

## **FROM ALGORITHMS TO JUSTICE: A CRITICAL LITERATURE REVIEW OF THE IMPACT OF ARTIFICIAL INTELLIGENCE ON HUMAN RIGHTS AND THE URGENCY OF SPECIFIC REGULATION IN INDONESIA**

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### **Abstract**

The rapid development of artificial intelligence (AI) has transformed the landscape of automated decision-making across various sectors, yet it also poses serious risks to human rights through algorithmic bias, privacy violations, and the erosion of individual autonomy. This article examines the multidimensional impact of AI on human rights. The research findings underscore the need for regulations that integrate algorithmic transparency, human oversight, and developer accountability to protect vulnerable groups. Policy recommendations include the establishment of an independent AI oversight body, national digital literacy training, and the harmonisation of global standards to position Indonesia as a responsible AI leader in ASEAN. This study contributes to the discourse on digital human rights by offering a conceptual framework for the transition from a technology-centric to a human rights-centric paradigm in Indonesia's AI governance.

**Keywords:** artificial intelligence, human rights, AI regulation, algorithmic bias, EU AI Act, digital governance, Indonesia

### **Introduction**

The development of artificial intelligence (AI) over the past two decades has brought about significant transformations in various aspects of human life, ranging from the economic sector, healthcare and education to public administration. This technology is no longer merely a tool, but has become a semi-autonomous actor in decision-making that has a direct impact on individuals and society at large. Whilst these advancements drive efficiency and innovation, they simultaneously raise fundamental questions regarding their implications for human rights, particularly when algorithm-based decisions lack transparency and are difficult to hold accountable (Schiller et al., 2025).

As the adoption of AI increases, global concerns are emerging regarding potential human rights violations resulting from algorithmic systems. AI systems are often trained using historical data that contains social biases, thereby potentially reproducing or even reinforcing pre-existing discrimination. In this context, technology that is supposed to be neutral instead becomes a tool for reproducing structural injustice, particularly against vulnerable groups (Angrave et al., 2016).

The issue of algorithmic bias is a key focus in critical studies of AI and human rights. Various studies show that facial recognition systems, for example, have higher error rates for certain racial groups, whilst job recruitment algorithms can discriminate against candidates on the basis of gender or socio-economic background.

This demonstrates that AI is not value-neutral, but is influenced by the assumptions and power structures embedded within its data and design (Connell, 2009) . In addition to discrimination, the use of AI also raises serious concerns regarding privacy and the protection of personal data. The practice of mass data collection and analysis by technology companies and governments has created a digital surveillance ecosystem that has the potential to violate individuals' right to privacy. This phenomenon is often referred to as "surveillance capitalism", in which personal data becomes an economic commodity traded without adequate control by the data subjects (Cohen, 2019) .

Furthermore, AI also has the potential to erode individual autonomy in decision-making. Recommendation systems, for example, can subtly yet significantly influence users' preferences and behaviour, thereby blurring the line between free choice and algorithmic manipulation. In the long term, this situation could threaten freedom of thought and expression as fundamental human rights (Rane et al., 2024) .

The impact of AI on the world of work is also a key concern in the human rights discourse. AI-driven automation has the potential to replace human labour on a large scale, particularly in sectors involving routine and repetitive tasks. This not only affects the right to work, but also the social and economic stability of societies, particularly in developing countries that are heavily reliant on manual labour (Zheng et al., 2020) .

At the global level, various international organisations have responded to this issue by developing ethical principles and guidelines for AI. UNESCO, for example, has issued a Recommendation on the Ethics of Artificial Intelligence which emphasises the importance of respect for human rights, justice and inclusivity in the development and use of AI. Similarly, the OECD and the European Union have initiated regulatory frameworks to ensure that AI is used responsibly (UNESCO, 2021). However, there is a gap between normative ethical principles and their implementation in practice. Many technology companies adopt AI ethical principles as part of their reputation strategy, without accompanying robust accountability mechanisms. This situation has led to criticism that AI ethics are often merely symbolic and insufficient to prevent actual human rights violations( Waelen, 2023) .

In the Indonesian context, the development of AI is also showing rapid growth, particularly in the fintech, e-commerce and digital public services sectors. However, the adoption of this technology has not yet been fully matched by adequate regulatory preparedness. This poses risks to human rights protection, particularly in terms of data privacy, algorithmic discrimination and the transparency of systems (Roemmich et al., 2023) .

Existing regulations in Indonesia, such as the Electronic Information and Transactions Act (EITA) and the Personal Data Protection Act (PDPA), remain general in nature and do not yet specifically regulate the use of AI. The absence of specific regulations creates a regulatory gap that can be exploited by certain parties without effective oversight mechanisms( Varaprasada Rao & Panda, 2023) .

The urgency of establishing specific AI regulations in Indonesia is growing as the technology becomes increasingly complex and its impact on people's lives expands. Such regulations are necessary not only to protect human rights, but also to provide legal certainty for industry players and to encourage responsible innovation. Without a clear legal framework, the development of AI risks posing more risks than benefits (Waelen, 2023). Against this backdrop, this article aims to examine the impact of AI on human rights and analyse the urgency of specific AI regulation in Indonesia.

### **Research Methodology**

This study employs a qualitative approach using a literature review method, aiming to identify, analyse and synthesise various scientific findings regarding the impact of artificial intelligence on human rights and the urgency of regulation in Indonesia. Data sources were obtained from national and international journals, academic books, and other relevant documents, which were then critically analysed using content analysis techniques to identify patterns, gaps, and dominant perspectives within the literature. This approach enables the researcher to construct a comprehensive conceptual framework and provide evidence-based arguments regarding the need for AI regulation oriented towards the protection of human rights (Zed, 2008) ; (Eliyah & Aslan, 2025) .

### **Results and Discussion**

#### **The Impact of Artificial Intelligence on Human Rights: A Critical Literature Review**

Artificial intelligence has revolutionised automated decision-making across various sectors, yet its development also poses a serious threat to human dignity through human rights violations. AI often reproduces historical biases embedded in training data, thereby creating systemic discrimination that is difficult to detect. A key criticism of AI is its inability to guarantee fairness without conscious human intervention (Ravizki & Yudhantaka, 2022).

Algorithmic bias is one of the most critical impacts of AI on human rights, as systems trained on non-representative data tend to discriminate against minority groups. Previous studies examining facial recognition systems have shown low accuracy for people with darker skin and women, which has the potential to exacerbate racial and gender inequalities in law enforcement. This phenomenon underscores that AI is not a neutral technology, but rather a reflection of unjust social structures (Waelen, 2023) .

Privacy breaches are another prominent concern in the literature, where AI facilitates the collection of massive amounts of data without explicit consent. The practice of surveillance capitalism allows technology companies to profile individuals' emotions and behaviour through sensors in public spaces, thereby eroding the right to

privacy as a universal human right. Without strict regulation, AI becomes a tool of totalitarian surveillance that threatens individual freedom (Plan, 2016) .

In the context of automated decision-making, AI poses the risk of opaque decision-making, where individuals find it difficult to understand or challenge decisions that affect their lives. Critical literature highlights that the 'black box' nature of AI violates the principles of accountability and the right to a fair explanation, particularly in administrative and credit scoring contexts. This creates legal uncertainty and erodes public trust (Cath et al., 2018) .

The automation of jobs by AI also threatens economic and social rights, with predictions that millions of jobs will be lost in developing countries such as Indonesia. Studies show that this impact is uneven, with low-income workers being the most vulnerable, thereby widening social inequality. Criticism of the narrative of AI's 'positive disruption' centres on its disregard for the right to decent work as an integral part of human rights (Zheng et al., 2020) .

In the realm of public security, AI technologies such as predictive policing often reinforce stigmas against poor communities or ethnic minorities based on biased historical data. Indonesian literature highlights that such implementations have the potential to violate the right to a fair and non-discriminatory legal process. Without independent audits, AI risks becoming a tool of structural repression (Varaprasada Rao & Panda, 2023) . The manipulation of information through deepfakes and AI-generated content threatens freedom of expression and the right to accurate information. Recent research indicates a rise in political disinformation that could influence elections, with AI accelerating the spread of false narratives. A key criticism is that AI platforms are responsible for the content they generate, even though their algorithms are designed to maximise engagement (Cohen, 2019) .

The erosion of human autonomy occurs when AI recommendation systems subtly shape preferences, diminishing individuals' ability to make free choices. The literature on AI ethics emphasises that this algorithmic nudging may infringe upon the right to independent thought, particularly among young people who are vulnerable to content personalisation. The libertarian paternalism approach to AI design actually exacerbates this problem (Rane et al., 2024) .

In the healthcare sector, diagnostic AI risks violating the right to informed consent if patients do not understand how algorithms process their medical data. Studies suggest that over-reliance on AI may diminish the role of doctors as final decision-makers, thereby threatening patients' right to empathy-based care. The criticism of AI in this context is the dehumanisation of healthcare (Acemoglu & Restrepo, 2020) .

Previous studies have criticised techno-solutionism, which views AI as a universal solution without taking human rights dimensions into account. This approach overlooks the fact that technology reinforces corporate power over personal

data, creating structural dependency. In developing countries, this undermines national data sovereignty( Angrave et al., 2016) .

The Indonesian context reveals a unique vulnerability due to the digital divide, where AI is rapidly adopted in major cities but literacy remains low in rural areas. Local studies indicate that AI-powered fintech discriminates against borrowers from certain regions based on biased geospatial data. The urgency of critical analysis lies in preventing data colonialism by foreign platforms (Roemmich et al., 2023) . The accountability of AI developers is a central issue, with the literature calling for human oversight of high-risk systems. Without such mechanisms, human rights violations are difficult to trace back to the responsible legal entities. Criticism of industry self-regulation centres on inherent conflicts of interest( Waelen, 2023) .

The long-term impact of AI on future generations concerns children's right to protection from personalised harmful content. Research highlights that social media algorithms exacerbate anxiety and radicalisation among adolescents. A critical approach emphasises the need for age-appropriate AI regulation( Rodhiah et al., 2025).

Overall, the impact of AI on human rights is multidimensional and systemic, requiring a holistic response that integrates ethics, law, and public participation.

### **The Urgency of Specific AI Regulation in Indonesia: Between Ethics, Law, and Public Policy**

The regulatory gap regarding AI in Indonesia is becoming increasingly apparent as the technology is rapidly adopted in the fintech and public services sectors, where the Electronic Information and Transactions Law (EIT Law) and the Personal Data Protection Law (PDPA) do not yet explicitly address algorithmic risks. The literature highlights that current sectoral regulations are piecemeal, failing to address issues of AI transparency and accountability that could potentially violate human rights. There is an urgent need for specific regulations to fill this legal vacuum and prevent the misuse of technology( Ravizki & Yudhantaka, 2022) .

The Indonesian National Artificial Intelligence Strategy 2020–2045, issued by BPPT, provides general policy direction but remains abstract, lacking concrete enforcement mechanisms. Criticism of this document centres on its failure to integrate human rights principles such as non-discrimination and human oversight. Specific regulations are required to translate this strategy into binding norms for the industry (Zeng, 2020) .

The National Commission on Human Rights (Komnas HAM) has warned of the threats posed by AI to privacy and human rights, emphasising the need for regulatory reforms regarding digital rights. Without a specific legal framework, advances in AI risk reinforcing discrimination and mass surveillance within Indonesia's diverse society. Public policy must prioritise the protection of vulnerable groups such as indigenous peoples and women( Syahronny & Dewayanto, 2024) .

A comparison with the EU AI Act reveals a risk-based regulatory model that classifies AI according to its level of risk to human rights, ranging from a ban on systems posing an or 'unacceptable risk' to strict oversight for 'high-risk' AI. Indonesia could adopt this approach to regulate facial recognition and predictive policing, which often give rise to bias. Such an adaptation would provide legal certainty whilst fostering responsible innovation (Shatila, 2025) .

The OECD AI Principles and the UNESCO Recommendation on AI Ethics offer a global framework emphasising transparency, robustness, and inclusivity, which is relevant to the Indonesian context. However, implementation in developing countries requires adaptation to address challenges related to infrastructure and digital literacy. National regulations must integrate these principles to prevent regulatory arbitrage by foreign companies (Rane et al., 2024) .

Ethical challenges surrounding AI in Indonesia include access to confidential data without explicit consent, which potentially breaches the Personal Data Protection Act (PDP Act). The literature calls for regulations mandating AI labelling on generated content, such as the government's 2026 plan, to prevent disinformation. Ethics must form the legal foundation for safeguarding the integrity of digital democracy( Sulistio & Salsabilla, 2023). The accountability of AI developers is crucial, where specific regulations are needed to establish liability for losses resulting from algorithmic bias. A socio-legal approach indicates that industry self-regulation is insufficient; the state must act as the primary regulator. In Indonesia, this means the establishment of an independent AI oversight body (Votto et al., 2021) .

The international trade implications of the EU AI Act are prompting Indonesia to harmonise standards, so that local AI products can compete in the global market. Legal analyses highlight opportunities for digital diplomacy to foster cooperation with the EU on AI research. National regulations will strengthen Indonesia's bargaining position in global AI governance (Petit, 2017). AI public policy must prioritise inclusivity, with multi-stakeholder engagement including academics and civil society. Indonesian literature criticises the current top-down approach; participatory regulation is needed to accommodate cultural diversity. This aligns with Pancasila as the foundation of technological ethics (Plan, 2016) .

Institutional capacity is the main obstacle, as the Ministry of Digital Economy and Information Technology requires expert staff to conduct audits of high-risk AI systems. Training for regulators and a tiered system of sanctions will ensure compliance. This urgency is driven by a fintech case involving discrimination against rural customers (Bisariyadi, 2023).

Specific AI regulations are also required for the healthcare and education sectors, where diagnostic AI and personalised learning carry the risk of being opaque. Singapore's AI Government Framework could be adapted to create a regulatory sandbox. This would protect the rights of children and patients whilst fostering innovation( Sulistio & Salsabilla, 2023). The philosophical perspective on AI regulation

in Indonesia is grounded in the values of utility and social justice, as found in progressive legal theory. Legal analysis reveals a regulatory vacuum that must be addressed to prevent misuse. From a socio-political perspective, regulation will enhance public trust in the technology (Ravizki & Yudhantaka, 2022) .

The implementation of regulations requires infrastructure such as a national AI database and ethical certification. Sociological challenges include industry resistance to strict oversight. Holistic solutions involve AI literacy education for the public (Roemmich et al., 2023) .

Ultimately, the urgency of AI-specific regulation in Indonesia is not merely a response to human rights risks, but a proactive step towards building a fair and sustainable digital ecosystem. The integration of ethics, law, and public policy will position Indonesia as an AI leader in ASEAN, with human rights as a key pillar.

## **Conclusion**

Artificial intelligence brings not only technological efficiency but also systemic risks to human rights through algorithmic bias, privacy breaches and the erosion of individual autonomy. Consequently, without regulatory intervention, AI has the potential to exacerbate structural inequalities, particularly in Indonesia, which is experiencing a digital divide.

The urgency of specific AI regulation in Indonesia is becoming increasingly pressing, given the limitations of the ITE Law and the PDP Law, which have yet to accommodate the complexity of algorithmic risks. Lessons from the EU AI Act and OECD principles offer a risk-based regulatory model that can be adapted to protect vulnerable groups whilst fostering innovation. Such regulation must integrate transparency, accountability, and human oversight as the main pillars of public policy.

Overall, the journey from algorithms to justice requires a multi-stakeholder commitment to building a responsible AI ecosystem. Policy recommendations include the establishment of an independent regulatory body, national AI literacy training, and alignment with global standards. Further research is needed to evaluate the implementation of regulations and their impact on Indonesia's digital sovereignty.

## **References**

- Acemoglu, D., & Restrepo, P. (2020). The wrong kind of AI? Artificial intelligence and the future of labour demand. *Cambridge Journal of Regions, Economy and Society*, 13(1), 25–35.
- Angrave, D., Charlwood, A., Kirkpatrick, I., Lawrence, M., & Stuart, M. (2016). HR and analytics: Why HR is set to fail the big data challenge. *Human Resource Management Journal*, 26(1), 1–11. <https://doi.org/10.1111/1748-8583.12090>
- Cath, C., Wachter, S., Mittelstadt, B., Taddeo, M., & Floridi, L. (2018). Artificial Intelligence and the 'Good Society': The US, EU, and UK approach. *Science and Engineering Ethics*, 24(2), 505–528. <https://doi.org/10.1007/s11948-017-9901-7>

- Cohen, J. E. (2019). The age of surveillance capitalism: The fight for a human future at the new frontier of power. *Surveillance & Society*, 17(1/2), 240–245.
- Connell, R. (2009). *Gender. Polity*.
- Eliyah, E., & Aslan, A. (2025). STAKE'S EVALUATION MODEL: METODE PENELITIAN. *Prosiding Seminar Nasional Indonesia*, 3(2), Article 2.
- Petit, N. (2017). *Law and Regulation of Artificial Intelligence and Robots—Conceptual Framework and Normative Implications* (SSRN Scholarly Paper No. 2931339). Social Science Research Network. <https://doi.org/10.2139/ssrn.2931339>
- Plan, S. (2016). The national artificial intelligence research and development strategic plan. *National Science and Technology Council, Networking and Information Technology Research and Development Subcommittee*. <http://large.stanford.edu/courses/2018/ph241/cheng1/docs/ai-eop-oct16.pdf>
- Rane, N., Choudhary, S., & Rane, J. (2024). Artificial intelligence for enhancing resilience. *Journal of Applied Artificial Intelligence*, 5(2), 1–33. <https://doi.org/10.48185/jaai.v5i2.1053>
- Ravizki, E. N., & Yudhantaka, L. (2022). Artificial Intelligence Sebagai Subjek Hukum: Tinjauan Konseptual dan Tantangan Pengaturan di Indonesia. *Notaire*, 5(3). <https://e-journal.unair.ac.id/NTR/article/download/39063/22918>
- Rodhiah, S. D. F., Parinduri, M. F. A., Nabila, S., Aprilia, A. I., & Endang, L. Y. (2025). Dampak Penggunaan Artificial Intelligence terhadap Transformasi Lapangan Pekerjaan di Masa Depan: Sebuah Tinjauan Sistematis Literatur. *Journal of Information System, Informatics and Computing*, 9(2), 380–387. <https://doi.org/10.52362/jisicom.v9i2.2187>
- Roemmich, K., Rosenberg, T., Fan, S., & Andalibi, N. (2023). Values in Emotion Artificial Intelligence Hiring Services: Technosolutions to Organizational Problems. *Proc. ACM Hum.-Comput. Interact.*, 7(CSCW1), 109:1-109:28. <https://doi.org/10.1145/3579543>
- Schiller, J., Stiller, S., & Ryo, M. (2025). Artificial intelligence in environmental and Earth system sciences: Explainability and trustworthiness. *Artificial Intelligence Review*, 58(10), 316. <https://doi.org/10.1007/s10462-025-11165-2>
- Shatila, K. (2025). Artificial intelligence and organizational resilience: The mediating role of agility, innovation, and digital leadership. *Strategy & Leadership*, 1–25. <https://doi.org/10.1108/SL-08-2025-0275>
- Sulistio, F., & Salsabilla, A. D. (2023). Pertanggungjawaban pada Tindak Pidana yang Dilakukan Agen Otonom Artificial Intelligence. *UNES Law Review*, 6(2), 5479–5490. <https://doi.org/10.31933/unesrev.v6i2.1209>
- Syahronny, M. R., & Dewayanto, T. (2024). PENERAPAN TEKNOLOGI ARTIFICIAL INTELLIGENCE DAN BLOCKCHAIN DALAM MENDETEKSI FRAUD PADA PROSES AUDIT: SYSTEMATIC LITERATURE REVIEW. *Diponegoro Journal of Accounting*, 13(3). <https://ejournal3.undip.ac.id/index.php/accounting/article/view/46067>
- Varapasada Rao, K., & Panda, S. K. (2023). A Design Model of Copyright Protection System Based on Distributed Ledger Technology. In S. C. Satapathy, J. C.-W. Lin, L. K. Wee, V. Bhateja, & T. M. Rajesh (Eds.), *Computer Communication, Networking and IoT* (pp. 127–141). Springer Nature. [https://doi.org/10.1007/978-981-19-1976-3\\_17](https://doi.org/10.1007/978-981-19-1976-3_17)

- Votto, A. M., Valecha, R., Najafirad, P., & Rao, H. R. (2021). Artificial Intelligence in Tactical Human Resource Management: A Systematic Literature Review. *International Journal of Information Management Data Insights*, 1(2), 100047. <https://doi.org/10.1016/j.jjime.2021.100047>
- Waelen, R. A. (2023). A critical approach to AI ethics. In *Handbook of critical studies of artificial intelligence* (pp. 391–401). Edward Elgar Publishing. <https://www.elgaronline.com/edcollchap/book/9781803928562/book-part-9781803928562-42.xml>
- Zed, M. (2008). *Metode Penelitian Kepustakaan*. Yayasan Pustaka Obor Indonesia.
- Zeng, J. (2020). Artificial intelligence and China's authoritarian governance. *International Affairs*, 96(6), 1441–1459. <https://doi.org/10.1093/ia/iaaa172>
- Zheng, Z., Xie, S., Dai, H.-N., Chen, W., Chen, X., Weng, J., & Imran, M. (2020). An overview on smart contracts: Challenges, advances and platforms. *Future Generation Computer Systems*, 105, 475–491. <https://doi.org/10.1016/j.future.2019.12.019>
- UNESCO. (2021). *Recommendation on the ethics of artificial intelligence*. United Nations Educational, Scientific and Cultural Organization.