commitment to continuous investment in human resource development. This confirms that digital transformation is not only about technology but also about people, management, and how organizations strategically manage change.

6. Conclusion

The digital economy is a global phenomenon that brings major changes in economic and business systems. The results of the literature review show that the

internet, big data, AI, cloud computing, and mobile platforms are the main drivers of this transformation. Indonesia has great potential to become a digital economic power in Southeast Asia, supported by a young population, high internet penetration, and government policy support. However, the success of this transformation is largely determined by the company's ability to perform managerial innovation.

Management innovation plays an important role in overcoming the challenges of digitalization, such as cybersecurity, the digital gap, and the limited skills of the workforce. Companies that are able to integrate digital technology with innovative management strategies can create operational efficiency, improve the customer experience, and open up new business opportunities. Therefore, the future of Indonesia's digital economy is not only determined by the availability of technology but also by the quality of managerial innovation that is able to bridge technology and business strategy.

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