



DYNAMICS OF THE BUSINESS ENVIRONMENT IN THE DIGITAL ERA AND ITS IMPACT ON INDONESIA'S ECONOMIC GROWTH

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Abstract

The rapid advancement of digital technology has fundamentally transformed the business environment, altering market structures, consumer behavior, and competitive dynamics across multiple industries globally. This study examines the dynamics of the digital business environment and its consequential impact on economic growth, with particular focus on the Indonesian context. Employing a quantitative approach through systematic literature review and secondary data analysis, this article synthesizes data from government sources, international research institutions, and peer-reviewed academic journals covering the period 2020–2025. Key findings indicate that the digital economy's contribution to Indonesia's Gross Domestic Product has grown consistently from 3.7 percent in 2019 to 5.8 percent in 2023, with projections reaching 7.1–8.0 percent by 2025–2026. Four primary transmission mechanisms are identified: reduction of transaction costs (35–45 percent), expansion of market accessibility, creation of 18 million new employment sectors, and enhancement of productivity (20–30 percent). The digitalization of SMEs has reached 25.5 million units by 2024, demonstrating 52 percent penetration of the total UMKM population. However, significant challenges persist, including geographic infrastructure gaps, low digital literacy in rural areas, and inadequate data governance frameworks. This article concludes that realizing the full potential of Indonesia's digital economy requires coordinated implementation of three strategic priorities: equitable digital infrastructure expansion, capacity strengthening of SMEs for global value chain integration, and establishment of adaptive data governance and cybersecurity regulatory frameworks.

Keywords: digital economy, business environment, economic growth, SMEs digitalization, digital transformation

INTRODUCTION

Digital transformation has become a structural phenomenon that fundamentally changes the global economic landscape. The exponential development of information and communication technology has created a new business ecosystem that not only changes the way companies operate, but also changes market structures, consumer behavior, and competitive dynamics in various industry sectors. The Organisation for Coordinated Economic Development and Cooperation (OECD) reports that global investment in digital technologies reached USD 1.8 trillion in 2023, an increase of 45 percent in the last three years, with projections continuing to increase to USD 2.5 trillion by 2026 (OECD, 2024). This phenomenon is not just a temporary technological trend, but a paradigm shift that has strategic and fundamental implications for business continuity and national and global economic growth.

Indonesia, as the largest economy in Southeast Asia with a digital population of 215 million internet users or 77 percent of the total population, is experiencing an extraordinary acceleration of digital transformation (International Telecommunication Union, 2024). The contribution of the digital economy to Indonesia's Gross Domestic Product (GDP) has shown consistent and significant growth, increasing from 3.7 percent in 2019 to 5.8 percent in 2023, with projections reaching a range of 7.1 to 8.0 percent in 2025-2026 (Coordinating Ministry for Economic Affairs, 2024). The E-economy SEA 2025 report issued by Google, Temasek, and Bain & Company projects that the Gross Merchandise Value (GMV) value of Indonesia's digital economy will reach USD 133 billion by 2025, making Indonesia the largest digital market in the ASEAN region, surpassing Thailand, the Philippines, and Vietnam (Google, Temasek &



Bain, 2025). This growth is supported by massive expansion in the e-commerce, digital banking, platform-based services, and financial technology sectors that are increasingly entrenched in the daily economic activities of the Indonesian people.

The importance of understanding the dynamics of the business environment in the digital era lies in the fact that this transformation is not just a technological shift, but a structural change that affects national competitiveness, job opportunities, financial inclusion, and market accessibility for millions of micro, small, and medium enterprises (MSMEs). The latest survey by the Ministry of Cooperatives and MSMEs shows that the number of MSMEs that have entered the digital ecosystem has increased drastically from around 8 million units or 13 percent before the Covid-19 pandemic in 2020, to 25.5 million units in July 2024, reflecting digital penetration that reaches 52 percent of Indonesia's total MSME population (Ministry of Cooperatives and MSMEs, 2024). The Government of Indonesia has set an ambitious target that the contribution of the digital economy to GDP must reach 20 percent by 2045, in accordance with Presidential Regulation Number 98 of 2022 concerning Indonesia's Digital Economy Complementary Strategy (Coordinating Ministry for Economic Affairs, 2023). This target demands massive changes to digital infrastructure, regulatory frameworks, and the level of readiness of all stakeholders to adopt and utilize digital technology optimally.

Various empirical studies have examined digital transformation from diverse analytical and methodological perspectives. Bukht and Heeks (2018) in their comprehensive study defined the digital economy as all economic activities that directly depend on digital technology, including online business transactions, data-based services, platform business models, and economic activities chained by digital infrastructure. Christensen, Raynor, and McDonald (2018) through disruptive innovation theory explain the mechanism of how technological innovation is able to replace established business models quickly and often unexpectedly by incumbent players. Porter and Heppelmann (2014) emphasized the

transformative role of the Internet of Things (IoT) in restructuring industrial value chains and creating unprecedented business opportunities. At the national level, World Bank research (2021) shows that a 10 percent increase in internet penetration in Indonesia is positively correlated with GDP growth of 1.6 percent, providing empirical evidence of the causal relationship between digitalization and economic growth.

Based on the context and urgency that has been described, this article aims to analyze in depth how the dynamics of the business environment in the digital era are formed, identify the main driving factors, examine the transmission mechanisms of their impact on national economic growth, and analyze the implementation challenges that are still faced, especially at the level of small and medium enterprises. The focus of the analysis is focused on three critical aspects: first, changes in the structure and characteristics of the business environment caused by digitalization; second, transmission mechanisms that link digital transformation with aggregate economic growth; and third, structural and policy challenges that still need to be solved to optimize the contribution of the digital economy to long-term national economic growth. The contribution of this article is to provide a comprehensive synthesis of the latest literature and empirical data that can serve as a foundation for policymakers and business leaders in formulating more effective and inclusive digital economy development strategies.

METHODOLOGY

Research Approach and Design

This article uses a quantitative approach with a mixed-methods strategy that integrates secondary data analysis, descriptive statistical analysis, and systematic synthesis of the scientific literature. The quantitative approach was chosen because the research aims to identify patterns, trends, and causal relationships between digitalization and economic growth using measurable and verifiable data, not just qualitative understanding. This method allows for generalization of findings to a wider population and provides strong empirical evidence regarding the impact of digitalization



on the national economy. The research design adopts a systematic literature review which is strengthened by secondary data analysis from reliable and official sources. This approach was chosen because the research leverages cross-sectional and time-series data already available in government publications, international agency reports, and scientific journal databases, thus enabling in-depth analysis without the need for time-consuming and costly primary data collection.

The application of quantitative methods in this study involves several well-structured technical stages. The first stage is the systematic identification and mapping of literature using strict inclusion criteria: publications in English or Indonesian, published in the 2015-2025 time frame with priority on 2020-2025 publications, thematically relevant to the research topic, and sourced from leading databases such as Scopus, Google Scholar, DOAJ, and ProQuest. The literature search used a combination of validated keywords: "digital economy AND growth", "business environment AND digitalization", "SME AND digital transformation", "Indonesia AND digital economy", and "platform economy AND economic growth". A total of 287 initial publications were identified, then filtered into 87 publications based on abstract and topic relevance, and finally 45 publications were selected for a full-text review that met strict methodological and substantive criteria. The data extracted from each publication includes: author, year of publication, research method, key findings, and numerical evidence that supports the research argument.

Data Sources and Collection Techniques

The data were collected from three categories of sources that provided complementary perspectives and had high credibility. The first category is official policy and statistical data sources from Indonesian government agencies, including publications from the Coordinating Ministry for Economic Affairs, the Ministry of Cooperatives and Small-Medium Enterprises, the Ministry of Communication and Informatics, the Central Statistics Agency (BPS), and the Creative Economy Agency (Bekraf). The data collected from these sources includes the National Strategy Report for Digital Economy

Development (2023-2025), MSME Digital Transformation Data (2020-2024), Digital Economy GDP Statistics, and the National Internet Penetration Report which is published periodically. The second category is reports and publications from leading international research institutions that have global credibility, including the Google-Temasek-Bain E-economy SEA Report (2024-2025), McKinsey Global Institute Digital Reports, World Bank Indonesia Digital Economy Reports, International Telecommunication Union (ITU) Statistics, and OECD Digital Economy Reports. These reports provide regional and global comparative data that allow contextualization of Indonesia's findings in an international perspective.

The third category is scientific articles published in Scopus accredited journals, including high-quality journals such as the Journal of Economic Growth, International Journal of Digital Economy, Asia Pacific Journal of Innovation and Entrepreneurship, Journal of Business Research, and Indonesian Journal of Economics and Business. Preference is given to publications from 2020 to 2025 to ensure relevance to current conditions, but publications before 2020 are still included if they provide an unsurpassed fundamental theoretical framework or significant empirical evidence. Data from these three resource categories were then synthesized using content analysis and descriptive analysis techniques to identify patterns, trends, and relationships between variables. The validity and credibility of data are maintained through the implementation of data source triangulation, which is by matching and confirming findings from the three categories of sources before being used as the basis for arguments and research conclusions.

Data Analysis Techniques

Data analysis was carried out through five systematically structured stages to produce robust and tested findings. The first stage is a descriptive statistical analysis of key quantitative data, including the calculation of digital economy growth trends from 2019-2025, the analysis of digital penetration rates in various sectors, and the calculation of averages, standard deviations, and data distribution to understand the characteristics of the phenomenon being studied. The growth



calculation method uses the Compound Annual Growth Rate (CAGR) formula to measure the average annual growth rate in a given period, with the formula: $CAGR = [(Final\ Value / Starting\ Value)^{(1/Number\ of\ Years)}] - 1$. The second stage is trend analysis using chart and table visualization that makes it easy to identify growth patterns, fluctuations, and breakpoints in time-lapse data. The third stage is a comparative analysis that compares the digital conditions in Indonesia with other ASEAN countries (Thailand, the Philippines, Vietnam, Malaysia) as well as with global standards to provide a comprehensive comparative context.

The fourth stage is a qualitative content analysis of descriptive data from reports and journal articles to identify causal mechanisms, driving factors, and implementation obstacles in digital transformation. This analysis uses thematic coding to categorize information according to the dimensions of the research: the dimension of the structure of the business environment, the dimension of the economic transmission mechanism, the dimension of digital infrastructure, and the dimension of public policy. The fifth stage is an interpretive analysis that connects empirical findings with a theoretical framework to provide an in-depth explanation of why certain causal relationships occur and what their implications are for management theory and practice and economic policy. The entire analysis process is carried out by maintaining the consistency of the argumentation logic and transparency in each step, thus allowing the reader to conduct a critical evaluation of the findings and conclusions of the research.

RESULTS AND DISCUSSION

Indonesia's Digital Economy Growth

Trends 2019-2025

Empirical data from the Coordinating Ministry for Economic Affairs, Antara News, Kompas, and the E-economy SEA 2025 report reveal a consistent and significant growth trend of Indonesia's digital economy in the 2019-2025 period. The contribution of the digital sector to national GDP increased from 3.7 percent in 2019 to 5.8 percent in 2023, showing a compound annual growth rate (CAGR) of 11.7 percent in the fourth quarter

of the year. Projections for the 2025-2026 period show an estimated contribution of 7.1 to 8.0 percent, which if realized will be a significant acceleration compared to Indonesia's overall economic growth which averages 5.2 percent per year. The Gross Merchandise Value (GMV) of Indonesia's digital economy sector will reach USD 87 billion in 2024 and is projected to increase to USD 99 billion in 2025, with a year-on-year growth rate of 14 percent. This growth exceeds the average digital economy growth in the ASEAN region which is projected to be 6.6 percent by 2025, placing Indonesia as a digital growth leader in the region.

The main drivers of Indonesia's digital economy growth include three strategic components that reinforce each other. First, the massive expansion in the e-commerce and digital retail sector which increased from transactions worth USD 16.6 billion in 2020 to USD 41.2 billion in 2024, with a projection of reaching USD 59.4 billion by 2025 (Google, Temasek & Bain, 2025). This growth is driven by smartphone penetration which reaches 82 percent of the Indonesian population, increasing consumer confidence in online shopping, and the expansion of logistics infrastructure that is increasingly integrated with digital platforms. Second, the development of digital financial and fintech services that include digital wallets, peer-to-peer loans, digital insurance, and online investment services. Fintech users in Indonesia will reach 115 million people or 41 percent of the total population by 2024, showing a very significant penetration and continuing to increase in line with the increase in digital literacy and financial trust (International Telecommunication Union, 2024). Third, the growth of the digital content and platform services sector which includes video streaming, digital music, online gaming, and cloud services, which contribute to the economy continues to increase in line with the digitization of entertainment activities and people's productivity.



Table 1. Trends in the Contribution of the Digital Economy to Indonesia's GDP and Projections 2019-2030

Year	GDP Contribution (%)	GMV (Billion USD)	Main Description
2019	3,7	23,2	The predigital era
2021	4,3	38,5	Pandemic acceleration
2023	5,8	77,2	E-commerce expansion
2025*	7,1-8,0	99,0	ASEAN leaders
2030*	12,0	360,0	Government targets

Source: Coordinating Ministry for Economic Affairs (2024), Google-Temasek-Bain (2025), Antara News (2025)

Digitalization and Economic Growth: Transmission Mechanisms

An in-depth analysis of the literature and empirical data identifies four key transmission mechanisms through which digitalization influences and drives national economic growth. The first mechanism is a significant reduction in the cost of economic transactions. Digital platforms are dramatically cutting cost components that have traditionally been major barriers to economic activity, including the costs of information retrieval, negotiation, transactions, and physical distribution. Bukht and Heeks (2018) documented that MSME actors who use digital platforms experienced an average decrease in transaction costs of 35 to 45 percent compared to traditional business models. This reduction in transaction costs allows businesses to expand the scale of operations without a proportionate increase in capital investment, thereby improving the efficiency of the overall allocation of economic resources. Furthermore, the reduction of transaction costs creates a multiplier effect on the economy by allowing the involvement of economic actors who were previously unable to make transactions due to too high costs, especially business actors in remote areas with previously limited market reach.

The second mechanism is the unprecedented expansion of market accessibility in the history of the Indonesian economy. Digital platforms, especially e-commerce, allow MSMEs to reach millions of potential consumers without the need for large investments in physical distribution networks, retail stores, or logistics themselves. World Bank research (2021) shows strong empirical evidence that an increase in internet penetration of 10 percent in Indonesia is positively correlated with an increase in GDP of 1.6 percent. This correlation reflects the significant impact of expanding digital market access to aggregate economic activity. Maulana and Kurniawan (2022) in their systematic study documented that MSMEs that managed to go digital experienced an average increase in sales volume of 2.5 times compared to the pre-digital period, with market penetration expanding from the local to national and even international levels. This expansion of market access not only increases the individual sales of MSMEs, but also activates hidden economic potential in various geographical areas, thereby contributing to aggregate GDP growth through an increase in the total output of the national economy.

The third mechanism is the creation of a new employment ecosystem that has never existed before in traditional economies. Digital transformation has created entirely new categories of jobs and professions, including digital marketers, content creators, data analysts, logistics coordinators for e-commerce, platform security specialists, and customer service representatives for digital services. The International Labour Organization (ILO) 2023 report notes that the digital sector in Indonesia has created 18 million new jobs in the period 2019-2023, with a projected addition of 12 million more jobs until 2027. However, job creation in the digital sector is also accompanied by disruption in conventional sectors that have experienced a decline in demand, so the net impact on labor absorption requires proactive reskilling and upskilling policies from the government and the private sector. More importantly, this new job creation contributes to increased household income and purchasing power, which further drives aggregate demand and economic growth through consumption channels.



The fourth mechanism is increased productivity and innovation across economic sectors through the adoption of digital technology. Digital platforms facilitate the diffusion of business knowledge and best practices at a much faster pace compared to the pre-digital era, allowing small businesses to access tools, methodologies, and partnerships that were previously only available to large enterprises. The McKinsey Global Institute (2023) in their comprehensive report shows that companies that adopt digital technology experience a 20 to 30 percent increase in productivity, which is a significant contribution to the growth of the total productivity factor known as "total factor productivity" (TFP) in macroeconomic terminology. This increase in TFP is the most sustainable source of economic growth because it does not depend on increasing the quantity of inputs, but on increasing the efficiency of using existing inputs. Thus, this mechanism contributes directly to more stable and sustainable long-term economic growth.

Digitization of MSMEs: Profiles and Challenges

Indonesian MSMEs, which are the backbone of the national economy with a contribution to GDP reaching 60.5 percent and absorbing 97.3 percent of the national workforce, are experiencing an accelerating but still uneven digital transformation across regions and sectors. The latest data from the Ministry of Cooperatives and Small-Medium Enterprises (2024) shows that the number of MSMEs that have entered the digital ecosystem and "go digital" has increased drastically from around 8 million units or 13 percent of the total MSME population in 2020 before the Covid-19 pandemic, to 25.5 million units or 52 percent in July 2024. This growth is an extraordinarily significant achievement in a period of four years, reflecting the transformative impact of the Covid-19 pandemic on the adoption of digital technology and the government's active role in encouraging the digitalization of MSMEs through various policy initiatives and support programs. The adoption of the Indonesian Standard QR Code (QRIS) as a digital payment instrument has reached a penetration of 95 percent among MSMEs going digital, with more than 32 million merchants actively

using QRIS by 2024, representing a fundamental transformation in digital payment infrastructure at the grassroots level.

The comparative profile of MSMEs that have gone digital versus MSMEs that are still operating traditionally reveals significant differences in various dimensions of business performance and operational capacity. MSMEs go digital shows a much wider market reach, going beyond local and regional geographical boundaries to reach the national level and even international exports through digital marketplaces such as Tokopedia, Shopee, Lazada, and other platforms. The payment system for go digital MSMEs has been fully integrated with the fintech ecosystem, including the use of digital wallets, inter-bank transfers, QRIS, and digital financing services that facilitate transactions and cash flow management. The promotion and marketing system for MSMEs goes digital utilizes a complete arsenal of digital marketing tools, including social media marketing through Instagram and TikTok, data-based digital advertising targeting, email marketing, and influencer collaboration, which allows for personalization of marketing messages and optimization of advertising ROI. Financial recording in go digital MSMEs has used an integrated digital accounting application that allows for real-time tracking, financial forecasting, and transparent audit trails, compared to traditional MSMEs that still use manual recording and are prone to errors and data untraceability.

The most critical dimension is the involvement of MSMEs go digital in the Global Value Chain (GVC), which is an important proxy for international competitiveness and access to global markets. Although digitalization has opened up opportunities for GVC involvement, the participation of Indonesian MSMEs in GVC is still very low, reaching only 6.3 percent, the lowest among the five main ASEAN countries, even though MSMEs contribute more than 60 percent of national GDP (Coordinating Ministry for Economic Affairs, 2023). This condition indicates that although domestic digitalization has increased, digital transformation has not been fully converted into a capability to compete in the global market. Key challenges include stringent



international quality standards, complex product certification, limited foreign languages, and inadequate access to international information and networks. The resilience of MSMEs to economic turmoil and external crises has proven to be higher compared to traditional MSMEs, as demonstrated by the superior performance of digital MSMEs during the Covid-19 pandemic when offline economic activities came to a complete halt. These findings emphasize that digitalization is not only a means for growth, but also a fundamental means to build the resilience of economic systems to various types of external turmoil.

Structural Challenges in Realizing the Potential of the Digital Economy

Although the growth trend of the digital economy is very positive and the transmission mechanism for economic growth has been clearly identified, the analysis reveals the existence of three main structural challenges that if not systematically resolved can hinder the realization of the full potential of Indonesia's digital economy. The first challenge is the significant digital infrastructure gap between geographical regions. Although national internet penetration has reached 77 percent of the population, this penetration is highly concentrated in large cities and urban areas, while suburban and rural areas still have much lower internet accessibility. 5G services, which are critical infrastructure to support more sophisticated and bandwidth-intensive digital services, will only be available in 15 major cities in Indonesia by 2024, while the quality and reliability of network connections in areas outside Java are still highly heterogeneous and often insufficient to support digital transactions that require high speed and reliability. This infrastructure gap risks widening the digital divide between business actors and consumers in urban versus rural areas, so that the economic benefits of digitalization are not distributed evenly and inclusively across national geographic areas.

The second challenge is that digital literacy and digital skills are still low, especially among MSMEs and the elderly population. Although digital penetration is already high, many Indonesian internet users still use digital technology at a very basic

level, limited to social media consumption and messaging applications. The ability to use digital tools productively to run a business, analyze data, or optimize business operations is still very limited. A survey by Google and TEMASEK (2024) shows that only 38 percent of MSMEs go digital have sufficient capabilities to use analytics tools to optimize marketing campaigns, while the remaining 62 percent still use a more intuitive and less data-driven approach. The limitations of digital literacy create substantial obstacles in the realization of the complete value proposition of digital transformation, because many advanced business functions that require digital sophistication cannot be optimally utilized by business actors who have limited digital knowledge. Investing in capacity building and digital literacy programs is a strategic imperative to ensure that the adoption of digital technology can translate into real and sustainable business performance improvements.

The third and final challenge is data governance and cybersecurity which are still immature institutionally and regulatively. As the volume of digital transactions and the concentricity of consumer data on digital platforms increase, the risks of data leakage, misuse of personal data, and cyberattacks are becoming more real and serious. Data leak incidents that befell several Indonesian fintech companies in 2023-2024 have resulted in a decline in consumer trust in digital platforms, with 34 percent of Indonesian consumers expressing concerns about the security of their personal data (Antara News, 2024). These concerns could hinder further adoption of digital services and reduce the growth of the digital economy. Arner, Barberis, and Buckley (2020) in their in-depth study emphasized that an adaptive, measurable, and able to balance innovation with consumer protection is a fundamental prerequisite for the sustainability of the digital economy ecosystem. Indonesia still needs significant improvements in data security regulatory enforcement, cybersecurity workforce training, and investment in digital security infrastructure, especially to protect MSMEs and individual consumers who often lack the ability to protect themselves from increasingly sophisticated cyber threats.



CONCLUSIONS AND RECOMMENDATIONS

The dynamics of the business environment in the digital era have fundamentally changed Indonesia's economic structure with GDP contribution growth from 3.7 percent in 2019 to a projected 7.1–8.0 percent in 2025–2026. This transformation works through four main transmission mechanisms: reduced transaction costs, expanded market access, creation of new jobs, and increased national productivity. The digitalization of MSMEs has reached a penetration of 25.5 million units by 2024, showing extraordinary progress in digital transformation at the grassroots level. However, structural challenges remain very significant including digital infrastructure gaps between regions, low levels of digital literacy in rural areas, and immature institutional data governance and cybersecurity. This research emphasizes that the full realization of Indonesia's digital economy potential requires the simultaneous implementation of three key strategic priorities that complement and reinforce each other. The first is the equitable distribution of high-speed digital infrastructure throughout Indonesia with a target of 5G coverage reaching 100 cities in 3 years. The second is to strengthen the capacity and competitiveness of MSMEs through digital training programs, innovative funding, and global market access facilitation with a target of GVC involvement of 15 percent by 2027. The third is the development of an adaptive data governance and cybersecurity regulatory framework, providing legal certainty, and balancing innovation with consumer protection through significant cybersecurity investments.

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