



ISSN Print 2615-5648
ISSN Online 2615-174X

Editorial Office: Faculty of Sharia, Universitas Islam Negeri Profesor Kiai Haji Saifuddin Zuhri Purwokerto, Indonesia, Jalan Jend. A. Yani No. 40 A Purwokerto Jawa Tengah 531226 Indonesia
Phone: +62281-635624 Fax: +62281- 636653
E-mail: volksgeist@uinsaizu.ac.id
Website: <http://ejournal.uinsaizu.ac.id/index.php/volksgeist>

Interrogating the Legal Foundations of Digital Transformation: Balancing Economic Growth and Social Welfare in the Era of Disruption

Article	Abstract
<p>Author Bayu Dwi Anggono¹, Rofi Wahanisa^{2*}, Aulia Oktarizka Vivi Puspita Sari A.P², Septhian Eka Adiyatma³.</p> <p>¹ Faculty of Law, Universitas Jember, Indonesia ² Faculty of Law, Universitas Negeri Semarang, Indonesia ³ Faculty of Law, Universitas Diponegoro, Indonesia</p> <p>Corresponding Author: * Rofi Wahanisa, Email: rofiwahanisa@mail.unnes.ac.id</p> <p>Data: Received: Aug 21, 2024; Accepted: May 25, 2025 Published: May 27, 2025</p> <p>DOI: 10.24090/volksgeist.v8i1.12211</p>	<p>Digital transformation has emerged as a crucial component of Indonesia's national development strategy, recognized for its capacity to stimulate economic growth, enhance public services, and improve social welfare. However, the current approach tends to be technocratic, often overlooking vital legal, institutional, and justice-related issues. This study critically assesses examine the adequacy and coherence of Indonesia's legal and institutional frameworks governing digital transformation to promote inclusive economic growth and social welfare. It identifies regulatory and institutional gaps and recommends strategic reforms for equitable digital governance. Employing a socio-legal methodology that merges doctrinal legal analysis with interdisciplinary insights from political science, economics, and sociology, this research evaluates key legal instruments and institutional practices, alongside global best practices, to determine Indonesia's readiness for digital transformation. The findings indicate that Indonesia's progress is hampered by fragmented and reactive legal frameworks, notable regulatory gaps—particularly in data protection and labor rights within the gig economy—and weak institutional coordination. These issues lead to policy inconsistencies, implementation delays, and the exacerbation of existing inequalities. To address these challenges, this study advocates for a systemic reconfiguration of digital governance grounded in democratic principles and inclusive participation. It proposes six strategic pillars: infrastructure, digital human capital, business climate and cybersecurity, research and innovation, funding and investment, and robust legal-regulatory frameworks, to ensure a just and sustainable digital transition.</p> <p>Keywords: <i>Digital economy; social justice; digital inclusion; social welfare</i></p>

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INTRODUCTION

Digital transformation has become a key focus of Indonesia's national development strategy.¹ The government now views digitalization not just as a technological trend, but as a vital driver of economic growth, an enhancer of public service quality and accessibility, and a means to improve overall social welfare. As noted by Sutrisno, Indonesia is expected to reach the peak of its demographic dividend by 2030, presenting a significant opportunity to utilize its human capital for sustainable development.² However, despite the prevailing sense of optimism, digital transformation is often approached from a purely technocratic perspective, which tends to overlook the critical legal, institutional, and social justice issues inherent in its implementation. This study argues that digital transformation extends beyond merely technological adoption; it represents a socio-legal phenomenon that necessitates a coherent and inclusive governance framework.

Conceptually, digital transformation signifies a fundamental change in how governments, economies, and societies operate, driven by the integration of advanced information and communication technologies (ICTs). Technologies such as artificial intelligence (AI), big data, the Internet of Things (IoT), and cloud computing have not only transformed service delivery and market dynamics but also reshaped socio-political relationships.³ Importantly, these technologies do not exist in a political or legal vacuum; they are embedded in specific power structures that require strong regulatory oversight. Thus, the role of the state extends beyond merely facilitating market operations; it involves acting as a normative agent responsible for protecting rights, ensuring equity, and promoting democratic accountability.⁴

In this context, while Indonesia's legal framework has made some strides, it remains fragmented, uncoordinated, and inadequate in addressing the complex and evolving challenges of digital transformation. This fragmentation is evident across various legal domains. Regulations related to data protection, cybersecurity, digital labor, and digital markets are spread across numerous sectors—specific statutes, ministerial decrees, and administrative guidelines. This inconsistent legal framework creates certainty, weakens policy coherence, and leaves regulatory gaps that can be exploited by dominant corporate entities—both domestic and multinational—potentially undermining the inclusiveness and fairness of the digital governance framework. Instead of reducing inequality, the current regulatory environment often exacerbates existing power imbalances and access disparities.⁵

¹ Muanja Ssenyonga, "Imperatives for Post COVID-19 Recovery of Indonesia's Education, Labor, and SME Sectors," *Cogent Economics and Finance*, 2021, <https://doi.org/10.1080/23322039.2021.1911439>; Dwi Jati Marta et al., "Digital World Threat Preparedness For Digital Transformation Acceleration Policy In Indonesia," *International Journal of Humanities Education and Social Sciences* 4, no. 1 (2024), <https://doi.org/https://doi.org/10.55227/ijhess.v4i1.1131>.

² Agustian Sutrisno, "Skilling the Demographic Bonus: Progress and Gaps in Indonesian Employment Strategies," in *Sustainable and Dynamic Graduate Employability: A Comparative Overview across Geographies* (London: Routledge, 2023), <https://doi.org/10.4324/9781003278061-10>.

³ Ahmed Bounfour, *Digital Futures, Digital Transformation: From Lean Production to Acceluction*, Springer International Publishing, 2016.

⁴ Juho Lindman, Jukka Makinen, and Eero Kasanen, "Big Tech's Power, Political Corporate Social Responsibility and Regulation," *Journal of Information Technology* 38, no. 2 (2023), <https://doi.org/10.1177/02683962221113596>; John Charles A. Altomonte, "Future Politics: Living Together in a World Transformed by Tech," *The Social Science Journal* 60, no. 2 (2023), <https://doi.org/10.1080/03623319.2021.2014213>; Astrid Mager, "Search Engine Imaginary: Visions and Values in the Co-Production of Search Technology and Europe," *Social Studies of Science* 47, no. 2 (2017), <https://doi.org/10.1177/0306312716671433>. specifically the 'Big Five' (Google, Apple, Meta née Facebook, Amazon and Microsoft

⁵ Altomonte, "Future Politics: Living Together in a World Transformed by Tech.

The structural characteristics of Indonesia's digital economy highlight these dynamics. At the infrastructural level, the market is highly concentrated, with state-owned enterprises controlling the backbone of internet services, which fosters oligopolistic behavior. In the realm of digital services and platforms, foreign technology companies wield considerable market power, as demonstrated by Indonesia's ICT imports, which totaled \$9 billion in 2019.⁶ Additionally, in supporting sectors like e-commerce and app development, investment is primarily driven by global venture capital, which contributes to foreign dominance in local startups and raises important questions about digital sovereignty and the sustainability of national innovation ecosystems.⁷

Another significant challenge is institutional coordination. Various ministries and agencies tend to pursue their own digitalization agendas without adequate integration or strategic alignment. The absence of a central authority with the mandate and capability to coordinate actions across sectors leads to policy duplication, weak implementation, and gaps in accountability. This highlights the pressing need for institutional reform, including the creation of a high-level digital governance body to ensure coherence and continuity among ministries and government levels. Indonesia's strategic planning documents—such as the Digital Indonesia Roadmap 2021–2024, the National Long-Term Development Plan (RPJPN) 2025–2045, and the “Golden Indonesia 2045” vision—recognize the significance of digital transformation. However, these initiatives primarily focus on economic and technical aspects, often neglecting the normative foundations of digital governance, such as data rights, democratic accountability, digital inclusion, and protections for vulnerable populations. This normative gap indicates that digitalization is not sufficiently embedded within a broader framework of social justice and human rights.

The lack of a comprehensive digital legal framework and a strong institutional foundation has resulted in inconsistent policies and delays in implementation. For instance, the much-anticipated Personal Data Protection Law was only recently enacted, and its enforcement mechanisms are still unclear and subject to dispute. Other critical regulatory areas, such as protection for gig economy workers, algorithmic accountability, and digital taxation, remain underdeveloped or are topics of ongoing debate. These shortcomings highlight a disconnect between policy goals and legislative action, jeopardizing the progress of digital transformation.

Research by Alfiani's⁸ underscores the need to enhance digital technology infrastructure while also developing comprehensive and adaptable legal regulations that effectively support the acceleration of technological change. However, existing regulations are fragmented and fail to address vital areas such as media and information, communication, electronic transactions, and personal data protection. While the government has made significant strides by implementing personal data protection laws, the digital regulatory framework in Indonesia remains disjointed and insufficiently equipped to tackle emerging challenges. Moreover, the presence of laws scattered across various sectors creates legal uncertainty and hampers effective governance in critical areas,

⁶ Kementerian Koordinator Bidang Perekonomian Republik Indonesia, *Buku Putih Strategi Nasional: Pengembangan Ekonomi Digital Indonesia 2030* (Jakarta: Kementerian Koordinator Bidang Perekonomian Republik Indonesia, 2023), 25.

⁷ Jaisy Aghniarahim Putritamara et al., “Do Dynamic Capabilities and Digital Transformation Improve Business Resilience during the COVID-19 Pandemic? Insights from Beekeeping MSMEs in Indonesia,” *Sustainability (Switzerland)* 15, no. 3 (2023), <https://doi.org/10.3390/su15031760>.

⁸ Francisca Romana Nanik Alfiani and Herman Bakir, “Law as Digital Transformation Infrastructure to Achieve a Golden Indonesia 2045,” in *Proceedings of the 4th International Conference on Law, Social Sciences, Economics, and Education* (Jakarta: EAI, 2024), <https://doi.org/http://dx.doi.org/10.4108/eai.25-5-2024.2349464>.

including data protection, cybersecurity, the digital workforce, and the management of evolving technologies. Therefore, additional efforts are necessary to unify and strengthen regulations, ensuring that digital transformation can advance more effectively and sustainably.

To move beyond the current fragmented and reactive approach, this study advocates for a systemic and cross-sectoral reconfiguration of Indonesia's digital governance. It proposes the establishment of six strategic pillars: infrastructure, digital human capital, business climate and cybersecurity, research and innovation, funding and investment, and legal-regulatory frameworks. These pillars should be implemented not merely as technocratic fixes but anchored in democratic principles, inclusive participation, and constitutional accountability to ensure a fair digital transition. Given the complexity and high stakes of digital transformation, this research critically examines *the adequacy and coherence of Indonesia's legal and institutional frameworks in managing the acceleration of digital transformation to promote inclusive economic growth and social welfare*. Through a detailed analysis of existing legal instruments, institutional practices, and global best practices, this study aims to make both theoretical and practical contributions to developing a more robust, equitable, and future-proof digital governance architecture in Indonesia.

RESEARCH METHODS

This study employs a socio-legal methodology to critically assess the adequacy and coherence of Indonesia's legal and institutional frameworks governing the acceleration of digital transformation to ensure inclusive economic growth and social welfare. A socio-legal approach is particularly effective for this research because it provides a nuanced understanding of the intersection between law, technology, governance, and society.⁹ It highlights not only the legal frameworks that regulate digital transformation but also the broader social implications of these laws, focusing on inclusivity, fairness, and public accountability. By examining the dynamics of law as a tool for regulation and a reflection of societal values, this methodology delivers a comprehensive analysis of how legal systems adapt—or fail to adapt—to the challenges posed by rapid technological change. This approach allows the identification of discrepancies between laws and their practical application, as well as between legal texts and the social realities they aim to address.

The research is based on a qualitative and interdisciplinary approach that combines doctrinal legal research with a critical analysis of the law itself. Doctrinal legal research, which focuses on the analyzes of the legal texts, allows for an thorough examination of Indonesia's existing legal instruments, such as the Personal Data Protection Law, and other sectoral-specific regulations. This aspect of the methodology assesses how effectively these laws fit within Indonesia's broader legal framework and whether they adequately address the challenges presented by digital technologies. Critical analysis of the law goes beyond superficial interpretation, probing the underlying assumptions, power dynamics, and political interests that shape the legal texts. This ensures that legal provisions are not taken at face value but are evaluated in the context of their practical function, especially regarding issues of justice, equity, and social welfare.

Integrating interdisciplinary perspectives is essential for this study, as digital transformation cannot be fully understood from a purely legal standpoint. The research will incorporate theories

⁹ Sulistyowati Irianto and Lim Sing Meij, "Praktik Penegakan Hukum: Arena Penelitian Sosiolegal Yang Kaya," *Metode Penelitian Hukum Konstelasi Dan Refleksi. Yayasan Pustaka Obor Indonesia. Jakarta*, 2003.

from political science, economics, and sociology to examine the social, political, and economic aspects of digital transformation. This interdisciplinary approach will help identify the structural factors influencing how digital technologies are regulated and implemented, emphasizing the roles of state actors, private corporations, and civil society in shaping the outcomes of digital policies.

In conclusion, the socio-legal methodology employed in this study provides a comprehensive, critical, and interdisciplinary framework for analyzing Indonesia's legal and institutional structures in the context of digital transformation. By integrating doctrinal legal analysis, empirical research, interdisciplinary perspectives, historical context, and comparative analysis, this study aims to offer a thorough examination of how Indonesia's legal frameworks can be reformed to promote inclusive economic growth and social welfare in the digital era. The findings will not only deepen our understanding of the legal aspects of digital transformation but also provide practical insights for policymakers, legal professionals, and stakeholders in the digital economy seeking to ensure that the benefits of digital technologies are distributed fairly across society.

ANALYSIS AND DISCUSSION

Overview of Digital Economic Transformation in Indonesia: An Overview of Challenges

Indonesia is experiencing a significant digital transformation that is redefining its economic, social, and governance structures. The government's recognition of digitalization as a key driver of economic growth and social welfare has resulted in its prioritization across various sectors. However, this transformation involves more than just technological progress; it requires a comprehensive overhaul of the country's legal, institutional, and socio-economic frameworks. This shift calls for a critical assessment of both the opportunities and challenges associated with the digital economy.¹⁰

Central to Indonesia's digital transformation is the expansion of its digital infrastructure. Over the past decade, the nation has seen rapid advancements in internet connectivity, mobile broadband access, and the growth of e-commerce platforms. Indonesia's digital economy is becoming increasingly integrated into global digital networks, with support from both domestic and international stakeholders. Notably, in 2019, the country's ICT imports reached \$9 billion, highlighting its significant dependence on foreign technologies and infrastructure. Despite this reliance, Indonesia remains one of Southeast Asia's largest digital economies, with projections estimating its contribution to GDP could reach \$130 billion by 2025.¹¹

The digital economy has become a fundamental driver of global economic growth, and Indonesia is no exception. Over the past decade, digital technologies have transformed various

¹⁰ Muhlis Hafel, "Digital Transformation in Politics and Governance in Indonesia: Opportunities and Challenges in the Era of Technological Disruption," *Society* 11, no. 2 (2023): 742–57.

¹¹ Abdurrahman Abdurrahman, Aurik Gustomo, and Eko Agus Prasetyo, "Enhancing Banking Performance through Dynamic Digital Transformation Capabilities and Governance, Risk Management, and Compliance: Insights from the Indonesian Context," *Electronic Journal of Information Systems in Developing Countries* 90, no. 2 (2024), <https://doi.org/10.1002/isd2.12299>; Kusumah Anggraito et al., "Digital Transformation: A Framework for Strategic Organizational Transformation BT - Intelligent Sustainable Systems," ed. Atulya Nagar et al. (Singapore: Springer Nature Singapore, 2025), 369–79; Robert Sparrow, Teguh Dartanto, and Renate Hartwig, "Indonesia Under the New Normal: Challenges and the Way Ahead," *Bulletin of Indonesian Economic Studies* 56, no. 3 (2020), <https://doi.org/10.1080/00074918.2020.1854079>; Hafel, "Digital Transformation in Politics and Governance in Indonesia: Opportunities and Challenges in the Era of Technological Disruption."adapt, and keep up with the digital economy. Dynamic capability (DC

industrial sectors and social structures. The digital economy encompasses a wide range of activities fueled by digital technologies—including e-commerce, fintech, digital services, and data analytics—providing significant development opportunities while also presenting complex regulatory, distributive, and governance challenges. These issues are particularly pressing in Indonesia, where regulatory fragmentation and a persistent digital divide limit inclusive participation in digital development.¹²

One of the most dynamic sectors in Indonesia's digital economy is e-commerce, which has experienced remarkable growth. Millions of Indonesians now participate in online retail, use digital payment systems, and access various services through digital platforms. In 2020, the e-commerce market was valued at approximately \$40 billion, with further growth anticipated.¹³ However, this expansion has also exacerbated disparities between urban and rural areas. Many rural communities still lack reliable internet access, which restricts their ability to benefit from or contribute to the digital economy. This digital divide serves as a structural barrier to equitable development. Similarly, the fintech sector has rapidly grown, enhancing financial inclusion by providing mobile payment solutions, digital wallets, and peer-to-peer lending services, particularly in areas underserved by traditional banking. However, this swift growth has outpaced the regulatory framework's ability to address essential issues such as consumer protection, fraud prevention, cybersecurity, and data privacy. These regulatory gaps expose users to significant risks, highlighting the need for a more robust and coherent legal framework for digital financial services.¹⁴

Digital platforms play a crucial role in Indonesia's digital economy. Global companies like Google, Meta, and Amazon dominate social media, search, and e-commerce markets, raising concerns about market concentration and the existence of platform monopolies.¹⁵ These companies wield substantial control over data collection, user engagement, and the organization of digital markets, often operating in regulatory grey areas. While domestic digital startups have emerged, particularly in sectors such as ride-hailing, e-commerce, and digital media, their heavy reliance on foreign investment raises questions about digital sovereignty and the sustainability of homegrown innovation.¹⁶ Digital labor, especially in the gig economy, has become increasingly significant in Indonesia's labor market. Platforms like Gojek and Grab have created millions of informal jobs, particularly in urban areas. Although this form of employment offers flexibility and income, it frequently lacks essential labor protections. Many gig workers are classified as independent contractors, which excludes them from social security, healthcare benefits, and collective bargaining rights. This disconnect from traditional labor protections underscores the urgent need of reform Indonesia's labor laws to address the realities of platform-based work.¹⁷

¹² Sparrow, Dartanto, and Hartwig, "Indonesia Under the New Normal: Challenges and the Way Ahead."

¹³ Galuh Dian Prama Dewi and Alvin Ernesto Lusikooy, "E-Commerce Transformation in Indonesia," *Nation State: Journal of International Studies* 6, no. 2 (2024), <https://doi.org/10.24076/nsjis.v6i2.1304>.

¹⁴ Kalamullah Ramli, "Indonesia's Preparation for the Digital Economy and e-Commerce: Infrastructure, Regulatory, and Policy Development," in *Developing the Digital Economy in ASEAN*, 2019.

¹⁵ Carmelo Cennamo, "Competing in Digital Markets: A Platform-Based Perspective," *Academy of Management Perspectives*, 2021, <https://doi.org/10.5465/AMP.2016.0048>.

¹⁶ Carlo Maria Rossotto et al., "Digital Platforms: A Literature Review and Policy Implications for Development," *Competition and Regulation in Network Industries* 19, no. 1–2 (2018), <https://doi.org/10.1177/1783591718809485>.

¹⁷ Yan Wang, Siyuan Qi, and Chen Liang, "Competition and Monopoly: Exploring Digital Economy from Ecological Perspective," *Journal of the Knowledge Economy*, 2024, <https://doi.org/10.1007/s13132-024-02445-3>; Ramli, "Indonesia's Preparation for the Digital Economy and e-Commerce: Infrastructure, Regulatory, and Policy Development."

Data have become a crucial asset in the digital economy, fueling innovation, personalization, and value creation across various sectors.¹⁸ However, concerns about the collection, use, and protection of personal data have grown significantly. The recent passage of the Personal Data Protection Law (UU PDP) marks an important milestone, but its implementation remains uncertain, and questions linger regarding its effectiveness in addressing emerging issues related to artificial intelligence, algorithmic governance, and cross-border data flows.

Despite progress, Indonesia's digital infrastructure is still underdeveloped in many regions, particularly in rural and remote areas. Limited access to high-speed internet and digital tools continues to exclude large portion of the population from fully participating in the digital economy.¹⁹ Initiatives like the Palapa Ring project aim to bridge this gap, but more targeted and inclusive infrastructure investments are necessary to alleviate structural inequalities. Another significant challenge is the lack of digital skills within the workforce. While the demand for expertise in data science, software development, and digital marketing is rising, many Indonesians—especially in underdeveloped areas—lack access to quality training and education in these fields. This digital skills gap hinders individual economic mobility and limits local businesses' ability to compete in the digital economy. Addressing this gap through equitable investments in education and capacity-building is essential for achieving inclusive digital transformation.

Regulatory frameworks have struggled to keep up with the evolving dynamics of the digital economy. Critical issues, such as platform accountability, data governance, competition law, and consumer protection, remain insufficiently addressed.²⁰ The terms of service set by platform often lack transparency, leaving consumers vulnerable. The concentration of economic power among a handful of dominant digital companies calls for regulatory interventions to promote fair competition and protect public interests. Cybersecurity is another significant concern. As a digital integration increases, so does the risk of cyber threats, including data breaches, ransomware, and identity theft. Despite government efforts to enhance cybersecurity policies and infrastructure, Indonesia continues to be one of the most targeted countries for cyberattacks worldwide.²¹ Strengthening cybersecurity resilience requires not only legal reforms but also cross-sectoral cooperation, capacity building, and public awareness. Digital taxation presents another unresolved challenge. The transnational nature of digital services complicates Indonesia's ability to tax revenues generated by foreign tech companies. Although the government has made efforts to regulate digital taxation, implementation remains inconsistent, and a comprehensive taxation framework is still lacking. Without such a framework, the government risks losing significant fiscal revenue that could be reinvested in digital infrastructure and public services.²²

Consumer protection in the digital economy remains insufficient. As online transactions grow rapidly, consumers face greater risks of fraud, deceptive advertising, and the misuse of personal

¹⁸ Massimiliano Nuccio and Marco Guerzoni, "Big Data: Hell or Heaven? Digital Platforms and Market Power in the Data-Driven Economy," *Competition and Change* 23, no. 3 (2019), <https://doi.org/10.1177/1024529418816525>.

¹⁹ Fitri Kartiasih et al., "Inequalities of Indonesia's Regional Digital Development and Its Association with Socioeconomic Characteristics: A Spatial and Multivariate Analysis," *Information Technology for Development* 29, no. 2–3 (2023), <https://doi.org/10.1080/02681102.2022.2110556>. spatial agglomeration, cluster analysis, and the Ordinary Least Squares (OLS)

²⁰ Rossotto et al., "Digital Platforms: A Literature Review and Policy Implications for Development."

²¹ Nolan, C., Lawyer, G., & Dodd, R. M. (2019). Cybersecurity: today's most pressing governance issue. *Journal of Cyber Policy*, 4(3), 425–441. <https://doi.org/10.1080/23738871.2019.1673458>.

²² Hong Liu and Guanie Lim, "When the State Goes Transnational: The Political Economy of China's Engagement with Indonesia," *Competition and Change* 27, no. 2 (2023), <https://doi.org/10.1177/10245294221103069>.

data. Although some legal reforms have been enacted, significant gaps persist in enforcement and dispute resolution processes.²³ Establishing a comprehensive, transparent, and enforceable consumer protection framework is essential to building trust in digital commerce. At the same time, emerging technologies such as artificial intelligence (AI) and automation offers promising opportunities and serious challenges. AI can boost productivity and drive innovation across sectors like healthcare, agriculture, and logistics. However, it also carries risks, including job displacement, algorithmic bias, and increasing social inequality. To address these concerns, policies must proactively consider and manage the social, economic, and ethical implications of AI integration.²⁴

Indonesia's Legal and Institutional Framework for Digital Transformation

The effectiveness and consistency of Indonesia's legal and institutional frameworks are essential for harnessing digital transformation to drive sustainable economic growth and social well-being.²⁵ As digital technologies increasingly influence economic systems and social interactions, the regulatory and governing bodies must adapt to ensure the digital economy's benefits are accessible, equitable, and secure for all. Despite the government's strategic emphasis on digital transformation, notable gaps remain within these frameworks, hindering Indonesia's advance toward a fully integrated and inclusive digital economy.²⁶

Indonesia's current legal framework is fragmented and not fully equipped to meet the challenges of a rapidly digitizing society. Although there are laws targeting specific areas of the digital economy—such as data protection, e-commerce, and cybersecurity—these regulations are often sector-specific and fragmented rather than comprehensive.²⁷ This piecemeal approach leads to inconsistencies and overlaps that complicate regulatory enforcement and prevent the development of clear and unified standards. For example, the Personal Data Protection Law enacted in 2022 marked progress toward safeguarding privacy and security, but its implementation and enforcement remain unclear, leaving gaps in consumer protection and data governance. Similarly, digital taxation laws are still underdeveloped, making it difficult to ensure fair contributions from digital businesses operating in Indonesia, particularly those that operate across borders and often avoid local taxation.

A major challenge for Indonesia is the absence of a centralized regulatory authority to oversee digital transformation. While several ministries and agencies manage different facets of the digital economy, no single entity is responsible for coordinating the nation's overall digital agenda.²⁸ This lack of coordination leads to fragmented policy implementation, resulting in regulatory inconsistencies and inefficiencies. For instance, the Ministry of Communication and Information

²³ Imam Asmarudin et al., "Initiating the Reform of Principle Norms in the Formation of Laws in Indonesia," *Jurnal IUS Kajian Hukum Dan Keadilan* 12, no. 2 (August 19, 2024): 208–26, <https://doi.org/10.29303/IUS.V12I2.1390>.

²⁴ Hans W. Micklitz, "Consumer Law in the Digital Economy," in *Perspectives in Law, Business and Innovation*, 2018, https://doi.org/10.1007/978-981-13-1080-5_5.

²⁵ Kartiasih et al., "Inequalities of Indonesia's Regional Digital Development and Its Association with Socioeconomic Characteristics: A Spatial and Multivariate Analysis."spatial agglomeration, cluster analysis, and the Ordinary Least Squares (OLS

²⁶ Alexander Kennedy, "The Role of Indonesian Constitutional Law in Sustaining National Resilience Amid Global Challenges," *Jurnal Lemhannas RI* 12, no. 4 (2024): 485–508.

²⁷ Kennedy.

²⁸ Odi Jarodi, Muhammad Khafid, and Arief Yulianto, "From Fragmentation to Coherence: Enhancing Human Resource Capacity in Indonesian Law Reform for Effective Justice Delivery," *Journal of Law and Legal Reform* 5, no. 4 (2024): 2071–92.

Technology (Kominfo) regulates digital infrastructure and e-commerce, whereas the Financial Services Authority (OJK) oversees fintech. However, limited communication and collaboration between these agencies produce a fragmented governance approach. Without a high-level, central body empowered to develop and enforce a unified digital policy framework, Indonesia struggles to effectively address the complexities of the digital transformation.

The inconsistency in legal and institutional frameworks is evident in the gap between digital innovation and the pace of legal reform. Rapid advancements in technologies such as artificial intelligence (AI), blockchain, and the Internet of Things (IoT) have outstripped the ability of legal institutions to implement adaptive regulatory measures. As a result, many emerging technologies exist in a regulatory void, creating uncertainty for both businesses and consumers.²⁹ For instance, the rapid expansion of the gig economy, fueled by platforms like Gojek and Grab, has highlighted deficiencies in labor protections for digital workers, who are often classified as independent contractors instead of employees. This classification leaves gig workers vulnerable to exploitation and ineligible for social security benefits while also failing to address the unique dynamics of platform-based labor markets.

Additionally, Indonesia's legal and institutional frameworks for digital transformation fall short in addressing critical issues like digital sovereignty, data ownership, and monopolistic control. Many of the country's largest digital platforms are owned by foreign companies, raising concerns over the loss of local control over critical digital infrastructure and services. Although Indonesia has enacted regulations requiring foreign tech firms to establish a local presence and store data domestically, these measures often prove insufficient to limit the influence of multinational corporations. The dominance of foreign platforms also complicates consumer protection, as these providers operate with limited transparency, making it difficult for consumers to seek redress or challenge unfair practices.

Cybersecurity regulations is another area where Indonesia faces major challenges. Despite efforts to strengthen cybersecurity policies, the country remains a prime target for cyberattacks. Its digital infrastructure is vulnerable to breaches, with rising incidents of data theft, hacking, and online fraud. The absence of a clear, coordinated cybersecurity strategy leaves businesses and individuals exposed, undermining trust in the digital economy. While Kominfo has launched initiatives—such as the National Cyber and Encryption Agency (BSSN)—these efforts must be better integrated into a comprehensive national plan that includes robust legal frameworks, public-private partnerships, and ongoing investments in cybersecurity capacity building.

The complexity of Indonesia's digital economy intensifies the need for clear and coherent legal and institutional frameworks.³⁰ The rapid growth of global digital platforms alongside a flourishing local digital startup scene has created a highly competitive and dynamic environment that demands agile and forward-looking regulations. However, current laws often prioritize economic growth over regulatory clarity and social protection. For instance, while the government actively supports digital startups, the lack of robust intellectual property protections, clear venture capital regulations, and regulatory certainty for emerging technologies creates an unstable environment for innovation.

²⁹ Ausma Bernot et al., "Institutional Dimensions in Open Government Data: A Deep Dive Into Indonesia's Satu Data Initiative and Its Implications for Developing Countries," *Public Performance & Management Review* 47, no. 6 (2024): 1399–1429.

³⁰ Samuel J. Spiegel, "Governance Institutions, Resource Rights Regimes, and the Informal Mining Sector: Regulatory Complexities in Indonesia," *World Development* 40, no. 1 (2012), <https://doi.org/10.1016/j.worlddev.2011.05.015>.

This situation threatens the long-term sustainability of Indonesia's digital ecosystem and increases the risk of foreign companies dominating the market.³¹

Another urgent issue is the legal status of digital labor. As the gig economy expands, Indonesia's labor laws must evolve to provide adequate protections for platform workers.³² Presently, labor regulations do not fully capture the complexities of digital work, especially the blurred distinctions between employees and independent contractors. Gig workers often lack access to essential benefits like health insurance, retirement plans, and paid leave—critical components of decent working conditions. With digital labor becoming increasingly common, Indonesia needs to implement legal reforms that ensure fair wages, social security, and workplace protections for gig workers, while also supporting a competitive business environment.³³

The challenge of digital taxation further undermines the adequacy and coherence of Indonesia's legal frameworks. Although the government has introduced digital tax regulations to address this issue, enforcement remains weak, and the tax system is still ill-equipped to capture the substantial revenues generated by digital businesses. Foreign tech companies dominating the Indonesian market often find ways to bypass local tax laws, depriving the government of critical revenue. Without a strong digital tax regime, Indonesia's ability to fund essential public services and infrastructure is compromised, hampering efforts toward inclusive economic growth.³⁴

Moreover, Indonesia's legal frameworks have yet to fully integrate social justice principles into digital governance. While economic growth and technological innovation are key priorities, regulatory structures have largely neglected issues of equity, digital inclusion, and the protection of marginalized communities. Without targeted policies and legal reforms addressing the digital divide, existing inequalities—especially in rural and remote areas with limited digital access—are likely to worsen. To build a truly inclusive digital economy, Indonesia must focus on the needs of disadvantaged populations and ensure that digital transformation benefits all citizens, not just those in urban centers.³⁵

³¹ Rendy Pahrun Wadipalapa et al., "An Ambitious Artificial Intelligence Policy in a Decentralised Governance System: Evidence From Indonesia," *Journal of Current Southeast Asian Affairs* 43, no. 1 (2024), <https://doi.org/10.1177/18681034231226393>.

³² Siti Kunarti et al., "The Legal Politics of Outsourcing and Its Implication for the Protection of Workers in Indonesia," *Sriwijaya Law Review* 8, no. 1 (January 2024): 1, <https://doi.org/10.28946/slrev.Vol8.Iss1.2750.pp1-19>.

³³ Mariya Aleksynska, Anastasia Bastrakova, and Natalia Kharchenko, "Working Conditions on Digital Labour Platforms: Evidence from a Leading Labour Supply Economy," *SSRN Electronic Journal*, 2021, <https://doi.org/10.2139/ssrn.3390235>; Christian Fuchs, "Capitalism, Patriarchy, Slavery, and Racism in the Age of Digital Capitalism and Digital Labour," *Critical Sociology* 44, no. 4–5 (2018), <https://doi.org/10.1177/0896920517691108>; Oleg M Yaroshenko et al., "Models of Social Protection for Workers in the Gig Economy: Legal Challenges and Prospects," *Science of Law* 2024, no. 3 (2024): 1–7.

³⁴ Aicha Grade Rebecca, "Digital Taxation in Indonesia," *Center for Indonesian Policy Studies*, no. April (2021); Erik Brattberg, "Technology and Digital Issues," *Reinventing Transatlantic Relations on Climate, Democracy, and Technology* (Carnegie Endowment for International Peace, May 2020).

³⁵ Gatot H Djatmiko, Obsatar Sinaga, and Suharno Pawirosumarto, "Digital Transformation and Social Inclusion in Public Services: A Qualitative Analysis of E-Government Adoption for Marginalized Communities in Sustainable Governance," *Sustainability*, 2025, <https://doi.org/10.3390/su17072908>. ensuring equitable access to digital public services for all citizens. However, challenges such as limited digital literacy, infrastructural gaps, and institutional barriers hinder widespread adoption, particularly among marginalized populations. This study examines the key obstacles to digital inclusion in e-government and explores technology-driven and policy-based solutions. A qualitative approach was employed, integrating case studies from developed and developing nations to assess best practices and localized policy adaptations. The findings highlight that public-private partnerships, digital literacy programs, and the integration of emerging technologies—such as artificial intelligence (AI

Challenges in Ensuring Inclusivity and Equity

Ensuring inclusivity and equity within Indonesia's digital transformation remains a critical challenge as the country integrates new technologies into its economic and social fabric.³⁶ While digital technologies have the potential to empower marginalized communities, improve social welfare, and drive economic growth, unchecked digitization risks widening existing inequalities unless deliberative measures are taken to address these gaps. The divide between the digital “haves” and “have-nots” is growing, putting many of Indonesia's poorest and most vulnerable populations at risk of being excluded from the digital economy. To prevent this, the legal, institutional, and infrastructural frameworks guiding digital transformation must be strategically realigned to ensure these benefits are distributed fairly.³⁷

A key challenge lies in the digital divide between urban and rural areas. While cities like Jakarta and Surabaya have rapidly advanced digital infrastructure, rural and remote regions continue to face major barriers to accessing the internet and digital services. Data from the Kominfo indicates that nearly 60 million Indonesians—mostly in rural areas—still lack reliable and affordable internet services. This geographic disparity restricts rural communities' ability to engage in the digital economy, access government services, and benefit from online educational resources. Without targeted investments to expand internet infrastructure and promote equitable access to digital tools, these populations risk remaining marginalized in the digital era.³⁸

The digital divide in Indonesia is further widened by the socio-economic disparities. Many low-income families cannot afford essential devices like smartphones, computers, or reliable internet access—basic requirements to participate in the digital economy. The high cost of these technologies creates significant barriers to digital inclusion.³⁹ For example, while phone usage is growing, most rural and low-income households still rely on basic feature phones that lack the capabilities needed for essential online services. This technological gap limits their access to e-commerce, digital government services, or online education, deepening existing inequalities.

Another major obstacle to inclusivity is digital literacy. Despite rapid digital adoption across the country, a large segment of the population lacks the skills to effectively use digital platforms and technologies.⁴⁰ Digital literacy goes beyond technical know-how; it includes understanding online privacy risks, cybersecurity threats, and responsible technology use. Although the government has launched initiatives like the Digital Literacy National Movement (Gerakan Literasi Digital),

³⁶ Apriliah and Wahyudin Darmalaksana, “Crypto Digital Asset Phenomenon in Hadith Review with Anthro-Economic Social Approach,” *Khazanah Hukum* 4, no. 3 (November 9, 2022): 205–12, <https://doi.org/10.15575/KH.V4I3.19048>.

³⁷ Natasha Beschorner, “The Digital Economy in Southeast Asia: Emerging Policy Priorities and Opportunities for Regional Collaboration,” in *New Dimensions of Connectivity in the Asia-Pacific*, 2021, <https://doi.org/10.22459/ndcap.2021.04>.

³⁸ Zulmasyhur Zulmasyhur and Eko Sugiyanto, “Toward Equal Access to Public Services Through Enhanced E-Government in Semarang City,” *Theoretical and Empirical Researches in Urban Management* 19, no. 1 (2024). Indonesia. Quantitative research is used systematically with the aim of describing, confirming and proving hypotheses related to observed phenomena through the collection and analysis of numerical data. This research methodology uses a Structural Equation Modeling (SEM)

³⁹ Vidya Diwakar et al., “Lessons from ISET Policy-Making in Bangladesh, Indonesia and Kenya,” *Inclusive and Sustainable Economic Transformation, Ways Forward in Low- and Middle-Income Countries* (ODI, May 2025); Sherillyn Raga, “Policy Pathways for Integrated Development,” 2025.

⁴⁰ Natasya Zahra, “Enhancing Inclusion in the National Digital Literacy Index: From Measurement to Empowerment” (Policy Brief, 2023).

these efforts often have limited reach, especially in rural and underdeveloped areas. Without comprehensive and ongoing investment in digital education, many Indonesians will continue to be excluded from the benefits of digital transformation, perpetuating social and economic disparities.

The challenge of digital literacy is closely linked to the shortage of relevant educational content. Indonesia's educational system—especially in rural areas—has been slow to incorporate digital literacy and STEM (Science, Technology, Engineering, and Mathematics) education into its curriculum. As a result, many young people, particularly those in low-income families or remote regions, lack the skills needed to succeed in the digital economy. Although the government has promoted digital learning platforms, the quality of these resources and their accessibility for underserved communities remains insufficient. The gap in digital education limits opportunities for disadvantaged youth to secure quality jobs in the tech sector or participate in the expanding gig economy.

Additionally, the dominance of foreign-owned digital platforms presents a significant barrier to equitable access. Global giants like Google, Facebook, Amazon, and Alibaba dominate the Indonesia's digital market, often overshadowing local startups and entrepreneurs. While these platforms provide valuable services, their market dominance contributes to concentration that stifles local innovation. The prevalence of foreign tech companies also raises concerns about the outflow of data, profits, and control over critical digital infrastructure, undermining Indonesia's digital sovereignty. This imbalance between local and international players creates unequal opportunities for economic growth, constraining the ability of domestic businesses and workers to compete fairly. Without stronger regulations to support local entrepreneurship and ensure a more equitable distribution of digital resources, Indonesia's digital economy risks continuing to favor global corporations over local stakeholders.⁴¹

Another significant challenge to inclusivity and equity in Indonesia's digital transformation is the increasing resilience on the gig economy. Platforms like Gojek, Grab, and Tokopedia have created millions of new job opportunities, mainly in urban areas. However, the legal and institutional frameworks regulating digital labor are severely lacking. Gig workers—who power many digital services—often do not have access to basic labor protections such as minimum wage guarantees, health insurance, or social security. These workers are typically classified as independent contractors rather than employees, leaving them vulnerable to exploitation and exclusion from labor rights. This gap in legal protections deepens inequality, as gig many workers come from lower socio-economic backgrounds and miss out on the social benefits afforded to formal workers.⁴²

Additionally, Indonesia's digital transformation has made limited progress in advancing gender equality. Women—especially those in rural and underserved communities—face extra barriers to digital inclusion, including restricted access to devices and internet connectivity, low digital literacy,

⁴¹ Hilal Elver and Melissa Shapiro, "Violating Food System Workers' Rights in the Time of COVID-19: The Quest for State Accountability," *State Crime Journal* 10, no. 1 (2021), <https://doi.org/10.13169/STATECRIME.10.1.0080>; Riani Rachmawati et al., "Urban Gig Workers in Indonesia during COVID-19 the Experience of Online 'ojek' Drivers," *Work Organisation, Labour and Globalisation* 15, no. 1 (2021), <https://doi.org/10.13169/WORKORGALABOGL.15.1.0031>.

⁴² Arif Novianto, Anindya Dessi Wulansari, and Yeremias T. Keban, "Searching for a Better Job : Indonesian Gig Workers and the Limits of Decent Work Agendas," *Work Organisation, Labour and Globalisation* 17, no. 2 (2023), <https://doi.org/10.13169/workorgalaboglob.17.2.0071>; Zyed Achour, "Social Sustainability in the Gig Economy: Rethinking Social Protection Systems for Platform Workers," in *Sustainability and Adaptability of Gig Economies in Global Business* (IGI Global Scientific Publishing, 2025), 297–322.

and cultural norms that limit their participation in the digital economy. While some initiatives have sought to empower women's digitally, these efforts have been fragmented and insufficient to meet the scale of the challenge. Online gender-based violence, including cyberbullying and harassment, remains a serious issue that disproportionately affects women, further restricting their ability to engage freely and safely in digital spaces. To promote equitable participation, gender-sensitive policies and programs must be central to Indonesia's digital transformation strategy.⁴³

Data privacy and protection are critical factors in shaping the inclusivity and equity of Indonesia's digital landscape. The rapid expansion of digital services and platforms has led to an overwhelming increase in the collection and use of personal data by both domestic and foreign companies. However, many Indonesians remain unaware of their data rights and how their personal information is being handled, leaving them vulnerable to exploitation and privacy violations. While the Personal Data Protection Law (PDP Law) marks progress in safeguarding consumer data, its implementation has been slow, and significant questions remain about its effectiveness. Without strong data protection measures, marginalized communities are especially at risk, lacking the knowledge or resources to protect their personal information in an increasingly digital world.⁴⁴

Ensuring inclusivity and equity in Indonesia's digital transformation is also challenged by the uneven distribution of digital infrastructure and services.⁴⁵ Although digital platforms offer access to services like healthcare, education, and banking, many people—particularly those in remote and rural areas—struggle with limited infrastructure. Broadband internet access is largely concentrated in urban centers, with rural communities often relying on slower, less reliable connections. This disparity restricts these population from fully participating in the digital economy, limiting their opportunities for education, employment, and social advancement.⁴⁶ Addressing this infrastructure gap requires targeted policies that promote equitable access to digital services, especially for disadvantaged and marginalized groups.⁴⁷

The unequal distribution of digital skills and resources poses significant challenges to Indonesia's broader development objectives. The country's goal of achieving inclusive economic growth and improved social welfare through digital transformation cannot be met if large segments of the population remain digitally excluded. These disparities not only restrict economic opportunities for marginalized communities but also limit the potential for digital technologies to advance social and environmental goals, such as expanding healthcare access and enhancing educational outcomes. Tackling these inequalities requires a comprehensive strategy that integrates infrastructure investment, digital education, and policy reforms focused on fairness and inclusion.⁴⁸

⁴³ Niken Kusumawardhani, "8 Women and Digitisation: Promises and Challenges of Internet Use in the Indonesian Labour Market," in *Gender Equality and Diversity in Indonesia*, 2023, <https://doi.org/10.1355/9789815104561-014>.

⁴⁴ Kusumawardhani.

⁴⁵ Ragdad Cani Miranti, Sri Indriyani Siregar, and Aan Budhi Willyana, "How Does Inclusion of Digital Finance, Financial Technology, and Digital Literacy Unlock the Regional Economy across Districts in Sumatra? A Spatial Heterogeneity and Sentiment Analysis," *GeoJournal* 89, no. 4 (2024): 136.

⁴⁶ Jiawei Chen and Zhijin Xu, "The Impact of the Digital Divide on Labor Mobility and Sustainable Development in the Digital Economy," *Sustainability*, 2024, <https://doi.org/10.3390/su16229944>.

⁴⁷ This allows more workers to access new job opportunities and resources provided by the digital economy. Digital infrastructure development and digital skills training should be strengthened to narrow the digital divide and promote sustainable and balanced regional development and increase economic vitality, Chen and Xu.

⁴⁸ Miranti, Siregar, and Willyana, "How Does Inclusion of Digital Finance, Financial Technology, and Digital Literacy Unlock the Regional Economy across Districts in Sumatra? A Spatial Heterogeneity and Sentiment Analysis."

In conclusion, while Indonesia's digital transformation offers the promise of driving inclusive economic growth and social welfare, major obstacles remain to ensuring that its benefits are shared equitably. The digital divide, socio-economic challenges, gaps in digital literacy, and the dominance of foreign-owned platforms are among the critical issues that must be addressed to build a more inclusive and equitable digital economy. To shape a just and fair digital future, Indonesia must prioritize policies and reforms promote technology access, protect the rights of digital workers, and guarantee that all citizens—regardless of location or socio-economic background—can participate in and benefit from the digital revolution.

Recommendations for Legal and Institutional Reform

To overcome the challenges of inclusivity and equity in Indonesia's digital transformation, a thorough reform agenda is essential. Legal and institutional changes should not only strengthen the regulatory framework but also to ensure that digitalization advances broader goals of social justice, economic equity, and democratic governance. The following recommendations key areas for reform to close existing gaps and improve the fairness and effectiveness of Indonesia's digital transformation.

A foundational step toward achieving inclusivity is to prioritize the expansion of digital infrastructure throughout the entire archipelago, with a special focus on rural and underserved areas. The government should commit to investing in the development and modernization of broadband networks to guarantee affordable, high-quality internet access for all citizens. Particular emphasis must be placed on reaching remote regions that remain digitally isolated. Public-private partnerships (PPP) can play a vital role in securing the necessary investments, helping to make digital connectivity a universal service. Enhancing internet access will empower marginalized communities to take advantage of educational resources, e-health services, and online economic opportunities, thereby narrowing the digital divide.⁴⁹

A comprehensive national digital literacy campaign is vital to empower individuals to navigate the digital world confidently and responsibly. Digital literacy must go beyond technical skills to include critical thinking, awareness of data privacy, cybersecurity knowledge, and responsible online behavior.⁵⁰ The Indonesian government should partner with educational institutions, non-governmental organizations, and private sector to design and implement digital literacy programs that specifically target vulnerable groups such as women, children, rural communities, and people with disabilities. Ensuring that every Indonesian citizen is digitally literate will enable meaningful participation in the digital economy while protecting their rights in an increasingly connected world.

To address the vulnerable working conditions faced by gig economy workers, it is crucial to establish a clear legal framework that guarantees basic labor protections. The government should enact laws ensuring fair wages, safe working environments, social security, and health benefits for gig workers.⁵¹ Moreover, protections against discrimination, exploitation, and harassment in digital

⁴⁹ Jarodi, Khafid, and Yulianto, "From Fragmentation to Coherence: Enhancing Human Resource Capacity in Indonesian Law Reform for Effective Justice Delivery."

⁵⁰ Jarodi, Khafid, and Yulianto.

⁵¹ Novianto, Wulansari, and Keban, "Searching for a Better Job : Indonesian Gig Workers and the Limits of Decent Work Agendas"; Elver and Shapiro, "Violating Food System Workers' Rights in the Time of COVID-19: The Quest for State Accountability."

workplaces must be strictly enforced. Since gig economy workers often lack collective bargaining power, Indonesia's legal system should require digital platforms to offer fair employment terms and compensation. Social protection programs—including health insurance, retirement savings, and unemployment benefits—should be expanded to cover gig economy workers, shielding them from the risks inherent in digital labor.

The passage of the Personal Data Protection Law (PDP Law) marks a significant advance in safeguarding data privacy; however, its successful implementation and enforcement are critical.⁵² The government must establish a strong institutional framework to oversee compliance with data protection regulations by both domestic and international companies operating in Indonesia. A dedicated national data protection authority should be created to enforce regulations, handle consumer complaints, and hold businesses accountable for data breaches. Additionally, public awareness about data privacy rights must be enhanced, with accessible channels provided for reporting violations. Strengthening data protection measures will help build trust in digital platforms and prevent the misuse of personal information.

Indonesia also needs to foster a more supportive environment for local digital startups to grow and compete against foreign tech giants. This can be achieved through incentives such as tax breaks, grants, and easier access to venture capital for domestic technology companies. The government should take steps to ensure that the digital economy does not become dominated by foreign corporations, as this can stifle local innovation and economic growth. Implementing regulations that encourage the localization of digital services and ensure that data generated within Indonesian remains under national control will protect the country's digital sovereignty. By leveling the playing field, the government can promote local entrepreneurship and reduce dependence on foreign platforms.

Promoting gender equality throughout Indonesia's the digital transformation is essential for building an inclusive digital economy. The government should implement that directly address the gender gap in digital access, literacy, and workforce participation. This could involve targeted digital skill training programs for women, incentives to support women-led startups, and initiatives to increase female representation in leadership positions within the tech industry. Additionally, legal protections must be established to combat online gender-based violence, such as cyberbullying and harassment. Integrating gender-sensitive data collection and analysis into policymaking will also help identify and address the unique challenges women face in the digital landscape.⁵³

To address institutional fragmentation, it is vital to create a centralized agency tasked with for coordinating and overseeing digital transformation efforts across various sectors and government bodies. This agency should be empowered with the necessary authority, resources, and expertise to lead the digital agenda and ensure policy alignment. By establishing a high-level digital governance body, Indonesia can better synchronize initiatives like e-government, digital economy development, and cybersecurity policies—preventing overlap and closing gaps.⁵⁴ Furthermore, this entity should

⁵² Sidik Prabowo et al., "Identifying and Validating Critical Factors in Designing a Comprehensive Data Protection Impact Assessment (DPIA) Framework for Indonesia.," *International Journal of Safety & Security Engineering* 15, no. 1 (2025).

⁵³ Kusumawardhani, "8 Women and Digitisation: Promises and Challenges of Internet Use in the Indonesian Labour Market."

⁵⁴ In addition to creating a centralized body with special authority for other policies such as building Smart Cities, it also requires government, private and community participation in planning and decision-making; Gabriella

facilitate public-private partnership to ensure the digital transformation supports broader social, economic, and environmental objectives.⁵⁵

Indonesia's legal framework for the digital economy remains fragmented, with regulations scattered across multiple sectors. To establish a more cohesive approach, the government should consider revising existing laws to create a unified and comprehensive legal framework for the digital economy. This framework should include clear regulations for emerging technologies such as artificial intelligence (AI), blockchain, and the Internet of Things (IoT), alongside policies that oversee digital platforms and safeguard consumer rights.⁵⁶ Additionally, a comprehensive digital economy law should address key issues like intellectual property rights, competition law, taxation, and the equitable distribution of digital economy benefits, ensuring the sector's development is fair and balanced.

The government's ability to manage and regulate digital transformation must be significantly strengthened. This includes enhancing technical expertise within government agencies, providing continuous training for civil servants, and establishing specialized units dedicated to digital issues. Equally important is fostering stronger collaboration between government entities and the private sector to ensure the digital economy develops in a way that benefits all Indonesians. Building institutional capacity also requires empowering regulatory bodies—such as the Ministry of Communication and Information Technology (Kominfo)—with the resources and authority needed to enforce digital policies effectively. To promote an equitable digital transformation that reflects the interests of all stakeholders, Indonesia must embrace more inclusive policymaking. This means actively engaging diverse groups—including marginalized communities, civil society organizations, academia, and the private sector—in the design and implementation of digital policies. Public consultations, participatory decision-making, and transparent processes will help ensure that the voices of vulnerable and underrepresented populations are heard and that policies address their specific needs. By adopting this inclusive approach, the government can help guarantee that the benefits of digital transformation are shared more evenly across society.

CONCLUSION

In conclusion, Indonesia's legal and institutional framework for overseeing digital transformation remains fragmented and insufficient, limiting the country's ability to drive inclusive economic growth and social welfare. While progress has been made, such as the introduction of the Personal Data Protection Law, digital regulations are still scattered across multiple sectors. This fragmentation creates legal uncertainty and weakens efforts to address critical issues like data protection, cybersecurity, digital employment, and the governance of emerging technologies. Poor coordination among government agencies—where ministries pursue digital initiatives

Esposito et al., "How Do Boundary Objects Influence People-Centered Smart Cities? A Systematic Literature Review," *Review of Managerial Science*, 2025, <https://doi.org/10.1007/s11846-025-00835-8>.

⁵⁵ Kusumawardhani, "8 Women and Digitisation: Promises and Challenges of Internet Use in the Indonesian Labour Market."

⁵⁶ Legal restrictions must be carried out immediately so as not to cause adverse effects on other parties, especially those carried out with the help of artificial intelligence, read also at: Jafar Ali Hammouri et al., "The Criminal Liability of Artificial Intelligence Entities," *Pakistan Journal of Life and Social Sciences* 22, no. 2 (2024): 8785–90; Gabriel Hallevy, "The Criminal Liability of Artificial Intelligence Entities—from Science Fiction to Legal Social Control," *Akron Intell. Prop. J.* 4 (2010): 171.

independently—results in overlapping policies and inefficiencies, further deepening the digital divide, especially in rural and underdeveloped areas. Although Indonesia’s digital transformation holds great promise, realizing inclusive and sustainable outcomes demands comprehensive legal and institutional reforms. To address these challenges, this study recommends: first, creating a harmonized digital legal framework for the digital economy; second, establishing a strong national authority for digital governance; third, ensuring equitable expansion of digital infrastructure; and finally, promoting digital justice and sovereignty to guarantee that the benefits of digital transformation reach all segments of Indonesian society.

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