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Civil Law Responsibility in Artificial Intelligence-Driven Decision Making

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Abstract: *The use of artificial intelligence (AI) in legal, economic, and social decision-making has created significant legal implications in the realm of civil law. The shift from human-based decisions to autonomous algorithmic decisions raises the question of who should be held responsible when AI decisions cause harm. In the context of Indonesian law, this issue is increasingly complex because the civil legal framework still relies on the paradigm of fault-based liability as formulated in Article 1365 of the Civil Code, while AI is not recognized as a legal subject. This study aims to examine the normative framework for regulating artificial intelligence in the Indonesian legal system and analyze the construction of civil legal liability for AI-based decision-making. The research method used is normative legal research with a limited statutory, conceptual, and comparative approach. The results show that Indonesian positive law still experiences a normative vacuum in regulating accountability, standards of responsibility, and protection mechanisms for victims of AI decisions. This study confirms that the application of the concept of fault-based unlawful acts is difficult to implement effectively due to the autonomous and non-transparent nature of AI. Therefore, this study recommends the reconstruction of civil legal responsibility through the application of strict liability and risk-based liability, mapping the chain of responsibility, and strengthening the principle of prudence and victim protection to realize legal certainty and substantive justice in the era of artificial intelligence.*

Keywords: Civil Law, Artificial Intelligence, Responsibility.

INTRODUCTION

The development of artificial intelligence (AI) is one of the most visible manifestations of technological transformation in modern society, fundamentally altering decision-making patterns. AI is no longer merely a technical tool but has become an autonomous decision-making system based on algorithms and machine learning.[1] In this case, human rationality as the primary basis for decision-making is being replaced by computational rationality, which emphasizes speed, efficiency, and statistical prediction. This shift marks a paradigm shift from decision-making based on intuition and human discretion to decision-making based on data and mathematical models. This paradigm shift carries significant legal implications, as laws are fundamentally designed to regulate human behavior, not machine behavior.

Empirically, the adoption of AI in decision-making has been widespread and across sectors. A McKinsey report shows that more than 50% of global companies have integrated AI into their business decision-making processes, particularly in the finance, insurance, healthcare, and public services sectors.[2] In the period 2025–2026,

[1] Nampira, A. A., Judijanto, L., Wati, D. C., Hermawan, E., Cahyono, T. A., Prayudani, S., ... & Sitanggang, A. T. (2025). *Artificial Intelligence: A Guide for Thinking Humans*. PT. Green Pustaka Indonesia.

[2] Zaenudin, I., & Riyan, A. B. (2024). Perkembangan Kecerdasan Buatan (AI) Dan

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approximately 16.3% of the world's population was recorded as actively using generative AI for work, learning, and solving everyday problems.[3] In fact, two-thirds of the global population is estimated to interact with AI on a regular basis, either directly or indirectly. This fact indicates that decisions affecting individuals' legal rights and interests are increasingly being made by non-human systems.

The projected growth of the global AI market, which is expected to reach US$1.5 trillion in spending by 2025, further confirms that AI is not just a passing trend, but rather the decision-making infrastructure of the future.[4] The projected number of AI users, estimated to reach more than 1.1 billion people by 2031, indicates a very broad scale of social and legal impacts.[5] From the perspective of responsive legal theory, the law should adapt to significant social changes. However, the speed of AI development often outstrips the law's ability to respond normatively. As a result, a gap emerges between empirical reality and the prevailing legal framework.

In Indonesia, the development and adoption of AI are showing a similarly progressive trend. The AI adoption rate is increasing by around 47% annually, with a 2025 survey recording that 59% of Indonesians are already using AI.[6] In the education sector, around 87% of students utilize AI to assist with completing academic assignments, while in the business sector, around 70% of companies have used AI to support operational activities.[7] This data indicates that AI has become an integral part of the decision-making process, directly impacting civil legal relations. Therefore, the potential for legal disputes resulting from AI-based decisions is not hypothetical, but inevitable.

In global business and industry, approximately 77% to 78% of organizations in 2024–2025 reported using or at least exploring the use of AI in their business activities.[8] In fact, more than 99% of Fortune 500 companies are leveraging AI for operational management, customer management, and data analysis.[9] The use of AI in the financial sector to determine creditworthiness or in job recruitment to select candidates demonstrates that AI significantly impacts individuals' civil rights. These decisions are no longer entirely under human control, but rather are generated by complex algorithmic systems. This situation raises

Dampaknya Pada Dunia Teknologi. *Jurnal Informatika Utama*, *2*(2), 128-153. https://doi.org/10.55903/jitu.v2i2.240

[3] Siregar, M. P., Petrus, E., Lubis, T., Anggraini, P., & Sitorus, S. P. (2026). TEKNOLOGI BIG DATA DI BALIK LAYAR TIKTOK. *buku*, 203-203. https://jurnal.jndi.my.id/index.php/buku/article/view/360

[4] Suman, A., & Kaluge, D. (2025). *EKONOMI DIGITAL DAN TRANSFORMASI PEMBANGUNAN Konsep, Pilar, Kebijakan, dan Studi Kasus*. PT. RajaGrafindo Persada-Rajawali Pers.

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[6] Widya, T. R., Cahyadi, D., Christanto, D. A., Giantri, L. T., & Hudzaifah, M. (2025). A conceptual hybrid ai-cloud model for government information systems: A structured literature review. *Journal of Applied Informatics and Computing*, *9*(5), 2640-2651. https://doi.org/10.30871/jaic.v9i5.10082

[7] Listy, V., & Ilham, I. (2025). Revolusi sistem informasi manajemen di era ai dan big data mengubah cara bisnis bekerja. *Simpatik: Jurnal Sistem Informasi dan Informatika*, *5*(1), 27-36. https://doi.org/10.31294/simpatik.v5i1.7621

[8] Cahyono, N. F., & Mukaromah, S. (2023, November). Etika penggunaan kecerdasan buatan pada teknologi informasi. In *Prosiding Seminar Nasional Teknologi Dan Sistem Informasi* (Vol. 3, No. 1, pp. 482-491). https://doi.org/10.33005/sitasi.v3i1.334

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serious issues when these decisions result in harm.

Despite the promised efficiency and accuracy, AI-based decisions carry significant legal risks. Algorithmic errors, data bias, and the black-box nature of decision-making make the decision-making process difficult to understand and account for.[10] Empirically, numerous cases demonstrate the occurrence of algorithmic discrimination in recruitment systems and credit denials without rational explanation. In the healthcare sector, AI-based misdiagnosis even has the potential to threaten patient safety. These losses are civil in nature because they involve violations of subjective rights and result in both material and immaterial losses.

From a civil law perspective, losses resulting from AI decisions raise fundamental issues regarding legal liability.[11] Article 1365 of the Civil Code stipulates that any unlawful act that results in a loss requires the perpetrator to compensate for that loss. The elements of act, fault, loss, and causality are the main pillars of civil liability. However, this construction is based on the assumption that the perpetrator is a human or a legal entity controlled by a human. When decisions are made by an autonomous AI system, the application of the elements of fault and act becomes problematic.

The anthropocentric approach in Indonesian civil law is increasingly demonstrating its limitations in addressing the AI phenomenon. AI is not a legal subject, but it does possess the factual capacity to make decisions that directly impact the law. In classical legal theory, only legal subjects can be held accountable.[12] As a result, a conceptual tension arises between technological reality and civil law doctrine. Practically, difficulties arise in determining whether liability should be assigned to developers, system owners, users, or other parties involved in the chain of AI use.

This situation is exacerbated by a gap in Indonesian positive law regarding civil liability for AI-based decisions. To date, there is no specific regulation explicitly governing the mechanism for liability for losses caused by AI. Neither the Electronic Information and Transactions Law nor the Personal Data Protection Law provide a comprehensive framework for liability. This gap creates legal uncertainty and opens up room for diverse interpretations. Consequently, legal protection for victims of losses is suboptimal.

From a legal perspective, this lack of norms has the potential to violate the principles of legal certainty and justice. Legal certainty requires clear and predictable rules, while justice demands proportional accountability mechanisms. Victims of losses resulting from AI decisions face difficulties in establishing proof, particularly in establishing causal relationships and elements of fault.[13] On the other hand, business actors and technology developers face immeasurable legal risks. This situation reflects the legal lag in responding to technological developments.

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[12] Hasbi, M., Lubis, M. D. A., Ningrum, A. D. A., & Hamdani, S. (2026). Kedudukan Korporasi sebagai Subjek Hukum Pidana dalam Tindak Pidana Pelanggaran Hak Asasi Manusia: Tinjauan terhadap KUHP dan Peraturan Perundang-Undangan Terkait. *AKADEMIK: Jurnal Mahasiswa Humanis*, *6*(1), 110-119. https://doi.org/10.37481/jmh.v6i1.1776

[13] Fridawati, T., Gunawan, K., Andika, R., Rafi, M., Ramadhan, R., & Isan, M. (2024). Perkembangan Teori Pertanggungjawaban Pidana di Indonesia: Kajian Pustaka terhadap Literatur Hukum Pidana. *Jimmi: Jurnal Ilmiah Mahasiswa Multidisiplin*, *1*(3), 317-328. https://doi.org/10.71153/jimmi.v1i3.149

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Within the framework of progressive legal theory, the law should not be trapped in normative rigidity, but rather should be able to reform to meet societal needs. Studying civil legal liability for AI-based decisions is crucial for formulating an adaptive and equitable accountability model. Approaches such as strict liability or risk-based liability can be considered as alternatives to the classical concept of fault. Furthermore, the principles of prudence and consumer protection are also relevant for integration into AI regulations. Thus, civil law can function as an instrument of protection, not merely a passive response to harm.

Based on the overall description, the main issue in this article lies in how the construction of civil legal liability can be applied to losses arising from artificial intelligence-based decision-making amidst the lack of positive legal norms in Indonesia. Furthermore, it is important to examine how civil law principles and principles can be developed to align with the autonomous and complex characteristics of AI. Without conceptual and normative updates, the use of AI has the potential to create new uncertainties and injustices. Therefore, this study is crucial in maintaining a balance between technological innovation and the protection of civil rights.

METHODOLOGY

This research uses a normative legal research method that focuses on the study of positive legal norms, legal principles, and legal doctrines relevant to civil legal responsibility in artificial intelligence-based decision-making. According to Soerjono Soekanto, normative legal research is research conducted by examining library materials or secondary data as the basis for analysis, particularly legislation and legal literature.[14] The approaches used include a statutory approach and a conceptual approach to analyze the alignment between developments in AI technology and the construction of civil liability in Indonesian positive law. Through these approaches, this research seeks to identify gaps in norms and the problematic application of the element of unlawful acts in the context of AI-based decisions.

This research also uses a limited conceptual and comparative approach to examine the development of legal doctrine and theory relevant to liability for technological risks. Peter Mahmud Marzuki states that normative legal research aims to discover the truth of coherence, namely whether a legal rule conforms to evolving legal principles and doctrine.[15] The legal materials used consist of primary legal materials in the form of the Civil Code, laws related to information technology and data protection, and secondary legal materials in the form of books, scientific journals, and opinions of legal experts. The analysis technique is qualitative-prescriptive, namely by interpreting legal norms and formulating legal arguments to propose a construction of civil liability that can guarantee legal certainty and justice in dealing with artificial intelligence-based decision-making.

RESULTS AND DISCUSSION

Normative Framework of Artificial Intelligence in the Indonesian Legal System

Law Number 8 of 1999: In Indonesia's national legal system, artificial intelligence (AI) is conceptually still positioned as a legal object, not an independent legal subject. AI is understood as a technological tool or instrument used by humans to achieve specific goals, thus lacking the rights, obligations, free will, or legal awareness of humans or legal entities.[16] This

[14] Sukmawan, Y. A., & Damayanti, D. (2025). Metode Penelitian Hukum Normatif dan Empiris sebagai Strategi Penguatan Perspektif Kajian Ilmu Hukum. *Notary Law Journal*, *4*(3), 114-128. https://doi.org/10.32801/nolaj.v4i3.116

[15] Kristiawanto, H., & SHI, M. (2024). *Pengantar Mudah Memahami Metode Penelitian Hukum*. Nas Media Pustaka.

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position aligns with the anthropocentric nature of Indonesian law, which places humans at the center of legal relations and the source of responsibility. However, the development of modern AI demonstrates that this technology has transcended its passive function, as it is capable of autonomous analysis, prediction, and decision-making through machine learning mechanisms. This factual capacity enables AI to generate real legal consequences in civil relations, even though it is not normatively recognized as a legal actor. This tension is the starting point of the civil law problem regarding AI.

Within the framework of positive law, AI is often positioned as an "electronic agent," as recognized in the Electronic Information and Transactions Law. The concept of an electronic agent positions AI as a system that operates automatically based on human design and input, thus retaining legal responsibility for the system's administrator, user, or developer. While this approach provides formal clarity regarding the responsible entity, it is substantively inadequate to address the complexities of modern AI.[17] Deep learning-based AI has adaptive capabilities that cannot always be predicted by its creators, so the resulting output can deviate from the original design intent.[18] When such deviations result in harm, the legal object approach becomes inadequate because it fails to explain causal relationships simply. This situation demonstrates the conceptual limitations of positioning AI solely as a passive legal object.

Although not a legal entity, AI has the factual capacity to produce legal consequences in the civil realm. In practice, AI can execute smart contracts automatically without human intervention at the implementation stage, as long as the programmed conditions are met. AI can also cause unlawful acts, for example through errors in autonomous vehicle systems or algorithm-based medical diagnoses. Furthermore, generative AI is capable of creating intellectual works that raise legal dilemmas regarding ownership and copyright protection. This fact demonstrates that AI empirically acts as if it were a legal entity, even though it does not have such status normatively.[19] This gap between factual capacity and legal status is what gives rise to what is known as the liability gap in civil law.

The regulation of AI in the Indonesian legal system is currently partial and scattered across various laws and regulations. The Electronic Information and Transactions Law serves as the primary legal umbrella governing electronic systems, including AI, but its focus remains limited to transaction validity and the responsibilities of electronic system operators. The Personal Data Protection Law provides protection for data processing by AI, including the right of data subjects to object to automated decisions. Meanwhile, the Copyright Law stipulates that works produced entirely by AI without human involvement are not legally protected. However, none of these regulations explicitly regulate AI as an autonomous decision-maker that directly impacts civil rights. Consequently, the existing normative framework is unable to comprehensively address the issue of accountability for AI-based decisions.

The absence of explicit provisions regarding AI as an autonomous decision-maker creates a significant legal vacuum in national law. The ITE Law does not yet regulate the validity and liability for biased or discriminatory algorithmic decisions. The

Tinjauan Konseptual dan Tantangan Pengaturan di Indonesia. *Notaire*, *5*(3).

[17] Hibatulloh, B. H. F. (2025). Upaya Penegakan Hukum Terhadap AI (Artificial Intelligence) Sebagai Subjek Hukum Pidana dalam Perspektif Kriminologi. *Taruna Law: Journal of Law and Syariah*, *3*(01), 87-98. https://doi.org/10.54298/tarunalaw.v3i01.300

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[19] Rama, B. G. A., Prasada, D. K., & Mahadewi, K. J. (2023). Urgensi Pengaturan Artificial Intelligence (AI) Dalam Bidang Hukum Hak Cipta Di Indonesia. *Jurnal Rechtens*, *12*(2), 209-224. https://doi.org/10.56013/rechtens.v12i2.2395

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Privacy and Privacy Law does provide the right to object to automated decisions, but it does not stipulate the obligation to adequately disclose the algorithm's logic. The black box decision-making problem prevents legal subjects from having sufficient access to understand the basis for AI decision-making.[20] Without transparency and clear accountability standards, victims of harm face difficulties in seeking justice. This normative vacuum demonstrates that positive law lags behind the realities of rapidly evolving technology.

The principle of legal certainty requires clear, consistent, and predictable rules for all parties. In the use of AI, this principle faces serious challenges due to the complex and often unexplainable nature of algorithms.[21] AI decisions that lack transparency contradict the principle of reasoned decision-making, the foundation of modern law. Therefore, fulfilling the principle of legal certainty requires human oversight (human-in-the-loop) in every decision that has legal consequences. Regulations must establish clear boundaries regarding the scope of AI use and the responsible entities. Without this, the use of AI has the potential to create new legal uncertainties.

The principle of justice requires that every individual be treated equally and without discrimination in the decision-making process. AI, which relies on historical data, has the potential to reproduce social biases inherent in its training data. Without algorithmic audits and correction mechanisms, AI decisions could violate the principle of substantive justice.[22] Furthermore, the precautionary principle requires that the use of AI consider potential risks, even if those risks have not yet been fully proven. The use of AI in sensitive sectors such as finance, healthcare, and public services must be preceded by due diligence and strict oversight. The precautionary principle emphasizes that AI should function as a tool, not a substitute for human responsibility.

The principle of good faith demands honesty, openness, and integrity in the use of AI, by both developers and users. Using AI to conceal decision-making processes or avoid legal liability violates this principle.[23] Therefore, transparency regarding AI's capabilities and limitations is a normative imperative. Overall, the position of AI in Indonesian national law is currently in a transitional phase, moving from a regulatory vacuum to more structured governance. Normative reform is needed to bridge the gap between AI's actual capacity and its legal status.[24] Without these updates, the principles of legal certainty, justice, prudence, and good faith will be difficult to effectively implement in artificial intelligence-based decision-making.

The legal vacuum surrounding artificial intelligence-based decision-making in Indonesia is a direct consequence of the

[20] Nada, F., Abqori, F. F., RH, D. R. N. F., Rahadiyan, I., & Riswandi, B. A. (2024, July). Gagasan Pengaturan Artificial Intelligence Sebagai Subjek Hukum Di Indonesia. In *Prosiding Seminar Hukum Aktual Fakultas Hukum Universitas Islam Indonesia* (Vol. 2, No. 4, pp. 149-157). https://journal.uii.ac.id/psha/article/view/35472

[21] Prasetyo, E., Paramitha, V. N., & Hamdani, F. (2025). Keabsahan Kontrak Otomatis yang Diproses oleh Artificial Inteligence (AI) dalam Kontrak Bisnis pada Platform Finance Technology (Fintech) di Indonesia. *Lex Journal: Kajian Hukum dan Keadilan*, *9*(2), 493-511. https://doi.org/10.25139/lex.v9i2.11018

[22] Puannandini, D. A., Fabian, R., Firdaus, R. A. P., Mustopa, M. Z., & Herdiyana, I. (2025). Liabilitas Produk Ai Dalam Sistem Hukum Indonesia: Implikasi Bagi Pengembang, Pengguna, Dan Penyedia Layanan. *Iuris Studia: Jurnal Kajian Hukum*, *6*(1), 24-33. https://doi.org/10.55357/is.v6i1.808

[23] Cahya, A. N., Maksum, M. A., & Primadana, T. A. S. (2024). Transformasi budaya hukum dalam era digital (implikasi penggunaan AI dalam perkembangan hukum di Indonesia). *IKRA-ITH HUMANIORA: Jurnal Sosial Dan Humaniora*, *8*(2), 361-373. https://journals.upi-yai.ac.id/index.php/ikraith-humaniora/article/view/3690

[24] Jumantoro, T. R. P. (2024). Menilik Pro dan Kontra Pemanfaatan dan Penetapan Status Hukum Artificial Intelligence (AI) dalam Hukum Positif Indonesia. *Journal of Analytical Research, Statistics and Computation*, *3*(1). https://doi.org/10.4590/jarsic.v3i1.28

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disparity between the rate of technology adoption and the capacity of lawmakers. While more than two-thirds of businesses have integrated AI into their business processes and decision-making, positive law still relies on sectoral regulations not designed to address autonomous systems. This situation creates what is known as a normative vacuum, namely the absence of specific legal rules capable of anticipating the structural risks of AI to civil and human rights. Existing regulations are oriented more toward electronic means in general, rather than the unique characteristics of AI: adaptive, non-deterministic, and unpredictable.[25] As a result, the law loses its normative reach in light of evolving socio-technological realities. This gap is not merely technical but also reflects the legal paradigm's delay in understanding the transformation of power relations between humans and machines.

One of the most crucial manifestations of this normative vacuum is the lack of clear accountability standards for autonomous AI decisions. Indonesian civil law traditionally relies on the concept of human error as the basis for liability, whether through breach of contract or unlawful acts. In the context of self-learning AI, the causal relationship between human actions and resulting losses becomes unclear and difficult to prove. The Electronic Information and Transactions Law and the Government Regulation on the Implementation of Electronic Systems and Transactions (UU ITE) do not yet clarify who bears the burden of liability when algorithms act outside of their initial design expectations. This lack of clarity opens up room for evasion of responsibility by developers, data providers, and system users. Thus, the accountability vacuum is not merely a technical legal issue but a direct threat to the principles of justice and legal certainty.

The normative vacuum is also evident in the absence of mandatory algorithmic transparency or algorithmic explainability. Many AI systems, particularly those based on deep learning, operate as black boxes that cannot be rationally explained by users or regulators. Indonesian law does not yet require disclosure of algorithmic decision-making logic, either for independent audits or legal evidence.[26] The principle of transparency is often overridden by the pretext of protecting trade secrets and developers' intellectual property rights. Circular Letter No. 9 of 2023 from the Minister of Communication and Information Technology remains ethical and non-binding, thus lacking legal force. Without transparency, victims of AI decisions lose access to material truth, ultimately weakening substantive legal protections.

The next normative gap relates to the lack of an effective mechanism for protecting victims from automated AI decisions. Although the Personal Data Protection Law provides the right to object to automated processing, this law lacks clear technical procedures and procedural law. There is no operational right to explanation mechanism, so victims' rights remain at the declarative level. In practice, individuals harmed by AI decisions, such as credit denials or automated job selection, struggle to meaningfully challenge them.[27] This ambiguity places citizens in an asymmetrical position facing complex algorithmic systems. The lack of rights redress mechanisms demonstrates that the law is not yet a protective instrument, but rather allows structural inequalities to persist.

The unpreparedness of Indonesian positive law to face AI autonomy is rooted in a

[25] Multazam, M. T., & Widiarto, A. E. (2023). Digitalization of the legal system: opportunities and challenges for Indonesia. *Rechtsidee*, *11*(2), 10-21070. https://doi.org/10.21070/jihr.v12i2.1014

[26] Mecca, A. S. P., Hidaya, W. A., & Tuasikal, H. (2025). PEMANFAATAN TEKNOLOGI KECERDASAN BUATAN (ARTIFICIAL INTELLIGENCE) DALAM SISTEM PERADILAN PIDANA DI INDONESIA. *Jurnal Sosial Teknologi*, *5*(6). https://doi.org/10.59188/jurnalsostech.v5i6.32207

[27] Atiyah, A., Fitriani, N. C., & Yamani, A. Z. (2025). Digitalisasi Legal Drafting Melalui Artificial Intelligence: Peluang Dan Tantangan Masa Depan Dokumen Hukum Di Indonesia. *Indonesian Journal of Islamic Jurisprudence, Economic and Legal Theory*, *3*(2), 1283-1299. https://doi.org/10.62976/ijijel.v3i2.1113

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normative structure that remains highly anthropocentric. The Civil Code and the Criminal Code only recognize humans and legal entities as legal subjects, leaving non-human entities with autonomous capacities without a conceptual place. When AI acts autonomously and generates legal consequences, national law lacks a normative category to explain this. The question of whether AI can be treated as a limited legal subject or simply a high-tech object remains unanswered. As a result, legal responsibility is consistently reassigned to humans, even when the causal relationship is weak. This situation demonstrates that positive law is not yet ready to move beyond its classical paradigm.

The anthropocentric nature of Indonesian law not only limits the regulation of AI but also reflects a general pattern of the law's inability to accommodate non-human entities. This pattern is also evident in environmental law, where nature is treated as an object of exploitation, not a subject with intrinsic rights. A similar approach applies to AI, which is viewed merely as a tool without normative autonomy. Yet, AI has the capacity to make decisions that have a broad impact on human life.[28] This anthropocentrism causes the law to fail to respond to the new, hybrid reality of humans and machines. Therefore, a critique of anthropocentrism provides a crucial entry point for formulating a more adaptive and reflective AI legal framework.

At the global level, AI regulation demonstrates a shift from a soft law-based ethical approach to binding, risk-based regulation. AI ethical principles such as transparency, fairness, and accountability, developed by the OECD and UNESCO, serve as a foundation of values. However, these principles lack legal enforcement, and their effectiveness depends on the voluntary participation of actors.[29] The European Union, through the EU AI Act, translates these ethical principles into binding hard law norms and sanctions. A risk-based approach allows for differentiated legal treatment of AI based on its potential harm. This comparison demonstrates that ethics alone is insufficient to protect society from the risks of AI.[30]

A limited comparative approach provides valuable normative reflection for Indonesia in formulating AI governance. The European Union model offers strong legal certainty and human rights protections, although it has the potential to hinder innovation. The United States model is more flexible and encourages innovation, but creates gaps in legal protection. Meanwhile, China's approach demonstrates effective implementation but raises concerns about privacy and civil liberties. Indonesia cannot copy one model in its entirety; instead, it needs to formulate a contextually tailored hybrid approach. A risk-based approach to high-risk AI, combined with sectoral flexibility, could provide a normative middle ground. Thus, comparative studies are not merely descriptive but reflective instruments for filling normative gaps and preparing national laws for the autonomy of artificial intelligence.

Construction of Civil Legal Liability for Artificial Intelligence-Based Decision Making

The application of the concept of Unlawful Acts (PMH) as formulated in Article 1365 of the Civil Code to AI-based decisions poses fundamental legal challenges, as the article's construction arises within the context of legal relations that are entirely human-to-human. Article 1365 presupposes the existence of a legal subject who acts consciously, has a will, and is able to be morally and legally accountable for his actions. In AI-based

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decisions, the "act" that gives rise to legal consequences is often not the result of direct human action, but rather the output of an autonomous algorithmic system.[31] This situation raises the crucial question of whether AI decisions can be classified as "acts" within the classical civil law framework. Normatively, AI cannot be treated as a legal subject, but its legal consequences are real and directly felt by human legal subjects. Therefore, the application of Article 1365 to AI requires a progressive interpretation that shifts the focus from the machine's actions to the construction of human responsibility behind the use of the technology.

The element of "act" in PMH becomes problematic when confronted with the autonomy of self-learning, black-box AI. In classical civil law, unlawful acts can take the form of active actions or negligence, but both are always associated with human behavior.[32] Discriminatory, erroneous, or detrimental AI decisions often cannot be traced to specific human actions, as algorithms develop through machine learning processes that are not fully predictable. This makes it difficult to determine whether such actions are the result of initial design, negligent oversight, or the logical consequence of biased training data. Normatively, the element of action in Article 1365 should be interpreted as a series of human actions that allow AI to operate without adequate control. Thus, "action" is no longer understood narrowly as the output of AI, but rather as structural negligence in the design, implementation, and oversight of artificial intelligence systems.

In addition to the element of action, the element of "fault" (schuld) in Article 1365 of the Civil Code also faces a conceptual crisis in the context of AI. Fault in civil law is rooted in the human capacity to act consciously and responsibly, whether intentionally or negligently. AI lacks free will, intent, or morality, making it conceptually impossible to attribute direct fault to the system. The difficulty is further compounded when AI decisions are unpredictable, even to its developers, making proving human negligence challenging.[33] Under these conditions, proving fault based on the reasonable person standard becomes unclear, as human standards of care do not always align with the behavior of autonomous systems. Therefore, the fault approach in PMH to AI requires expanding the definition of culpa, from individual error to systemic failure to ensure technological prudence.

The problem of determining who is responsible is a logical consequence of positive law's inability to recognize AI as a legal subject. Normatively, responsibility should be assigned to humans or legal entities within the technological chain of control, but in practice, this chain is complex and multi-layered.[34] Developers, system owners, users, and data providers have distinct roles in shaping AI behavior, making it difficult to determine which party predominantly causes harm. A single-responsibility approach is inadequate in this context, as AI operates as a result of the collective interaction of multiple actors. This ambiguity has the potential to create a liability gap, a situation where actual harm occurs without any party effectively being held

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accountable. From a civil justice perspective, this situation clearly harms victims and contradicts the principle of legal protection.

AI developers are often the first to be held accountable, especially if the harm stems from design or algorithmic flaws. Within the product liability framework, AI can be treated as a high-risk product that requires extra care.[35] However, the nature of machine learning means that AI behavior can change over time, so errors cannot always be traced back to the initial design. On the other hand, owners or operators of AI systems derive direct economic benefits from their use, and therefore should bear the greatest legal risk. End users, as long as they act within guidelines and are not negligent, should not be burdened with excessive responsibility for the system's autonomous errors. Meanwhile, data providers are often overlooked, even though data quality and bias are crucial to AI decision-making outcomes. This fragmentation of responsibility suggests that civil law requires a multilevel, control-based approach to risk.

The difficulty of proving fault and causality is the most significant obstacle in PMH lawsuits against AI-based decisions. Civil law requires a clear causal link between the act and the loss, but in AI systems, that link is often broken by the complexity of the algorithm.[36] The black box nature makes the decision-making process impossible to explain logically and linearly, making it difficult to prove in court.[37] Plaintiffs often lack access to source code or training data due to trade secrets. This creates a structural imbalance between victims and technology businesses. Consequently, the principles of equality before the law and fair trial are potentially undermined in AI-based civil disputes.

From a procedural law perspective, proving causality in AI cases also faces methodological challenges. Classic causality tests such as the but-for test or proximate cause are difficult to apply to systems involving multiple variables and dynamic learning. When AI acts based on statistical patterns, it is difficult to determine whether a particular loss is a direct result of human error or the complex interaction between data and algorithms.[38] In this context, the reversal of the burden of proof approach becomes relevant as an instrument of corrective justice. System developers or owners who have technical and information control should be burdened with the burden of proving that their systems are not defective. This approach aligns with the principles of prudence and consumer protection in modern civil law.

Overall, the application of Article 1365 of the Civil Code to AI-based decisions is still possible, but only through a progressive and adaptive interpretation to technological realities. The elements of action and wrongdoing can no longer be understood individually and anthropocentrically, but must be positioned within a systemic and risk-based framework of responsibility. The challenges of determining responsible subjects and the difficulty of proving causality indicate that the classical PMH paradigm is under serious pressure in the AI era. Without normative reform, civil law risks losing its protective power for victims of algorithmic decisions. Therefore, the development of a more responsive doctrine of accountability is necessary, whether through the application of

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strict liability, a reversal of the burden of proof, or specific AI regulations. This step is crucial to ensure that technological advances do not erode the principles of justice, legal certainty, and the protection of civil rights.

An alternative model of civil liability for artificial intelligence risks is an urgent need because the autonomous, complex, and unpredictable characteristics of AI have weakened the effectiveness of the classical fault concept in civil law.[39] The fault-based liability model, rooted in Article 1365 of the Civil Code, places the burden of proof on the victim, an unrealistic requirement in the context of black-box algorithmic systems. In practice, it is nearly impossible for victims of AI decisions to prove the technical negligence of developers or users due to limited access to source code and training data. Therefore, a shift toward a risk-based liability model is logical and normative for maintaining the protective function of civil law. This approach places technological risk as the basis for responsibility, not merely the behavior of legal subjects. Thus, civil law shifts from an orientation toward the perpetrator to an orientation toward impact and victim protection.

The strict liability model is the most relevant alternative for high-risk AI systems because it eliminates the need to prove fault. In this model, it is sufficient to prove harm and a causal relationship between the use of AI and the resulting harm, without requiring proof of negligence by the developer or user.[40] This approach has long been recognized in environmental and consumer protection law, for example, in Article 88 of the Environmental Protection and Management Law, which emphasizes the protection of victims of harmful activities. Theoretically, strict liability reflects distributive justice by assigning risks to those who benefit economically from AI technology. In the context of medical AI, autonomous vehicles, or automated credit scoring systems, the application of strict liability is a crucial instrument for ensuring effective compensation. This model also encourages businesses to apply the utmost care from the design stage to the implementation of AI systems.

The risk-based liability approach also opens up the possibility of a hybrid model that classifies AI based on its risk level. High-risk AI systems could be subject to strict liability, while low-risk AI systems would still be subject to fault-based liability. This tiered approach allows civil law to remain proportionate and not unduly stifle innovation. Comparatively, the European Union has adopted a similar approach through the AI Act and AI Liability Directive, which make it easier for victims to prove causality.[41] In Indonesia, this model is relevant for integration into the currently fragmented national legal framework. A risk-based approach provides both legal certainty and normative flexibility. Thus, civil law can serve as an adaptive instrument in managing AI technology risks.

Protecting the civil rights of victims of AI decisions is a primary goal of reconstructing the civil liability model. Within Indonesia's positive legal framework, victim protection still relies on the Civil Code, the Electronic Information and Transactions Law, and the Personal Data Protection Law, which do not specifically regulate AI. Victims of AI decisions can potentially suffer material losses, such as denial of credit or insurance claims, as well as immaterial losses, such as discrimination or defamation due to

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deepfakes.[42] Civil law plays a crucial role in guaranteeing victims' rights to compensation and restitution. However, without effective accountability mechanisms, these rights risk becoming a normative illusion. Therefore, strengthening a risk-based liability model is a prerequisite for substantive victim protection.

In addition to compensation, civil law also serves to ensure substantive justice in the face of discriminatory and opaque AI decisions. The principle of substantive justice requires that victims receive not only compensation but also clarity regarding the basis for adverse decisions. In the use of AI, this is closely related to the demand for transparency and explainability of algorithms.[43] Civil law can be used to limit the unilateral exoneration clauses often used by technology businesses to avoid liability. Thus, civil law serves as a balance between the power of technology corporations and the vulnerability of victims. This balance between the parties is the essence of civil justice in the era of artificial intelligence.

The need for a conceptual reconstruction of civil liability in the AI era is inextricably linked to the unpreparedness of the anthropocentric legal paradigm for dealing with autonomous non-human entities. AI is currently positioned as a legal object, so all responsibility must be traced back to the human or legal entity behind it. This conceptual reconstruction requires an expansion of the meaning of Article 1367 of the Civil Code, particularly regarding responsibility for objects or systems under supervision. Liability is no longer a single entity, but rather a hierarchical one, consistent with the AI lifecycle, from developer to operator to system owner. This approach closes the liability gap that often arises in cases of autonomous AI. Thus, civil law remains relevant and functional in the context of advanced technology.

Prescriptively, the civil liability framework in the era of artificial intelligence must be adaptive, risk-based, and oriented toward victim protection. The implementation of strict liability and risk-based liability is not intended to stifle innovation, but rather to ensure that technological advancements do not compromise legal justice. This framework needs to be supported by specific AI regulations that emphasize risk classification, insurance obligations, and clear compensation mechanisms. In the Indonesian context, this reconstruction aligns with efforts to develop a national AI roadmap and strengthen electronic system governance. By integrating the principles of legal certainty and substantive justice, civil law can bridge the gap between innovation and the protection of individual rights. Ultimately, adaptive civil liability serves as an ethical and legal foundation for the responsible use of artificial intelligence.

CONCLUSION

Indonesia's current civil law framework is inadequate to address the complexities of legal liability for artificial intelligence-based decision-making, primarily because it relies on the classic paradigm of fault-based liability as stipulated in Article 1365 of the Civil Code. The autonomous, opaque (black box) and high-risk characteristics of AI have created a normative vacuum in determining who is responsible and make it difficult to prove fault and causality, potentially weakening the protection of victims' civil rights. Therefore, the application of alternative liability models, particularly strict liability and risk-based liability, is a normative necessity to ensure legal certainty, substantive justice, and effective recovery for victims of AI decisions. Civil law serves not only as a compensation mechanism but also as an instrument for equitable risk distribution between developers, users, and those who benefit economically from AI. Conceptual reconstruction of civil liability in

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the era of artificial intelligence using a risk-based approach, mapping the chain of responsibility, and strengthening the principle of prudence and algorithmic transparency are urgent prescriptive measures. Thus, the development of specific AI regulations that are adaptive and aligned with the principles of legal certainty and justice is a key prerequisite to ensure that technological progress does not go hand in hand with the weakening of legal protection for the public.

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