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Juridical Analysis of Digital Transformation in Public Healthcare Services in Indonesia: Towards an Inclusive Health System

Emirza Nur Wicaksono
Law Program, Faculty of Law, Social and Political Sciences, Universitas Terbuka
Indonesia
e-mail: emirza.wicaksono@gmail.com

Abstract

Digital transformation in public healthcare services is a response to the growing need for efficiency, accessibility, and quality in healthcare. Innovations such as electronic medical records, telemedicine, and digital health applications have shifted the paradigm of traditional healthcare services towards a more integrated and technology-driven approach. However, this development poses significant legal challenges, particularly concerning personal data protection, the right to health, equitable access, and service accountability. This research aims to analyze the legal framework governing digital transformation in Indonesia's healthcare sector, evaluate its alignment with human rights and public health principles, and identify regulatory gaps that could hinder the achievement of an inclusive healthcare system. The method employed is a normative juridical approach, analyzing national legislation and international legal instruments related to health and information technology. The analysis reveals that despite the existence of foundational regulations, such as Law Number 1 of 2024 concerning the Second Amendment to Law Number 11 of 2008 concerning Information and Electronic Transactions, and Law Number 17 of 2023 concerning Health, there is still a need for regulatory harmonization and implementing policies focused on digital justice and the protection of vulnerable groups. This research recommends the establishment of a comprehensive legal framework that is adaptive to technological advancements and guarantees the constitutional right of every citizen to inclusive and equitable healthcare services.

Keywords: *Digital Health, Personal Data Protection, Public Healthcare Services, Telemedicine*

INTRODUCTION

The rapid advancement of information and communication technology (ICT) over the last decade has fundamentally reshaped various facets of human life, including the healthcare sector. Digital transformation is no longer an option but a necessity for providing swift, effective, and efficient public services [1]. In healthcare, the implementation of digital technologies such as electronic medical records, telemedicine, digital health consultation applications, and hospital information systems has ushered in a new paradigm for medical services. The digitalization of healthcare offers numerous benefits, including enhanced access to healthcare services, administrative efficiencies, and more accurate collection and processing of health data. This is particularly crucial in the context of developing nations like Indonesia, which grapples with geographical challenges, limited medical personnel resources, and uneven distribution of healthcare facilities [2]. However, this digital transformation also introduces complex legal challenges. The implementation of digital technology in healthcare raises juridical issues such as the protection of patient personal data, the validity of online healthcare services, legal

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responsibility in telemedicine practice, and the potential for discrimination against vulnerable groups lacking technological access [3].

Within the national legal framework, various regulations have addressed aspects of digitalization, including Law Number 1 of 2024 concerning the Second Amendment to Law Number 11 of 2008 concerning Information and Electronic Transactions (ITE), Law Number 27 of 2022 concerning Personal Data Protection, and Law Number 17 of 2023 concerning Health. Nevertheless, there exist normative gaps and disharmonies among these regulations, resulting in suboptimal legal protection for users of digital health services. Furthermore, on-the-ground implementation frequently encounters institutional and legal cultural obstacles that are not yet prepared for digital change. Many healthcare providers, particularly in remote areas, lack adequate infrastructure and digital literacy. This has the potential to widen the gap in healthcare access between urban and rural communities [4].

Moreover, inclusivity is a critical issue in the digital transformation of healthcare services. A robust healthcare system must be capable of reaching all segments of society without discrimination. Therefore, legal frameworks must ensure that digital transformation not only benefits technologically proficient segments of society but also guarantees the right to health for marginalized groups such as the elderly, persons with disabilities, and communities in 3T (underdeveloped, frontier, and outermost) regions. Digital transformation also necessitates a paradigm shift in legal understanding of the relationship between patients and medical professionals, including mechanisms for informed consent, data security, and the enforcement of legal liability within digital-based systems [4][5]. Without clear and firm regulations, this transformation risks causing legal harm to both patients and medical professionals.

Beyond national law, international legal instruments such as the Universal Declaration of Human Rights and the International Covenant on Economic, Social and Cultural Rights also emphasize that the right to health is an integral part of human rights. States have an obligation to ensure the availability, accessibility, acceptability, and quality of healthcare services, including in the digital context [6]. Therefore, a comprehensive juridical study is essential to assess the conformity of national regulations with the principles of international law and technological advancements. The normative approach in this research will focus on evaluating existing legislation and the need for legal reforms to support an inclusive and equitable digital healthcare system.

METHODS

This research employs a normative juridical method, an approach that starts from legal norms found in statutory regulations, legal doctrines, legal principles, and relevant international legal instruments. This method aims to systematically examine and analyze the legal framework governing digital transformation in public healthcare services in Indonesia from the perspective of inclusivity and justice. In the normative juridical approach, law is viewed as a norm or rule applicable in society, thus the object of study comprises legal materials, which consist of:

- Primary legal materials, namely laws and regulations that directly or indirectly regulate the digitalization of healthcare services, such as:
    - Law Number 17 of 2023 concerning Health
    - Law Number 1 of 2024 concerning the Second Amendment to Law Number 11 of 2008 concerning Information and Electronic Transactions

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  - Law Number 27 of 2022 concerning Personal Data Protection
  - Minister of Health Regulations, Presidential Regulations, and other implementing regulations
  - International legal instruments such as the Universal Declaration of Human Rights (1948) and the International Covenant on Economic, Social and Cultural Rights (1966)
- Secondary legal materials, comprising literature, scientific articles, previous research findings, opinions of legal experts, and reports from national and international health organizations (e.g., WHO) that provide interpretations of positive legal provisions.
- Tertiary legal materials, which provide additional information such as legal dictionaries, encyclopedias, legal glossaries, and other relevant supporting sources.

Data analysis is conducted using a descriptive-analytical technique, which involves describing, classifying, and examining existing legal provisions, as well as evaluating their effectiveness and conformity with legal principles, particularly the principles of inclusivity, non-discrimination, and the right to health. Additionally, a conceptual approach is utilized to examine legal concepts developing within the practice of digital transformation, and a comparative approach, if necessary, by comparing legal practices from other countries more advanced in the implementation of digital health [7].

RESULTS AND DISCUSSION

a. Legal Framework Governing Digital Transformation in Public Healthcare Services in Indonesia

The right to health is an integral part of human rights guaranteed by the constitution and various international legal instruments. In the Indonesian context, this right is explicitly regulated in Article 28H Paragraph [1] and Article 34 Paragraph [3] of the 1945 Constitution. With the advancement of digital technology, healthcare services have undergone a significant transformation, necessitating the legal system's adaptation to ensure inclusivity and justice in access to services. Digital transformation in healthcare services is part of efforts to modernize the health system to improve access, efficiency, and quality of services. In the Indonesian context, this transformation requires a legal framework that not only encourages innovation but also ensures the protection of citizens' rights, particularly the right to health and privacy. Therefore, regulations governing healthcare digitalization must be comprehensive, integrated, and based on the principle of inclusivity [8].

Law Number 17 of 2023 concerning Health stands as the primary regulation governing all aspects of the national health system's administration, including the utilization of information and communication technology in healthcare services. This law emphasizes the importance of integrated health information systems, the implementation of telemedicine, and the digitalization of medical records as part of efforts to transform technology-based healthcare services. Law No. 17 of 2023 also regulates electronic health data recording systems and mandates healthcare facilities to manage patient data while ensuring confidentiality, integrity, and data accountability. This indicates that digitalization is not only aimed at efficiency but also requires strong legal responsibility in terms of personal data protection. As a complement, Law Number 27 of 2022 concerning Personal Data Protection (PDP Law) is highly relevant in the context of healthcare's

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digital transformation. This law classifies health data as specific personal data, meaning it must receive stricter legal protection. In digital services such as health applications or telemedicine, operators are obliged to obtain explicit consent from patients to process their data. The PDP Law also stipulates obligations for data controllers (including hospitals, clinics, or digital health platforms) to ensure data security, report data breach incidents, and guarantee the rights of data subjects, including the right to access, correct, or delete their personal data [9]. This provides a crucial legal framework for preventing data misuse within the digital health ecosystem. Although the PDP Law regulates the basic principles of data protection, its implementation still faces structural challenges. Many healthcare facilities in remote areas still lack adequate digital infrastructure, let alone data security systems that comply with standards. Consequently, communities in economically and technologically vulnerable positions risk not only being left behind but also being exposed to rights violations [10][11].

Furthermore, Law Number 1 of 2024 concerning the Second Amendment to Law Number 11 of 2008 concerning Information and Electronic Transactions (ITE Law) strengthens the legal aspects of electronic systems and transactions in the public and private sectors, including healthcare. In this latest revision, emphasis is placed on strengthening digital rights, adapting to technological developments, and enhancing digital consumer protection. The revised ITE Law provides legal legitimacy for the provision of online-based services such as online medical consultations, the distribution of health information through applications, and the use of electronic systems in hospital and health insurance management. Nevertheless, technical regulations are still needed to bridge the gap between the general provisions in the ITE Law and specific practices in the healthcare sector. There is no specific article regulating the principle of digital non-discrimination or the obligation of service providers to ensure equal access to health technology. This means that the protection of inclusive health rights still depends on varied implementing policies across regions [12][13].

Although these three laws (Health Law, PDP Law, and the revised ITE Law) have established a basic framework for digital transformation in healthcare services, technical regulations at the implementing regulation level are still not fully synchronized. For example, there are no national standards governing interoperability among digital healthcare platforms, and no specific regulations governing digital inclusivity for persons with disabilities and remote communities. Additionally, regulations regarding legal responsibility in cases of digital malpractice or electronic system failures in the healthcare sector are still minimal. The lack of integration among regulations also complicates the implementation of the principle of substantive justice in the digital health system. For instance, there is no direct integration between the National Health Insurance (JKN) system and telemedicine systems, meaning many digital services are commercial and only accessible to those who are financially capable. This reinforces exclusivity rather than inclusivity of services. Furthermore, the absence of explicit regulations regarding accessibility for persons with digital disabilities indicates a lack of regulatory awareness regarding inclusion issues. For example, there are no provisions mandating digital healthcare platforms to have accessible features such as screen readers, digital sign language, or disability-friendly displays. However, the principle of inclusion requires that all groups can utilize technology equally. Moreover, there is no specific mechanism for dispute resolution or complaints specifically for digital healthcare service cases, leading to legal uncertainty for patients and medical professionals [8][14]. From an international law perspective, Indonesia, as a state party

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to the International Covenant on Economic, Social and Cultural Rights (ICESCR), has an obligation to guarantee the right to health that is available, accessible, acceptable, and of quality (AAAQ). If the digitalization of services instead widens inequalities, then the state may be deemed to have failed to fulfill its legal obligations regarding the principles of equality and non-discrimination.

b. Juridical Challenges and Issues Arising from the Implementation of Digital Healthcare Services, Particularly Regarding Personal Data Protection, Accessibility, and Legal Accountability

The implementation of digital healthcare services in Indonesia, while promising advancements in efficiency and reach, also presents various complex juridical challenges. In the context of digital transformation, these challenges primarily relate to the protection of patient personal data, ensuring accessibility for all societal groups, and legal accountability for potential errors in technology-based services. One of the most serious challenges is the protection of patient personal data. Health data is categorized as sensitive personal data under Law Number 27 of 2022 concerning Personal Data Protection (PDP Law). However, in practice, many digital healthcare providers, including mobile applications and online platforms, have not fully complied with the principles of lawful, transparent, and responsible data processing. Problems primarily arise because not all healthcare facilities possess adequate data security standards, both in terms of technology and internal policies. Weak data storage systems create the potential for leaks, hacking, and even data misuse by third parties for commercial interests. This violates patients' privacy rights and erodes trust in digital healthcare systems.

From the aspect of accessibility, juridical challenges emerge because regulations do not fully guarantee that digital healthcare services are fairly accessible to all segments of society. Communities in 3T (underdeveloped, frontier, and outermost) regions, persons with disabilities, and the elderly often experience limitations in accessing digital services due to a lack of infrastructure, digital literacy, and the absence of accessible features in healthcare applications. Although Law Number 17 of 2023 concerning Health acknowledges the importance of integrated health information systems, there are no explicit provisions mandating service providers to meet universal accessibility standards. This leads to indirect discrimination that can violate the principle of equality in the right to health.

Furthermore, legal challenges also arise in terms of legal accountability for acts or omissions in digital healthcare services, particularly in telemedicine practices. When diagnostic errors or system failures cause delayed treatment, there is no clarity regarding who is legally responsible whether it's the doctor, application provider, hospital, or electronic system operator. The issue of accountability becomes even more complex when digital services involve foreign parties or cross-jurisdictions. The absence of specific legal regulations concerning cross-border dispute resolution in the digital health sector makes patients vulnerable to legal difficulties when dealing with entities outside Indonesia's legal jurisdiction [15][16].

From a regulatory standpoint, most existing regulations remain sectoral and lack integration. For instance, while the PDP Law generally addresses personal data, it doesn't specifically adapt to the unique characteristics of health data. Similarly, the ITE Law and its derivative regulations do not yet comprehensively detail the standards and procedures for securing electronic systems within the healthcare context. Another significant issue is the weakness in law enforcement and

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complaint mechanisms within digital health services. There is currently no dedicated oversight body specifically monitoring digital health practices comprehensively. Consequently, when rights violations or damages occur due to the use of digital services, the public faces difficulties in finding quick and effective resolution pathways [11].

Therefore, despite Indonesia possessing several fundamental legal frameworks supporting the digitalization of healthcare services, various juridical challenges continue to impede the implementation of safe, inclusive, and accountable services. This necessitates legal reform, strengthening the capacity of oversight institutions, and formulating binding operational standards and ethical guidelines for digital services that encompass all actors within the digital health system.

c. Conformity of Indonesian National Law with International Legal Principles Guaranteeing the Right to Health in the Digital Era

The right to health is a universally recognized human right enshrined in various international legal instruments. One of the most relevant is the International Covenant on Economic, Social and Cultural Rights (ICESCR), where Article 12 recognizes the right of everyone to the enjoyment of the highest attainable standard of physical and mental health. As a state party, Indonesia has a legal obligation to ensure the fulfillment of this right, including in the context of the digitalization of healthcare services. The primary principles used by the UN Committee on Economic, Social and Cultural Rights to assess the implementation of the right to health are the AAAQ framework: availability, accessibility, acceptability, and quality. This framework applies not only to conventional services but also to digital health systems [5].

Examining the aspect of availability, Indonesia has adopted a progressive legal approach through Law Number 17 of 2023 concerning Health, which acknowledges the role of information technology in supporting the national healthcare service system. The digitalization of medical records, national health information systems, and telemedicine are part of efforts to increase the availability of services across all regions.

However, from the perspective of accessibility, national law has not yet fully aligned with international principles. The ICESCR emphasizes that healthcare services must be accessible to all groups without discrimination, including persons with disabilities, the poor, and those living in remote areas. In practice, limitations in digital infrastructure and the absence of regulations mandating digital healthcare services to be universally user-friendly mean that the principle of accessibility has not been fully achieved.

In terms of acceptability, this principle refers to the conformity of services with cultural values, patient confidentiality, and medical ethics. This is where the role of the Personal Data Protection Law (Law No. 27 of 2022) becomes crucial, as it provides legal protection for health data as sensitive data. In this context, national law is moving towards fulfilling international principles, although enforcement and implementation are still limited.

Meanwhile, the principle of quality requires that healthcare services, including digital ones, must be provided by trained professionals and utilize safe and effective tools. Indonesian national law has not explicitly regulated minimum quality standards for technology used in digital healthcare services, including the validity of telemedicine platforms, application certification, and the training of medical personnel in their use [6][20].

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The conformity between national and international law must also be viewed from the perspective of non-discrimination. International human rights instruments emphasize that states must avoid all forms of discrimination in the provision of healthcare services, including discrimination based on economic status, geography, gender, and digital literacy. Unfortunately, Indonesian national law still does not explicitly state the principle of digital non-discrimination in the context of healthcare services.

Besides the ICESCR, General Comment No. 14 from the UN Committee on the right to health emphasizes the importance of access to health information as part of this right. In this context, the latest revisions to the ITE Law (Law No. 1 of 2024) and the Health Law have indeed strengthened the electronic delivery of health information. However, there are no detailed regulations concerning the state's obligation to provide easily accessible and understandable information to all members of society. It should also be noted that international law emphasizes the principle of progressive realization, meaning that states can gradually fulfill the right to health according to available resources. However, this principle should not be used as an excuse for inaction. This implies that the state is still obliged to formulate concrete policies, including technical regulations, to ensure that digital transformation does not deepen existing inequalities [5][15].

d. Policy Recommendations and Legal Reforms to Realize an Inclusive, Adaptive, and Human Rights-Based Digital Healthcare Service System

Digital transformation in healthcare services must be oriented not only towards efficiency and innovation but also towards the fulfillment of human rights, especially the rights to health, privacy, and non-discrimination. Therefore, policies and legal reforms are needed to explicitly align the development of digital healthcare services with nationally and internationally recognized human rights principles [17].

1. First, the government needs to formulate specific regulations concerning digital healthcare services in the form of government regulations or presidential regulations. These should encompass comprehensive provisions ranging from definitions, service standards, patient protection, security systems, to legal accountability. Such regulations can integrate principles from the Health Law, PDP Law, and ITE Law to prevent overlaps or legal vacuums [14].
2. Second, national accessibility standards for all forms of digital healthcare services must be established. The government should mandate that every digital platform, whether state-owned or private, is required to meet accessibility standards for persons with disabilities, the elderly, and those with limited digital literacy. This can be stipulated in a Minister of Health Regulation or a National Standardization Agency (BSN) Regulation related to electronic health systems [16].
3. Third, strengthening the protection of patient personal data is a priority. Although the PDP Law generally regulates this, specific derivative regulations are needed to adapt to the context of healthcare services. These could address aspects such as the duration of electronic medical record storage, procedures for data transfer between healthcare facilities, and an explicit prohibition on the commercialization of health data without explicit patient consent [20].

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4. Fourth, the legal accountability system in digital healthcare services must be clarified. The government needs to establish a clear framework of responsibility among medical professionals, platform operators, and healthcare institutions in cases of legal violations, diagnostic errors, or digital system failures. This can be achieved through digital ethics guidelines for healthcare professionals established by the Indonesian Medical Council or the Ministry of Health [18].
5. Fifth, there is a need to strengthen oversight mechanisms and public complaint channels for digital healthcare services. The government can establish a special task force or an independent oversight body to monitor digital healthcare practices, including privacy violations, digital malpractice, and access disparities. This body could also serve as a liaison between the public, regulators, and service providers [20].
6. Sixth, affirmative action must be integrated into digital health policies. The state is obliged to provide facilities, subsidies, or technological support for vulnerable groups who are at risk of being digitally excluded, such as rural communities, minority groups, and individuals from low-income families. This could involve providing free telemedicine through community health centers (puskesmas) or mobile health services that reach remote areas [19].
7. Seventh, it is important for Indonesia to align national law with international standards, such as General Comment No. 14 from the ICESCR Committee and the AAAQ principles. This can be achieved by ratifying additional instruments, preparing periodic implementation reports, and explicitly referencing international principles in the drafting of domestic regulations in the digital health sector.
8. Eighth, legal reform must also involve broad public participation. The drafting of digital healthcare service regulations should involve healthcare professionals, patient organizations, persons with disabilities, academics, and the digital health private sector. This approach is crucial to ensure that regulations are inclusive, contextual, and effectively implementable across various regions [6].

Thus, legal and policy reforms in the field of digital healthcare services must be built upon a foundation of inclusivity, human rights protection, and accountability. Without clear, strong, and participatory regulations, digitalization risks becoming a new tool for exclusion in healthcare services. Conversely, with appropriate reforms, Indonesia can build a truly fair, equitable, and humane digital healthcare system for all citizens.

CONCLUSION

Digital transformation in public healthcare services in Indonesia presents significant opportunities to enhance the effectiveness, efficiency, and reach of healthcare, particularly for underserved communities. Juridically, the national legal framework has begun to adapt to technological advancements, as evidenced by Law Number 17 of 2023 concerning Health, Law Number 27 of 2022 concerning Personal Data Protection, and Law Number 1 of 2024 concerning Information and Electronic Transactions. However, existing regulations are not yet fully capable of guaranteeing an inclusive and equitable right to health in the context of digitalization. This is particularly true regarding accessibility for vulnerable groups, comprehensive personal data protection, and clear legal accountability in digital healthcare services. Furthermore, harmonization and synchronization among various regulations governing digital healthcare

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services need improvement to prevent overlaps and legal vacuums that could disadvantage the public.

To realize an inclusive, adaptive, and human rights-based digital healthcare service system, the government needs to undertake legal reforms by formulating specific, comprehensive regulations for digital healthcare services. These regulations should include universal accessibility standards and stringent health data protection. Strengthening the mechanisms for accountability and oversight of digital services is also crucial to maintain public trust and ensure service quality. Additionally, affirmative action policies must be implemented to bridge the digital divide, especially for communities in remote areas, persons with disabilities, and other vulnerable groups. Finally, the regulatory drafting process must involve various stakeholders to ensure that the resulting policies are inclusive, relevant, and effectively implementable. Through these steps, digital transformation in public healthcare services can genuinely become an instrument for fulfilling the right to health equitably and justly in Indonesia.

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