Legal Implications of Artificial Intelligence on Personal Data Protection in Indonesia: A Literature Analysis of UU Nomor 27 Tahun 2022

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ABSTRACT

The development of Artificial Intelligence (AI) in Indonesia has brought significant impacts on the economic, governmental, and legal sectors, particularly in the management of personal data. This study analyzes the legal implications of AI implementation on data protection based on UU No 27 Tahun 2022 concerning Personal Data Protection (PDP Law) using a normative juridical method and literature study. The findings indicate that although the PDP Law represents an important step in data protection, the regulation has not yet fully addressed AI-related challenges such as algorithmic bias, lack of transparency, and unclear legal accountability. Therefore, legal reforms are needed to be more adaptive, emphasizing transparency, accountability, and algorithmic fairness, as well as enhancing the capacity of public officials to ensure that AI utilization remains ethical and aligned with the values of Pancasila.

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Introduction

The development of Artificial Intelligence (AI) technology has brought significant changes to various aspects of human life, ranging from the economic, educational, and health sectors to public administration (Masrichah, 2023). This technology has the ability to process large volumes of data with high speed and efficiency, enabling the generation of analyses, decisions, and recommendations that can potentially enhance effectiveness and productivity across different sectors. Nevertheless, behind its many advantages, there are deep concerns related to security and personal data protection, as data constitutes a fundamental component in the operation of AI-based systems. By definition, this technology focuses on developing systems or machines capable of performing various tasks that typically require human intellectual abilities to complete (Nisa & Suwaidi, 2023).

In Indonesia, the use of AI continues to expand in line with the growth of big data, machine learning, and digital services based on user behavior analysis, where performance heavily depends on the quantity and quality of data used as samples (Liu et al., 2019). This condition presents new challenges in the legal field, particularly regarding the protection of individuals' privacy and personal data rights. The Indonesian government has sought to address these challenges through the enactment of UU No 27 Tahun 2022 on Personal Data Protection (PDP Law), which serves as a significant milestone in the national legal framework concerning the management, storage, and processing of personal data. This law also provides a legal foundation for supervision, sanctions, and accountability for both data controllers and processors.

However, the implementation of the PDP Law in the context of AI technology still faces several challenges. AI possesses characteristics distinct from conventional technologies, involving automated decision-making processes and adaptive learning (self-learning). These features raise legal concerns regarding algorithmic transparency, data control accountability, and potential discrimination due to algorithmic bias. Moreover, the absence of comprehensive technical guidelines for AI governance in Indonesia has led to overlaps between ethical principles and positive legal norms.

Previous studies relevant to this research include the work of Mufti et al. (2024), which discusses the importance of establishing regulations governing AI-based technologies. Their findings indicate that the rapid development of AI across various sectors—such as industry, health, and education—has given rise to legal and ethical issues not yet clearly regulated in Indonesia's legislation. Similarly, Kirana and Silalahi (2025) highlight the need for more responsive and technically grounded regulations to ensure that AI implementation proceeds fairly, transparently, and accountably. Meanwhile, Adela et al. (2025) emphasize that although regulations on personal data protection have been designed with strict provisions, the application of privacy principles in the context of AI must continue to be examined and adjusted in line with technological progress, ensuring that personal data protection remains both maximized and relevant to the evolving digital era.

Therefore, this study aims to analyze more deeply the legal implications of AI on personal data protection in Indonesia, particularly within the framework of UU No 27 Tahun 2022. The literature-based approach enables the researcher to identify perspectives, theories, and findings from previous studies while evaluating the extent to which the PDP Law can address the challenges arising from the implementation of AI technology. This analysis is expected to provide a more comprehensive understanding of the role of law in balancing technological innovation with the protection of citizens' fundamental rights in the digital age.

Method

This study employs a qualitative method with a normative juridical approach aimed at analyzing the legal implications of Artificial Intelligence (AI) on personal data protection based on UU No 27 Tahun 2022. The research is descriptive-analytical in nature, with research subjects consisting of primary legal materials (legislation), secondary legal materials (books, journals, and scholarly articles), and tertiary legal materials (legal dictionaries and encyclopedias). Data were collected through a literature review of relevant national legal sources. The data were then analyzed qualitatively using content analysis to interpret the literature and draw conclusions regarding the role and effectiveness of the law in addressing AI-related challenges to personal data protection in Indonesia.

Result and Discussion

Artificial Intelligence (AI) and the Complexity of Legal Challenges

Based on a literature review of various legal sources and previous studies, it was found that the implementation of Artificial Intelligence (AI) in Indonesia presents increasingly complex legal challenges, particularly in the context of personal data protection as one of the fundamental rights of citizens. The growing use of AI in both the public and private sectors is often carried out without clear mechanisms for algorithmic transparency and accountability. This condition creates risks of data breaches, misuse of personal information, and discrimination caused by algorithmic bias in automated decision-making processes. If the data used to train algorithms fail to reflect diversity or contain bias, the resulting outputs may be discriminatory toward certain groups (Faisal, 2025).

Most AI systems in Indonesia still operate using data collection and processing models that do not fully comply with the data protection principles stipulated in UU No 27 Tahun 2022 on Personal Data Protection. Key principles such as prudence, purpose limitation, data controller accountability, and the rights of data subjects to know and control the use of their personal information are often overlooked in practice. For instance, many digital applications and AI-based services in Indonesia request excessive access to user data without providing clear information about the purpose of processing. AI systems often rely on large datasets that include sensitive personal information such as biometric data, medical records, financial information, and individuals' digital behavior or activity traces (Samsumar et al., 2025).

Another significant challenge concerns accountability when errors occur in the use of AI-based systems. In legal contexts, it is essential to determine who bears responsibility for decisions made by AI systems—whether it lies with the technology developer, the operator, or the government institution utilizing the system. Clarity on this matter is crucial to avoid legal vacuums in assigning responsibility when AI causes harm or violates individual rights (Sastria et al., 2024).

In Indonesia's criminal law system, legal subject status remains limited to individuals and corporations, meaning there is still no clear provision on who should be held liable when AI is involved in criminal acts. Some legal scholars propose categorizing AI as a partial legal subject—an entity that possesses certain rights and obligations but cannot be held directly criminally responsible. If AI commits a legal violation, the responsibility could be transferred to developers or users acting as the AI system's "legal guardians," adopting the in loco parentis concept, where AI is considered a derivative entity while developers or users serve as the parties holding legal authority and responsibility for its actions (Amboro & Komarhana, 2021).

As a nation striving to strengthen its digital ecosystem, Indonesia faces strategic challenges in balancing rapid technological innovation with adaptive and visionary regulatory preparedness. The digital transformation driven by AI advancement requires a legal framework that not only responds to negative impacts but also proactively anticipates potential risks while promoting ethical and sustainable innovation.

An ideal legal policy in this context should include mechanisms to prevent data misuse, protect individuals' privacy rights, and limit discriminatory practices that may arise from AI algorithms. Furthermore, the formulation of AI regulations based on transparency, accountability, and algorithmic fairness is crucial to maintaining public trust in digital technology utilization. Beyond regulatory measures, institutional strengthening is equally important. The government must reinforce the capacity and authority of the national data protection agency to conduct technical audits and oversight of AI implementation in both public and private sectors. Additionally, establishing efficient public complaint mechanisms would enable citizens to actively participate in safeguarding data integrity and security.

Ethical Guidelines and Technical Standards for the Use of Artificial Intelligence

The utilization of Artificial Intelligence (AI) in modern legal systems offers tremendous opportunities to enhance effectiveness, accuracy, and efficiency in law enforcement and judicial processes. AI can play a significant role in assisting law enforcement agencies in detecting crimes more rapidly, analyzing criminal patterns using big data, and processing digital evidence with high precision. This technology also has the potential to reduce administrative burdens in judicial institutions through the automation of documentation, case classification, and jurisprudence tracing to support legal decision-making.

However, the application of AI in the legal sector must adhere to ethical and constitutional principles that safeguard justice and human rights. The use of algorithms in law enforcement should consider substantive justice, not merely procedural efficiency. Without adequate supervision, AI systems risk generating algorithmic biases that may lead to discrimination, such as in suspect identification or risk-based sentencing.

The implementation of AI must also align with the foundational values of Pancasila, particularly the principles of social justice and humanitarianism. These values serve as a normative foundation for developing ethical frameworks in AI deployment, ensuring that the technology functions not merely as a technical instrument for efficiency and innovation but also as a social and moral tool that upholds human dignity and responsibility in all applications (Wijayanti et al., 2025).

Moreover, the use of AI in legal contexts must uphold principles of algorithmic transparency and accountability so that every decision or recommendation produced by intelligent systems can be traced, verified, and legally justified. In this regard, the human role as the ultimate decision-maker cannot be replaced by machines, as the principles of justice and humanity that underlie the legal system cannot be reduced to computational logic alone.

To ensure that AI use remains consistent with legal and ethical standards, a clear regulatory framework is required, including guidelines on algorithmic authority limits, independent auditing mechanisms for AI systems, and privacy and personal data protection measures in all digital legal processes. This approach aligns with the spirit of the rule of law and Indonesia's legal principles, which prioritize justice, transparency, and moral responsibility as the foundation for technological integration in the legal system.

Implications of the Personal Data Protection Law for the Complexity of Artificial Intelligence (AI) Issues.

UU No 27 Tahun 2022 on Personal Data Protection (PDP Law) was enacted in response to the growing need for personal data protection in Indonesia. This regulation aims to provide legal certainty for the public, establish ethical and responsible governance and processing of personal data, and prevent misuse of individual information by unauthorized parties. The law is expected to foster a safer, more transparent, and trustworthy digital ecosystem, thereby enhancing public confidence in Indonesia's digital transformation (Satria & Yusuf, 2024).

However, challenges persist due to the lack of awareness about the importance of personal data protection and the absence of effective oversight mechanisms. Many entities— such as technology companies, government institutions, and businesses—collect and process user data without sufficient transparency regarding its purpose and usage. This situation creates legal uncertainty for individuals whose data is processed and increases the risk of misuse by irresponsible parties. The problem is further exacerbated by the public's limited understanding of their rights over personal data, including the rights to access, correct, and request deletion of their information. Consequently, many individuals remain unaware of how their data should be legally protected, rendering them vulnerable in an increasingly complex digital ecosystem (Mahameru et al., 2023).

The misuse of AI not only affects legal aspects but also threatens privacy, data integrity, and public trust in the digital ecosystem. For instance, using someone's personal data to create deepfake content without consent constitutes a serious privacy violation. Current criminal law policies do not explicitly regulate AI-related offenses such as deepfakes, creating a significant legal gap amid the growing use of such technologies. As a result, victims of digital defamation often lack adequate legal protection, while perpetrators exploit regulatory loopholes to evade accountability (Frensh).

Concerns regarding the rapid development of AI and the absence of clear legal frameworks are well-founded. Prominent figures such as Stephen Hawking, Steve Wozniak, and Elon Musk have warned that uncontrolled AI advancement could pose serious threats to humanity's survival, especially if developed without proper oversight and regulation (Mikelsten, Teigens, & Skalfist, 2022).

Although Indonesia has enacted UU No 27 Tahun 2022 on Personal Data Protection (PDP Law), the regulation has not yet fully addressed or anticipated the various legal risks arising from AI advancements. While the PDP Law establishes the rights of data subjects, obligations of data controllers, and provisions for administrative and criminal sanctions, it still lacks comprehensive coverage of critical issues related to AI operations, such as algorithmic transparency, audit mechanisms for automated decision-making, and clear legal accountability for intelligent systems. These aspects are essential to ensure that AI-generated decisions can be legally justified, particularly when they directly affect individuals or social groups. Without such clarity, the risks of algorithmic discrimination, privacy violations, and injustice in data use will continue to increase.

Therefore, regulatory enhancement is necessary for the PDP Law to serve not only as a data protection instrument but also as an adaptive legal framework that addresses AI developments by incorporating principles such as explainability, fairness, and accountability in technology-based decision-making systems. This would establish a robust legal foundation ensuring that AI implementation remains ethical, transparent, and just. Moreover, public officials must develop a comprehensive understanding of how AI systems operate, including

their potential risks and strategies to address algorithmic bias, process transparency, and accountability. Such capacity-building efforts are essential to ensure that AI utilization in the public sector aligns with ethical standards, operational efficiency, and the principles of good governance (Setiawan, 2024).

Conclusion

The development of Artificial Intelligence (AI) in Indonesia presents complex legal challenges, particularly in the areas of personal data protection, legal accountability, and the ethical use of technology. Although UU No 27 Tahun 2022 on Personal Data Protection (PDP Law) represents a significant step toward establishing a secure digital ecosystem, the regulation has not yet fully addressed the legal risks arising from AI implementation—such as algorithmic opacity, bias in automated decision-making, and the absence of clear legal accountability for AI actions. Therefore, it is necessary to reform and strengthen the legal framework to make it more adaptive, transparent, and accountable, accompanied by the enhancement of public officials' capacity and the application of ethical principles rooted in the values of Pancasila, so that the utilization of AI can promote innovation that is fair, responsible, and respectful of human rights.

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