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LEGAL ANALYSIS OF DIGITAL TECHNOLOGY INTEGRATION IN LEGISLATION DESIGN IN INDONESIA

Rahmat Dwi Putranto
Sekolah Tinggi Ilmu Hukum (STIH) IBLAM, Jakarta, Indonesia
rdp@iblam.ac.id

Aisha Mutiara Savitri
Sekolah Tinggi Ilmu Hukum (STIH) IBLAM, Jakarta, Indonesia
aisha@iblam.ac.id

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ABSTRACT

The digital revolution in the era of Industry 4.0 has significantly transformed various aspects of social and governmental life, including the process of forming legislation. In Indonesia, this transformation is supported by the implementation of the Electronic-Based Government System (SPBE) and the enactment of Law Number 13 of 2022 as an amendment to Law Number 12 of 2011 on the Formation of Legislation. This study aims to analyze the legal regulation of digital technology integration in the legislative process, examine the implementation of the digital legislation system in Indonesia, and identify the legal and institutional challenges arising from this integration. The research employs a normative legal research method with a descriptive qualitative approach by analyzing primary legal materials, including relevant laws and regulations, as well as secondary legal materials such as legal literature and scholarly works. The results show that Law Number 13 of 2022 provides a strong legal basis for the digitalization of legislative processes and enhances transparency and public participation. However, challenges remain in terms of infrastructure disparities, limited human resources, and system interoperability. Therefore, continuous legal reform and institutional readiness are essential to ensure effective and accountable digital legislation.

A. INTRODUCTION

The digital revolution, known as the industry 4.0 era, has brought significant social changes to human life. This transformation is marked by increased online interactions replacing face-to-face communication, the emergence of new work patterns based on automation and artificial intelligence, and the growth of the digital economy, which impacts nearly every

sector of life.[1] However, behind this progress, new challenges have emerged, such as the digital divide between those with and without access to technology, as well as increasing threats to cybersecurity and personal data privacy. In a legal context, these changes demand a legal system that is more adaptive and responsive to technological developments.[2]

The development of the Electronic-Based Government System (*Sistem Pemerintahan Berbasis Elektronik*/SPBE) is one of the Indonesian government's strategic steps in promoting digital transformation in the public sector. Through Presidential Regulation Number 95 of 2018 concerning SPBE, the government established a legal framework and guidelines for implementing integrated, efficient, and transparent bureaucratic digitization.[3] The SPBE serves as the foundation for building a digital government ecosystem, including in the process of formulating laws and regulations that are more adaptive to technological developments. The system standardization and inter-agency interoperability stipulated in the SPBE enable data integration, procedural simplification, and the acceleration of electronic-based public services. Furthermore, the implementation of the SPBE also strengthens the principles of accountability and information transparency, thereby encouraging public participation in the policy process.[4]

The demand for swift, transparent, and participatory legal governance reflects the need for an efficient and accountable legal system in the digital age. Legal processes are expected to be transparent, subject to public scrutiny,

[1] Syarifuddin, Teresia Din, Tri Andriani, Antonius Rino Vanchapo, Hezron Sabar Rotua Tinambunan, and Dhiraj Kelly Sawlani, "Reformasi Hukum di Era Digital: Tantangan dan Peluang di Indonesia," *Indonesian Research Journal on Education* 4, no. 4 (2024): 3208. See too, Asriani, Misnah Irvita, Robi Rendra Tribuana, and Rahmiati Ranti Pawari, "Pembangunan Hukum di Era Digital: Tantangan dan Peluang bagi Negara dalam Menghadapi Transformasi Teknologi," *Jurnal Bisnis Mahasiswa* 5, no. 1 (2025): 167; Ailsa Novelita Saharany, "Hukum Perdata Di Era Digital: Adaptasi, Tantangan Dan Inovasi," *Jurnal Multidisiplin Ilmu Akademik* 2, no. 1 (2025): 55.

[2] Akhmad Zaki Yamani, "Analisis Tantangan Dalam Penyusunan Rancangan Undang-Undang Di Era Transformasi Digital: Antara Regulasi, Inovasi, Dan Perlindungan Hak," *Journal of Law and Nation* 4, no. 2 (2025): 316. See too, Arsih Zul Adha, and Nazila Shahriza, "Rekonstruksi Pendidikan Hukum Indonesia: Etika, Profesionalisme, dan Integritas di Era Transformasi Digital," *Jurnal Kajian Hukum dan Sosial Budaya* 1, no. 01 (2025): 04.

[3] Lisdiana, Gerry Firmansyah, Agung Mulyo Widodo, and Budi Tjahjono, "Optimization of Electronic-Based Government System Architecture (SPBE) in the Application Architecture Domain in XYZ District," *Asian Journal of Social and Humanities* 2, no. 12 (2024): 3098. See too, Riyan Israyudin, Fajar Mukhammad Arrofi, and Agung Rahmat Dwiardi, "Digital Transformation through Electronic-Based Government System Policy in Indonesia: A Policy Narrative Analysis," *Journal La Sociale* 6, no. 2 (2025): 284.

[4] Muzzaman Almadani, Andi Asniar Dewi Cahyani, and Muhammad Khadafi, "The Influences of Electronic-Based Government System (SPBE) Implementation on Performance Accountability in the Regional Secretariat of South Sulawesi Province," *Jurnal MSDA (Manajemen Sumber Daya Aparatur)* 12, no. 1 (2024): 99. See too, Hermawan Prasojo, "Inovasi Kolaboratif Dalam Pembentukan Peraturan Perundang-Undangan: Optimalisasi Teknologi Untuk Meningkatkan Partisipasi Publik Dalam Legislasi," *Jurnal Hukum & Pembangunan* 54, no. 4 (2025): 673.

and involve public participation at every stage of decision-making.[5] This transparency not only strengthens public trust in legal institutions but also plays a crucial role in preventing corruption and abuse of power. Thus, modern legal governance is geared toward realizing justice, equality, and legal legitimacy in accordance with the principles of democracy and good governance.[6]

Issues arising from the integration of digital technology into the formulation of legislation include issues of data security and protection within the digital legislation system, the validity of documents and electronic signatures within regulatory documents, and the challenges of integration between legal agencies within a single, unified digital platform. The legal urgency of digital technology integration emphasizes the need for a clear legal basis to ensure certainty and legitimacy at every stage of the electronic formulation of legislation. Law Number 13 of 2022, amending Law Number 12 of 2011, is a significant milestone in adapting national law to the digital era. This law legitimizes the use of electronic systems in the legislative process, from planning to enactment, and regulates aspects of transparency, public participation, and bureaucratic efficiency.

The development of digital technology has driven the need for transformation in the process of formulating legislation in Indonesia to make it more effective, transparent, and participatory. The integration of digital technology into legislation not only requires clear legal regulations but also requires a structured digital legislative system and institutional readiness for its implementation. Therefore, this study focuses on the legal regulations for the integration of digital technology into legislation, the digital legislative system in Indonesia, and the accompanying legal and institutional challenges. This study aims to analyze the legal arrangements for the integration of digital technology into the process of formulating legislation in Indonesia, examine the evolving digital legislation system, and identify legal and institutional challenges in its implementation. Based on this introduction, the problem can be formulated as follows:

1. How is the legal regulation of digital technology integration in the legislative process in Indonesia?
2. What is the digital legislative system in Indonesia?

[5] Bayu Sulistiyanto Ipung Sutejo, and Gerry Firmansyah, "Evaluation of SPBE Management Domain of Tangerang City Government Based on Regulation of the Minister of PAN-RB Number 59 of 2020," In *First Mandalika International Multi-Conference on Science and Engineering 2022, MIMSE 2022 (Informatics and Computer Science) (MIMSE-IC-2022)*, (Dordrecht: Atlantis Press, 2022), 109.

[6] Aas Rohmat, Muhammad Muhtarom, Ismiyanto Ismiyanto, Evi Elisanti, and Anies Fortina Febriani, "Optimizing the Implementation of an Electronic-Based Government System (SPBE) in Overseas Official Travel Permits in Higher Education," *Spirit Publik: Jurnal Administrasi Publik* 19, no. 1 (2024): 16-30.

3. What are the legal and institutional challenges in integrating digital technology into the legislative process in Indonesia?

B. RESEARCH METHODS

This study uses a normative legal research method with a descriptive qualitative approach to analyze the integration of digital technology in the process of forming legislation in Indonesia. A normative legal research method with a qualitative descriptive approach was chosen because this research aims to examine and analyze legal regulations and the concept of digital technology integration in the formation of legislation. This method focuses on the review of primary and secondary legal materials to obtain a comprehensive understanding of the legal issues studied. The primary legal materials used include relevant laws and regulations, including Presidential Regulation Number 95 of 2018 concerning the Electronic-Based Government System (*Sistem Pemerintahan Berbasis Elektronik*/SPBE) and Law Number 13 of 2022 concerning the Second Amendment to Law Number 12 of 2011 concerning the Formation of Legislation. Meanwhile, secondary legal materials consist of legal literature, scientific journals, research results, articles, and the views of legal and technology experts related to the application and integration of digital technology in the national legislative process.

This study uses a descriptive qualitative approach to describe and analyze in depth how digital technology is integrated into the legislative process. This approach focuses on the extent to which existing legal instruments accommodate technological innovation in the modern legislative process. Furthermore, this study employs a conceptual approach to review legal theories and the concept of digital transformation within the legal system, as well as a statutory approach to assess the suitability of positive legal norms to the dynamics of technological development and the need for digitalization in the drafting of legislation in Indonesia.

C. DISCUSSION

1. Legal Basis for the Integration of Digital Technology in the Formation of Legislation

Law Number 13 of 2022 expressly regulates the use of information technology in the process of formulating laws and regulations.[7] Article 97B

[7] Indiyastuti Ramadhani, "Politik Hukum Pembentukan dan Penerapan Undang-Undang Nomor 11 Tahun 2008 Tentang Informasi dan Transaksi Elektronik," *UNES Law Review* 6, no. 1 (2023): 3928. See too, A. Khaerunnisa Malkab, and A. Asriati, "Legal Analysis of Electronic Signatures Under Indonesia's Law No. 11 of 2008 on Electronic Information and Transactions." *Golden Ratio of Law and Social Policy Review* 4, no. 2 (2025): 173; Devi Tri Indriasari, and Ade Armando, "The Governance of Information Technology and Deliberative Democracy: Study of The Law on Information and Electronic Transactions (ITE)," *Eduvest-Journal of Universal Studies* 3, no. 5 (2023): 896.

paragraph (1) stipulates that regulations can be drafted electronically using an integrated information system. Furthermore, Article 97B paragraphs (4) and (5) emphasize that electronically drafted legislation has the same legal force as conventionally drafted regulations. This provision serves as an important legal basis for the implementation of digitalization in the legislative process, as it legitimizes the use of information technology at every stage of drafting, discussing, and promulgating regulations, while also strengthening the principles of efficiency, transparency, and accountability in the national legal system.[8]

Article 5, letter g, of Law Number 13 of 2022 stipulates that every process of formulating legislation must be carried out transparently and openly to all levels of society. This provision reflects the importance of the principle of openness in the national legislative system to ensure public access to the law-making process.[9] Furthermore, Article 96 paragraphs (1)-(4) regulate in detail regarding public participation, which includes the public's right to provide input both verbally and in writing, including through online and offline mechanisms. This article also emphasizes the obligation of regulatory makers to provide adequate access to information and facilitate public participation, especially for parties affected by the policy, so that the legislative process becomes more inclusive, democratic, and accountable.[10]

The provisions in Article 5 letter g and Article 96 paragraphs (1)-(4) of Law Number 13 of 2022 are in line with the principles of good governance, particularly in the aspects of transparency, accountability, public participation, and the effectiveness of legal policies. The application of the principles of openness and public participation in the formation of laws and regulations ensures that the legislative process runs democratically and can be monitored by the public. This strengthens legal legitimacy and prevents abuse of authority. In addition, regulations regarding the use of information technology in providing access and accommodating public input support legislative

[8] Erlangga Zakaria, "Penerapan Omnibus Law Dalam Sistem Legislasi Nasional Menurut Undang-Undang Nomor 13 Tahun 2022," *Innovative: Journal of Social Science Research* 3, no. 3 (2023): 10723. See too, Mykhailo Baimuratov, Boris Kofman, Denis Bobrovnik, Serhii Zytsyk, and Tetiana Hrekul-Kovalyk, "The law and technology: a study on the impact of modern digital technologies on the legal system and its regulation," *Lex Humana (ISSN 2175-0947)* 15, no. 4 (2023): 147; Mastorat, Atma Suganda, and Md Shodiq, "Digitalization of The Formation and Testing of Laws and Regulations in Indonesia," *Jurnal Indonesia Sosial Sains* 5, no. 02 (2024): 277.

[9] Mastorat, Atma Suganda, and Md Shodiq, "Digitalization of The Formation and Testing of Laws and Regulations in Indonesia," *Jurnal Indonesia Sosial Sains* 5, no. 02 (2024): 279.

[10] Abdul Rahman Toyi, and Elmira Zachra Putri Hamidun, "Establishing Legal Certainty in the Digital Era: Challenges and Solutions," *Estudiante Law Journal* 7, no. 2 (2025): 234.

efficiency, as it enables cross-institutional coordination, accelerates the drafting process, and reduces bureaucratic obstacles.[11]

Law Number 13 of 2022 provides a strong legal basis for the digitalization of all stages of the formation of legislation, from planning, drafting, discussion, ratification, to promulgation.[12] By regulating the electronic creation of regulations, this law legitimizes the use of information technology in every legislative process, including the use of legal information systems and their integration within the SPBE framework. This digitalization aims to increase efficiency, transparency, and public participation, while ensuring that all legal documents are securely and authentically documented in digital format.[13]

2. Implementation of the Digital Legislation System in Indonesia

The implementation of a digital legislation system in Indonesia is a concrete manifestation of Law Number 13 of 2022, which is integrated with the SPBE as stipulated in Presidential Decree Number 95 of 2018. This integration is realized through the development of a legislative information system connected to the government's integrated service portal, enabling the legislative process to run digitally and coordinated across agencies.[14] Furthermore, the use of SPBE infrastructure, such as data centers and cloud computing, strengthens the security, efficiency, and connectivity of legal data between institutions. This implementation is also supported by the implementation of SPBE-based Public Service Standards, which aim to increase speed, transparency, and accountability in the preparation and publication of laws and regulations in Indonesia.[15]

In the implementation of the digital legislation system in Indonesia, several key institutions play a vital role in implementing and coordinating the integration of digital technology into the legislative drafting process. The Ministry of Law and Human Rights (*Kementerian Hukum dan Hak Asasi*

[11] Indriati Amarini, Yusuf Saefudin, Ika Ariani Kartini, Marsitiningsih Marsitiningsih, and Noorfajri Ismail, "Digital transformation: creating an effective and efficient court in Indonesia," *Legality: Jurnal Ilmiah Hukum* 31, no. 2 (2023): 269.

[12] Indriati Amarini, Yusuf Saefudin, Ika Ariani Kartini, Marsitiningsih Marsitiningsih, and Noorfajri Ismail, "Digital transformation: creating an effective and efficient court in Indonesia," *Legality: Jurnal Ilmiah Hukum* 31, no. 2 (2023): 278.

[13] Yhannu Setyawan, Anna Erliyana, Edmon Makarim, Fitriani Ahlan Sjarif, Lia Riesta Dewi, and Ahmad Novindri Aji Sukma. "Digital Government Post-Reform in Indonesia: Normative Developments and Implementation by State Organizing Institutions," *Law Reform: Jurnal Pembaharuan Hukum* 21, no. 1 (2025): 160.

[14] Saru Arifin, "Post-Pandemic Legislation in Indonesia: A Virtual Platform for Future Legislative Options?" *International Journal of Parliamentary Studies* 2, no. 2 (2022): 246.

[15] Ichsan Anwary, "The Role of Public Administration in combating cybercrime: An Analysis of the Legal Framework in Indonesia," *International Journal of Cyber Criminology* 16, no. 2 (2022): 219. See too, Heru Setiawan, I. Gusti Ayu Ketut Rachmi Handayani, M. Guntur Hamzah, and Hilaire Tegnan, "Digitalization of legal transformation on judicial review in the constitutional court," *Journal of Human Rights, Culture and Legal System* 4, no. 2 (2024): 270.

Manusia/Kemenkumham) serves as the primary coordinator in managing the legislative information system and guaranteeing the harmonization of regulations and electronic enactments through the Directorate General of Legislation. The Secretariat General of the House of Representatives (*Dewan Perwakilan Rakyat Republik Indonesia*/DPR RI) is responsible for aspects of digital legislative deliberations, including the digitization of academic papers, draft laws, and documentation of meeting results and legislative decisions. The Ministry of Administrative and Bureaucratic Reform (*Kementerian Administrasi dan Reformasi Birokrasi*/KemenPANRB) plays a role in establishing Electronic-Based Government System policies and standards, ensuring that digital governance supports efficiency and accountability in the legislative process.[16]

The implementation of digital systems in the development of legislation has had a significant positive impact on increasing transparency and facilitating public access to legal documents. Through digitalization, the legislative process can be openly followed by the public, from the planning stage to enactment. Information regarding draft regulations, discussion results, and final drafts can be easily accessed through the official government portal.[17] Furthermore, digital systems enable the public to monitor the legislative process in real time and provide online feedback, thereby enhancing the accountability of regulatory bodies. Digitization also accelerates the dissemination of legal information, reduces bureaucratic hurdles, and ensures that every legal document is securely and authentically documented.[18]

3. Challenges and Legal Implications of Digitalizing the Legislative Process

The paradigm shift in regulation-making from a manual to a digital system marks a major transformation in legal governance in Indonesia. Previously, the entire legislative process was conducted conventionally through physical documents, face-to-face meetings, and manual filing, which required significant time and resources. Now, through the application of digital technology, every stage of regulation-making, from planning and drafting to deliberation and enactment, can be conducted electronically with the support

[16] Muhammad Rhogust, "Legal Framework for Cybersecurity in the Digital Economy: Challenges and Prospects for Indonesia," *Journal of Law, Social Science and Humanities* 1, no. 2 (2024): 170. See too, Dorota Habrat, "Legal challenges of digitalization and automation in the context of Industry 4.0," *Procedia Manufacturing* 51 (2020): 945; Ikhtiyor Djuraev, Azim Baratov, Shokhjakhon Khujayev, Iroda Yakubova, Mokhichekhra Rakhmonova, Bobur Mukumov, and Nodirakhon Abdurakhmanova, "The impact of digitization on legal systems in developing countries," *Qubahan Academic Journal* 5, no. 1 (2025): 88.

[17] Nataline Setyowati, Pujiyono Suwadi, and Yudho Taruno Muryanto, "Electronic Court in Indonesia: Challenges and Concerns in the Development of Responsive Law Reform," In *International Conference On Law, Economic & Good Governance (IC-LAW 2023)*, (Dordrecht: Atlantis Press, 2024), 176.

[18] Diva Pitaloka, "E-court: A digital disruption in law enforcement and its impact on judicial efficiency in Indonesia," *Ex Aequo Et Bono Journal of Law* 2, no. 2 (2025): 85.

of an integrated system. This change increases the efficiency and accuracy of the legal process, while also strengthening the principles of transparency and public participation. Digitization enables open access to legal documents, accelerates inter-institutional coordination, and ensures that every legislative step is securely documented and electronically verified.[19]

However, the implementation of a digital legislation system still faces several obstacles that require attention. One major obstacle is the gap in digital infrastructure between regions and government agencies, which results in unequal access to the electronic legislation system. Furthermore, the quality of human resources in the digital law sector remains limited, particularly in terms of technical skills, digital literacy, and understanding of data security and legal information system management. Another obstacle lies in the suboptimal interoperability between systems across regulatory agencies, resulting in ineffective data exchange and digital coordination. This situation hinders full integration between legal information systems and the SPBE platform, thus preventing the primary goals of efficiency and transparency in digital legislation from being fully achieved.

Legal reform in the digital era demands adjustments to policies and regulations to ensure the effective, secure, and sustainable operation of technology-based legislative systems. One key requirement is the establishment of national standards for digital legislation that govern the format, mechanisms, and interoperability of legal documents between institutions. These standards are crucial to ensure process uniformity, system compatibility, and ease of data exchange between the Ministry of Law and Human Rights, the House of Representatives (*Dewan Perwakilan Rakyat*/DPR), and other institutions involved in the formulation of legislation.[20]

Furthermore, implementing regulations governing the security and interoperability of the system are needed to protect legal data from cyber threats and ensure information integrity at every stage of digital legislation. These regulations also play a role in establishing institutional responsibilities for system management, maintenance, and updates. Furthermore, digital law reform must include the establishment of digital legal ethics and an audit

[19] Yuwinda Sari Pujianti, Indra Perwira, and Inna Junaenah, "The Influence of The Phrase'Online'on the Fulfillment of Public Participation in the Formation of Laws Through the DPR Legislative Information System," *JUSTISI* 10, no. 3 (2024): 790. See too, Lita Tyesta Addy Listya Wardhani, Muhammad Dzikirullah H. Noho, and Aga Natalis, "The adoption of various legal systems in Indonesia: an effort to initiate the prismatic Mixed Legal Systems," *Cogent Social Sciences* 8, no. 1 (2022): 2104.

[20] Bambang Sugeng Ariadi Subagyono, Mochamad Kevin Romadhona, Zahry Vandawati Chumaida, Bambang Suheryadi, and Noureldin Samy Elkhashab. "Can Indonesia's laws keep up? Protecting consumer rights in digital transactions," *Journal of Law and Legal Reform* 5, no. 3 (2024): 12. See too, Hary Abdul Hakim, Chrisna Bagus Edhita Praja, and Sung Ming-His, "AI in law: Urgency of the implementation of artificial intelligence on law enforcement in Indonesia," *Jurnal Hukum Novelty* 14, no. 1 (2023): 125.

mechanism for electronic legislation systems. Digital legal ethics serve as moral and professional guidelines for law enforcement officials in the responsible use of technology, while system audits are needed to assess the effectiveness, transparency, and accountability of the digital legislation system to ensure it remains in line with the principles of good governance.[21]

D. CONCLUSION

Thus, it can be concluded that the integration of digital technology in the formation of legislation in Indonesia, as stipulated in Law Number 13 of 2022 concerning the Second Amendment to Law Number 12 of 2011, is a strategic step towards modernizing the national legal system. This law provides a strong legal basis for the digitization of all stages of legislation, from planning, drafting, discussion, ratification, to enactment, while strengthening the principles of good governance by increasing transparency, efficiency, and public access to the legal formation process. However, the successful implementation of a digital legislation system still faces various obstacles, such as technological infrastructure gaps, limited human resources in the field of digital law, and suboptimal interoperability between government systems. Therefore, legal reform is needed, including the establishment of national standards for digital legislation, security regulations and system interoperability, and the establishment of digital legal ethics and electronic audit mechanisms. The digitalization of legislation is not only a technological transformation, but also a paradigm shift in legal governance that demands synergy between institutions, a commitment to transparency, and continuous innovation to realize a legal system that is responsive, inclusive, and adaptive to developments in the digital era.

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[21] Lita Tyesta Addy Listya Wardhani, and Aga Natalis, "Assessing state commitment to gender equality: A feminist legal perspective on legislative processes in Indonesia and beyond," *Multidisciplinary Reviews* 7, no. 6 (2024): 2024126. See too, Nikita Molchakov, Ekaterina Ryzhkova, and Evgeniya Ryzhkova, "Problems of Legal Regulation of Digitalization (the Case of AI)," In *Digital International Relations*, (Singapore: Springer Nature Singapore, 2023), 112; Ursula Plesner, and Lise Justesen, "The double darkness of digitalization: Shaping digital-ready legislation to reshape the conditions for public-sector digitalization," *Science, Technology, & Human Values* 47, no. 1 (2022): 149.

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