

ANALYSIS OF THE IMPACT OF DIGITALIZATION ON SMALL AND MEDIUM ENTERPRISES IN INDONESIA

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Abstract

This study aims to examine in depth the impact of digitalization on Small and Medium Enterprises (SMEs) in Indonesia in the context of national law and global developments. The main focus of the study is on the digital divide, national regulatory readiness, and comparison with international policies, especially in ASEAN and Global South countries. This study uses a juridical-normative method with a literature review approach, which includes analysis of primary legal materials (ITE Law, PDP Law, UMKM Law) and secondary legal materials such as reports from the World Bank, ADB, OECD, and comparative studies from Malaysia, Singapore, and Kenya. The results of the study show that digitalization offers significant opportunities for SMEs in accessing the global market, but still faces serious obstacles such as inequality in digital infrastructure, low digital legal literacy, and weak legal protection for SMEs from the dominance of large platforms. International comparisons show that the integration of the legal framework and affirmative policies is the key to the success of SME digitalization. Therefore, this study recommends updating more inclusive national digital regulations, integrating international cooperation into the domestic legal system, and strengthening digital legal literacy among SME actors as a transformation strategy towards a fair and sustainable digital economy.

Keywords:

*Digitalization of SMEs,
Digital Economic
Transformation,
Technology Access Gap,
Global Economic
Inclusion.*

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INTRODUCTION

In the contemporary global economic landscape, digitalization has become the backbone of structural transformation in various sectors, including small and medium enterprises (SMEs). This phenomenon is not merely a matter of modernizing technological infrastructure, but rather an economic paradigm shift that redefines how production, distribution, and consumption take place. Developed countries such as



Germany, South Korea, and the United States have positioned digital-based SMEs as strategic actors in national economic development, especially after the COVID-19 pandemic which accelerated the adoption of technology exponentially. (Freeman et al., 2023). In this context, digitalization is no longer an option, but a prerequisite for survival in a competitive and innovation-based global business ecosystem.

Moreover, various international organizations such as the OECD and the World Bank have consistently emphasized the importance of strengthening digital SMEs as part of economic inclusion and poverty alleviation policies. Data from *the World Bank Group* (2021) shows that digital SMEs have a 2.5 times greater opportunity to increase productivity and cross-border market expansion compared to conventional SMEs (Rosak-Szyrocka et al., 2023). However, the success of digitalization is highly dependent on legal readiness, access to technology, and accountable data governance. Countries such as Estonia and Singapore, for example, have prepared a digital legal framework that not only protects SMEs from cyber risks but also provides fiscal incentives and legal protection for the intellectual property rights of their digital products (Tamasiga et al., 2022).

Meanwhile, in Indonesia, the existence of SMEs has a more complex and multidimensional dimension. Based on data from the Ministry of Cooperatives and SMEs (2023), there are more than 65 million SMEs that contribute 61.1% to Gross Domestic Product (GDP) and absorb more than 97% of the national workforce (Lacey, 2022). However, only around 22% of that number have been fully integrated into the digital ecosystem. The digitalization of SMEs in Indonesia still faces a number of obstacles such as limited digital literacy, inequality of technological infrastructure in the 3T (frontier, outermost, lagging) regions, and suboptimal legal protection for online transactions and consumer data. This is where the relevance of academic studies is needed to see how law can play a role as a driver, not just as a passive regulator in the digital transformation process.

In the regulatory context, Indonesia has adopted several legal instruments that support the digitalization of the economy, such as Law Number 11 of 2008 concerning Electronic Information and Transactions (ITE), Presidential Regulation on SPBE, and the Personal Data Protection Law (UU PDP) (Alfiani, 2024). However, problems arise because the law still tends to be reactive and fragmentary in responding to the dynamics of the MSME digital ecosystem. It is not uncommon for small business actors to experience difficulties in obtaining digital legality, such as an online Business Identification Number (NIB), due to low understanding and access to digital legal platforms. Furthermore, existing regulations have not explicitly positioned digital MSMEs as strategic legal subjects who are entitled to regulatory affirmation, inclusive financing, and protection against structural inequalities arising from large-scale digital platforms.

Theoretically, the Study of Digital Economic Law shows that digital SMEs are not only business entities, but also social subjects that are vulnerable to systemic exploitation in the algorithmic economic ecosystem. Contemporary literature from economic law academics such as Mariana Mazzucato and Shoshana Zuboff shows that the digital platform system tends to create new structural inequalities: the big ones are increasingly dominant, the small ones are increasingly pushed to the margins. (Bae, 2025). Therefore, in the discourse of modern economic law, protection for SMEs is not only in the form of technical assistance or fiscal incentives, but also includes the right to

digital equity , the right to data, and legal access to cross-jurisdictional digital dispute resolution.

In the Indonesian context, digital literacy efforts and strengthening of SME institutions have not been fully accompanied by progressive and participatory legal policies. There has not been much legal research that examines in depth how the law should transform to be able to accompany SMEs in a fair and sustainable digitalization process. In fact, the growth of the national digital economy is highly dependent on the participation of SMEs in the platform-based economy. Without adequate legal intervention, the potential for disruption to local economic structures will increase, and the digital gap between cities and villages will continue to widen.

The deep motivation of this normative research is to fill the epistemic gap in Indonesian legal literature, which still very little discusses the relationship between SME digitalization and fair regulatory responses. Most current regulations focus more on technocratic aspects and do not consider the social justice aspect and the needs of SME actors at the grassroots level. Therefore, a legal approach is needed that is not only positivistic, but also empathetic and reflective of digital social realities. Thus, law is present not only as a formal instrument, but as a facilitator of inclusive and equitable economic transformation.

Furthermore, this study aims to emphasize that the digitalization of SMEs in Indonesia is a multidisciplinary issue that requires an intersectoral approach involving the fields of law, economics, technology, and sociology. In-depth normative studies are needed to formulate legal standards that are adaptive to technology, but still based on the values of constitutional justice and empowerment of the people's economy. Laws that live in the midst of a digital society must be able to mediate between innovation and protection, between efficiency and ethics.

METHOD STUDY

This study uses a juridical-normative approach with a library research method , which is based on the search and analysis of primary and secondary legal materials, as well as relevant policy documents and international reports. Primary Legal Materials include Indonesian laws and regulations such as Law Number 20 of 2008 concerning MSMEs, Law Number 11 of 2008 concerning Electronic Information and Transactions (UU ITE), Presidential Regulation on SPBE, and the Personal Data Protection Law (UU PDP). Secondary legal materials consist of scientific journals, publications from the World Bank, OECD, UNDP, and comparative studies that examine the digitalization policy framework for MSMEs in ASEAN countries such as Malaysia and Singapore. This study also analyzes the legal approach to digital inclusion and inequality of access to technology based on international standards, including thematic reports from ADB, ITU, and the World Economic Forum. Through this process, researchers seek to identify the correlation between the legal framework and MSME competitiveness in the national and global digital ecosystem.

The analysis method used is qualitative with a normative and comparative interpretation approach. (Muthoifin et al., 2024). Interpretation is carried out contextually against the legal texts applicable in Indonesia, juxtaposed with international policies that have substantive relevance to the digitalization of the SME sector. Comparative analysis is carried out to assess Indonesia's regulatory position in terms of digital access justice, protection of SMEs from the dominance of large

platforms, and involvement in international legal cooperation that encourages inclusive digital transformation. With this approach, the research is not only descriptive of existing regulations, but also critical in evaluating their effectiveness and compiling recommendations based on progressive legal norms that are relevant to the challenges of the digital economy. Therefore, the results of the research are expected to be able to produce theoretical and practical constructions in strengthening the role of law as the main facilitator of SME transformation in the digital era.

RESULTS AND DISCUSSION

Global Digital Divide and Its Impact on SMEs in Indonesia

The digital divide between developed and developing countries is a structural issue that has a direct impact on the competitiveness of Small and Medium Enterprises (SMEs), including in Indonesia. In developed countries such as Japan, Germany, and South Korea, SMEs are supported by high-level technological infrastructure, fiscal incentives, and massive and equitable digital education (Prainsack, 2020). In contrast, SMEs in developing countries, including Indonesia, face major challenges in the form of limited internet access, low digital literacy, and minimal legal protection in digital activities. According to the *World Economic Forum report (2022)*, Indonesia ranks 53rd out of 139 countries in the Digital Readiness Index (Zygmuntowski et al., 2021). This indicates that although the potential of the digital economy is enormous, there is a technological gap that makes it difficult for SMEs in Indonesia to compete globally.

Concrete cases occur in the South and Southeast Asia regions. In Bangladesh, for example, a 2020 ADB report noted that the majority of SMEs have not been able to adopt digital payment systems due to a lack of equipment and training (Staab & Thiel, 2022). This situation is not much different from Indonesia, where according to research from the Katadata Insight Center (2023), only 21% of the total SMEs have been fully digitalized (Sanchez, 2020). As a result, local SMEs are not only unable to compete with business actors from developed countries, but are also marginalized by large, established digital corporations. Without legal regulations that support fair digital access, this transformation risks deepening social inequality and weakening local economic empowerment.

Comparison of Legal Framework and Policy for SME Digitalization

Normatively, Indonesia has adopted several regulations related to digital transformation, such as the ITE Law, the PDP Law, and the risk-based OSS system. However, in practice, these regulations are still general and have not specifically provided affirmation to the SME sector. Compared to Malaysia and Singapore, Indonesia's legal approach to SME digitalization is still lagging behind in terms of integration, protection, and incentives. Malaysia, through *the Digital Transformation Master Plan*, explicitly mentions SMEs as priority legal subjects, and provides digital tax relief and technology training subsidies (Ismail et al., 2021). On the other hand, Singapore has prepared a comprehensive legal framework through *the Infocomm Media Development Authority (IMDA)* which regulates digital platform certification, data protection for small business actors, and technology-based capital access (Falahat et al., 2022).

In Indonesia, the biggest obstacle is the weak synergy between central regulations and regional implementation. Many SMEs in the regions do not have access

to training or do not even know the importance of digital legality such as online NIB. Law Number 20 of 2008 concerning SMEs has indeed provided legal recognition for SMEs, but has not been dynamically integrated with digital policies. This shows that without adaptive and progressive regulatory updates, SME digitalization will only be an elitist jargon, not touching the structural needs of small business actors who are the backbone of the national economy.

The Impact of Digitalization on Global Market Access for Indonesian SMEs

Digitalization opens up opportunities for digital exports and global market integration for SMEs, but not all SMEs can take advantage of these opportunities equally. In Indonesia, cross -border e-commerce is still dominated by large companies and distributors. Data from *the Google-Temasek e-Conomy SEA Report (2022)* shows that only 14% of Indonesian SMEs have succeeded in carrying out sustainable digital exports (Low et al., 2022). One of the obstacles is data protection regulations and digital logistics systems that are not yet friendly to small business actors. In fact, the opportunities for digital exports are very large, especially for processed food products, handicrafts, and local fashion.

In comparison, Malaysia, the Philippines and Vietnam have built country-based e-logistics systems to make it easier for SMEs to reach the ASEAN regional market (Ismail et al., 2021). The Philippines has even developed an e-payment system that is directly linked to the taxation and licensing systems for small businesses. In Indonesia, many SMEs are still hampered by legal aspects such as unclear digital export mechanisms, weak legality verification systems, and the absence of an educational legal platform that provides practical guidance. Without inclusive legal reform, the impact of digitalization will only expand the market for a handful of digital elites and eliminate traditional SMEs from domestic and international markets.

The Role of International Cooperation in Supporting the Digitalization of Indonesian SMEs

International cooperation is a strategic element in accelerating the digitalization of MSMEs in developing countries, including Indonesia. Support from global institutions such as the World Bank, Asian Development Bank (ADB), and UNDP has created a collaborative space to strengthen legal systems, digital infrastructure, and institutional capacity in supporting technology-based MSMEs (Polat et al., 2023). For example, the *Indonesia Digital Economy Acceleration Project* facilitated by ADB since 2021 has encouraged MSME digital policy reform through online training, business mentoring, and inclusion-based policy advocacy. However, many of these initiatives have not been fully internalized in the national legal system, so they are still programmatic and sectoral.

In the ASEAN region, Malaysia and Thailand have made cross-border digital cooperation the basis for harmonizing e-commerce regulations (Gao et al., 2025). Malaysia, for example, through collaboration with Alibaba and *the World Economic Forum*, has formed a *Digital Free Trade Zone (DFTZ)* that makes it easier for local SMEs to interact with the global market through a single legal and logistical door. Indonesia does not yet have a similar legal and institutional structure that allows SMEs to transact across borders efficiently and safely. The ITE Law and the PDP Law are indeed the initial foundations, but both have not fully regulated the legal protection

scheme for SMEs in the global digital ecosystem, especially in the event of cross-jurisdictional disputes.

Furthermore, the synergy between international cooperation and national policies is still hampered by a sectoral bureaucratic approach. For example, the *SME Digitalization Program initiative* from UNDP in Indonesia has not been fully coordinated with the Ministry of Cooperatives and SMEs in formulating permanent policies. On the other hand, countries such as Rwanda show that integrating international cooperation into the national legal system can produce inclusive digital policies that are pro-SME. Rwanda utilized the *Smart Africa Alliance program* to develop a national digital policy that directly involved small business actors in formulating the law. This model shows the importance of Indonesia strengthening the role of regulation as a bridge between global commitments and the domestic legal needs of digital SMEs.

Inequality of Access and Digital Literacy among Local SMEs

The inequality of digital access among SMEs in Indonesia is a fundamental problem that is not only related to technological infrastructure, but also touches on social, economic, and legal disparities. Based on the report of the *Indonesian Internet Service Providers Association (APJII)* in 2023, the internet penetration rate in eastern Indonesia is still below 60%, significantly different from urban areas in Java which has reached more than 90% (Christian & Fajriah, 2020). This situation results in SMEs in rural and underdeveloped areas not having adequate access to the digital ecosystem, from product promotion to online transactions. As a result, digitalization is only enjoyed by a small number of SMEs in economic centers, creating a widening dichotomy between "digital SMEs" and "traditional SMEs".

In addition to infrastructure limitations, low digital literacy is a major obstacle to the digital transformation of SMEs. The results of research by LIPI and the Ministry of Cooperatives in 2022 showed that more than 65% of SMEs do not understand the basics of digital security, effective use of e-commerce platforms, or consumer data protection (Mangku et al., 2023). In the legal context, this low literacy has implications for the weak legal awareness of SMEs regarding their rights and obligations in the digital space. Many small business actors do not understand the legality of digital contracts, online dispute resolution mechanisms, and criminal risks in online transactions. This shows the need for synergy between legal education and structured and sustainable technological literacy at the grassroots level.

Other developing countries face similar challenges, but some are beginning to demonstrate adaptive intervention models. In Kenya, the government's *Ajira Digital Program*, in partnership with the private sector and donors, has trained over 100,000 micro-entrepreneurs in digital platform use and basic legal literacy. The program explicitly includes modules on consumer protection and digital data regulation based on national laws. Lessons from Kenya and countries such as India's *Digital India Initiative*, demonstrate that inequities in access and literacy can be addressed if there is affirmative regulation accompanied by legal policies that empower SMEs as subjects of digital law, rather than simply passive users of technology (Imanuella et al., 2025).

CONCLUSION

Digitalization is a disruptive force that is not only reshaping the global economic landscape but also challenging the prevailing legal and policy structures, including in the Small and Medium Enterprises (SME) sector. This study confirms that the global digital divide significantly weakens the competitiveness of SMEs in developing countries such as Indonesia. Compared to developed countries that already have mature digital ecosystems, SMEs in Indonesia are still lagging behind in terms of technological infrastructure, digital literacy, and legal access to digital platforms. This has a direct impact on the inequality of economic opportunities, especially in terms of SME participation in cross-border digital markets.

Normatively, Indonesia does have a number of regulations that intersect with digital transformation, such as the ITE Law, the PDP Law, and the OSS system. However, these regulations have not shown explicit support for the SME sector. Compared to countries such as Malaysia and Singapore, Indonesia's legal position is still not strong enough in terms of protection, incentives, and integration of digital law for small business actors. The lack of synergy between institutions, as well as an unresponsive bureaucracy, have exacerbated the imbalance between national law and the dynamics of the international digital market.

This study also found that international cooperation that has been established by Indonesia, whether through ADB, UNDP, or the World Bank, has not been fully internalized into the national legal system permanently. These initiatives tend to be programmatic and have not become part of an adaptive and sustainable legal instrument. In fact, models such as the Digital Free Trade Zone in Malaysia or pro-SME digital policies in Rwanda show that synergy between domestic regulations and international cooperation can create an inclusive and transformative system. Therefore, the legal approach to SME digitalization in Indonesia needs to shift from merely a normative response to an integrative strategic agenda. Progressive regulatory reforms must be directed at strengthening institutional capacity, expanding access to digital law for SMEs, and ensuring participatory digital economic justice. This approach is not only important for creating SME competitiveness globally, but also for upholding the principles of social justice and economic sovereignty in the era of ever-evolving algorithms.

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