

Algorithmic justice and the challenges of the digital rule of law

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Abstract

The development of digital technologies, especially artificial intelligence, offers both advantages and challenges within the legal system. While AI improves efficiency and consistency in public administration and justice, it raises issues such as algorithmic bias, less transparency and legal accountability problems. Over-reliance on algorithms may worsen inequities and threaten legal legitimacy. This article advocates for a hybrid regulatory model that combines strict and flexible laws, judicial oversight of algorithmic decisions, and the use of Explainable AI (XAI) to enhance transparency. The Constitution should guide AI regulation, prioritizing human rights and the rule of law to position algorithms as beneficial tools for a fair digital legal system.

Keywords

artificial intelligence governance; algorithmic decision-making; risk-based regulation; fundamental rights protection; comparative AI law

La justicia algorítmica y los retos del Estado de derecho digital

Resumen

El desarrollo de la tecnología digital, especialmente la inteligencia artificial (IA), aporta tanto ventajas como retos al sistema jurídico. Aunque la IA mejora la eficiencia y coherencia en la Administración Pública y la justicia, también plantea cuestiones sobre el sesgo algorítmico, la falta de transparencia y en materia de responsabilidad jurídica. La excesiva dependencia de los algoritmos puede exacerbar las injusticias y amenazar la legitimidad jurídica. Este artículo propone un modelo regulatorio híbrido que combina leyes estrictas y flexibles, la supervisión judicial de las decisiones algorítmicas y el uso de la IA explicable para mejorar la transparencia. La Constitución debe ser la guía para la regulación de la IA, priorizar los derechos humanos y el Estado de derecho, de manera que los algoritmos sean una herramienta útil para un sistema jurídico digital justo.

Palabras clave

gobernanza de la inteligencia artificial; toma de decisiones algorítmica; regulación basada en el riesgo; protección de los derechos fundamentales; derecho comparado de la inteligencia artificial

Introduction

The development of digital technology brings revolutionary changes to the economy, politics, and law by facilitating access and solving various problems. However, technology also poses new challenges, such as complex data governance, vulnerability to cyberattacks and unresolved legal issues (Rahmawati, 2023). Legal reform aims to increase public trust and ensure effective state administration in accordance with the law. Still, digital transformation also raises new legal implications and challenges that must be addressed (Judijanto, 2025).

One of the main implications of digital transformation is the need to adapt state administrative law to keep pace with technological developments, as existing regulations often lack flexibility and fail to keep up with evolving practices (Judijanto, 2025). Digital transformation fosters various innovations and enhances the community's role in overseeing and criticizing government policies, thereby strengthening democracy and public participation (Raudhina Oktia Ayu, 2025). Will the question arise about whether AI will be a powerful tool for overcoming future challenges?

In addition, the increasingly widespread use of generative AI systems capable of producing content such as text, images and audio, with a certain degree of autonomy, is generating new debate about what is often referred to as "transformational use". On the one hand, this technology opens up spaces for creative freedom and encourages

the emergence of previously complex forms of innovation (Jiménez Cardona, 2023).

Artificial intelligence (AI) is a central issue today. Understanding how these technologies affect our collective present and future, as well as our professional and personal lives across various domains, is a matter of global concern (Avin, 2019). As technology evolves, AI has become an integral part of society, necessitating a view of it not only from a technological perspective but also from social, political and legal perspectives (Lindgren, 2023).

The inclusion of the Indonesian case in this comparative analysis addresses the need to examine how jurisdictions outside established Western regulatory traditions govern artificial intelligence in judicial and administrative contexts. Indonesia offers a relevant point of comparison precisely because its regulatory framework has developed in parallel with, rather than in alignment with, European or Anglo-American standards. This divergence allows the analysis to highlight the extent to which core principles such as accountability, transparency and procedural safeguards are contingent on legal culture, institutional capacity and regulatory priorities, rather than solely on technological capability. Considering the Indonesian case thus contributes to a more comprehensive understanding of the variability and limits of global AI governance models.

Against this background, the regulation of Artificial Intelligence (AI) in Indonesia remains in its developmental stage; however, its urgency has become increasingly

evident in light of real-world cases both domestically and internationally. In the United States, the COMPAS system has raised concerns of racial bias in criminal risk assessment, while the lawsuit *Mobley v. Workday* revealed age discrimination in recruitment processes (Forman & Wang, 2025). In the United Kingdom, the Department for Work and Pensions (DWP) algorithm erroneously labelled hundreds of thousands of citizens as benefit fraudsters (Booth & editor, 2024). In the Indonesian context, the use of AI in law enforcement has already raised serious concerns, including reports of potential human rights violations when crime-prediction systems or police data analytics are implemented without adequate transparency.

Critics of using AI in state administration highlight the risks of reduced transparency and bureaucratic accountability. Therefore, regulations need to guarantee restitution procedures for victims and establish clear responsibility for algorithm makers, users or system owners, ensuring that people do not become victims of a technology that should bring justice (Raharjo, 2023). Therefore, it is highly recommended that the Indonesian government adapt and adjust local regulations to global best practices to help overcome the many ethical challenges faced by artificial intelligence. This includes learning from the mistakes and successes that other countries have experienced (Novelli *et al.*, 2025) in understanding artificial intelligence (Nasman *et al.*, 2024).

This has also been a concern in recent five-year-long studies; for example, Niamh Kinchin's (2024) study indicates that AI ethical guidelines and formal regulation may be limited by ambiguous concepts of justice, competing market demands and limited rights to a fair trial, making human rights impact assessments less effective in protecting procedural rights (Kinchin, 2024). Jinghui and Zhenyang (2025), argue that only through the rule of law, characterized by continuous theoretical innovation, institutional development and international cooperation, can the advancement of AI technology be ensured to uphold human dignity, freedom and substantive justice (He & Zhang, 2025). Hafiz (2024) addresses the potential benefits and significant challenges posed by digital justice systems. These include disparities in technology adoption, the risk of exacerbating existing inequalities, the operational efficiencies gained and the obstacles encountered when reviewing digital initiatives across multiple jurisdictions (Gaffar *et al.*, 2021).

Unlike previous studies that have focused primarily on ethics as an imaginary fence for artificial intelligence,

emphasized the rule of law as an ivory tower where justice is preserved, or weighed the double-edged benefits and risks of digital justice, this study seeks to take a more grounded approach by examining how algorithmic bias can quietly creep in like a subtle shadow, almost imperceptible yet, capable of shifting the scales of justice within digital adjudication.

If Niamh Kinchin (2024) highlights the limitations of ethical guidelines trapped in conceptual ambiguity, Jinghui and Zhenyang (2025) asserts that only the rule of law can guide AI towards the protection of human dignity, while Hafiz (2024) underscores the paradox of a digital justice system that, on the one hand, promises efficiency but, on the other, risks deepening the abyss of inequality. This study, therefore, tests the extent to which the digital legal state can stand firm at the intersection of algorithmic transparency and legal accountability, like a wanderer who not only gazes at the ivory tower from afar but also descends into the valley of real life in search of the meeting point between norm and reality, between technology that advances rapidly and the law that strives to catch up.

1. Methodology

This study employs a qualitative approach with a normative-juridical orientation, grounded in legal analysis as a conceptual framework and a system of values. The primary sources examined include relevant national legislation and international legal instruments, supplemented by court decisions, public policies and official state documents regulating artificial intelligence governance (Gawas, 2017). To enrich the perspective, literature from cutting-edge scientific journals, both domestic and foreign, is also used, which discusses issues of algorithmic justice, AI regulation and the dynamics of the digital legal state. This article's comparative legal analysis uses the European Union Artificial Intelligence Act as a central benchmark, given its consolidated risk-based architecture and explicit linkage to fundamental rights protection.

The analysis is carried out in a hermeneutical style, like an interpreter who unravels the layers of meaning of a legal text and then relates it to a constantly moving social and political reality. From there, a comparison is made with the experiences of other countries that have previously arranged AI regulation, ensuring that this research not only stops at the theoretical level but also connects with

global practice. The results are then drawn into a normative analysis framework to examine the extent to which algorithmic bias can challenge principles of justice and how the law can serve as a beacon amid the swift wave of digital transformation.

2. Discussion

2.1. The dark side of digital

Solid stone walls, wooden hammers in the hands of judges and piles of paper files no longer define modern justice. Behind the blue screen of the monitor, legal decisions began to be influenced by algorithms, as if an invisible second judge were silently sitting in a chair without official robes. This machine does not speak loudly, but its whispers often determine the verdict's direction. In its silence, the digital hammer knocks, although inaudible, and each of its beats has serious consequences for the fate of man. The presence of algorithms in the digital justice system promises efficiency, speed and consistency.

However, behind this promise lies no less a great danger. The danger is called algorithmic bias, a shadow that is cast no matter how hard Justice tries to shed light on it. Algorithmic bias is born of lame data, of flawed and unequal social track records. Every number that comes into the system reflects real-life historical injustices (Hashim *et al.*, 2023). Crime data, for example, often records more

violations in poor areas or minority groups, not because they are more sinister, but because surveillance against them is tighter (Mölders, 2021). When such data is entered into the machine, the algorithm learns faithfully, without hesitation, without moral intuition.

The outcome is a decision that, despite appearing technically neutral, overlooks the diversity of human life and the intricacies of social relationships. The wound then reappears as a high-risk score, a lower likelihood of parole, or a more severe punishment recommendation for a particular group. In a metaphorical framework, this bias can be likened to a goblet of wine that appears sparkling on the table of Justice. The wine looks pure, soothing, and reassuring to anyone about to drink it. However, a subtle poison was mixed into it, not smelled, not felt on the first sip.

That's how an algorithm praised for its mathematical precision turned out to carry a hidden poison. The poison does not strike instantly, but it gradually erodes the foundations of justice. Judges, prosecutors, and even defenders who drink the Kool-Aid believe they are upholding justice with the help of technology, when in fact they are carrying out a verdict distorted from the beginning. Like a silent poison, algorithmic bias undermines not just a single verdict but also society's belief that the law protects everyone. These problems of algorithmic bias occur in almost all parts of the world due to rapid technological developments that are not accompanied by equivalent legal adaptations.

Table 2.1. Cases of algorithmic bias in the context of Judicial and Administrative Law

Country	System / Technology Name	Field of Application	Algorithmic Bias Issues	Implications for Justice
United States (Rudin, 2019)	COMPAS (Correctional Offender Management Profiling for Alternative Sanctions)	Recidivism risk prediction (Criminal Court decision)	In similar cases, black defendants received higher risk scores than white defendants.	Black defendants (Mattu <i>et al.</i> , 2016) are more often denied parole or receive harsher sentences, reinforcing racial discrimination.
England (Currie & Spring, 2025)	Algoritma DWP (Department for Work and Pensions)	Social benefits fraud detection	Hundreds of thousands of legitimate citizens were erroneously identified as fraudulent recipients (Booth & editor, 2024).	Poor citizens are losing access to benefits, while vulnerable groups face digital criminalization (Booth & editor, 2024).
Dutch (Fenger & Simonse, 2024)	SyRI (System Risk Indication)	Social Security fraud detection	Discriminating against migrants and economically disadvantaged groups.	Declared a human rights violation by the Hague Court in 2020; subsequently discontinued (Hussain, 2020).

Country	System / Technology Name	Field of Application	Algorithmic Bias Issues	Implications for Justice
Indonesia (Dwiarto, 2023)	The Integrated Social Assistance Data System	Determination of recipients of social assistance	Data matching errors occur because many poor people are not registered, while those who are registered can actually receive assistance.	The principle of social justice is violated when the rights of people with low incomes are ignored by the "digital verdict".
	Face Recognition	Law enforcement and public safety	Higher risk of misidentification in female faces and certain ethnicities.	The potential criminalization of innocent individuals violates the presumption of innocence.
	Labour Recruitment Algorithm	Job application screening	Risk of eliminating applicants based on gender or names associated with a specific group.	Systematic discrimination in employment access violates the principle of constitutional equality.

Source: own creation

It is essential to understand that algorithmic bias is not merely a technical problem but also a philosophical and ethical one. Every legal decision carries moral implications that concern human life (Triana *et al.*, 2020). Justice demands that each individual be treated equally, free from prejudices irrelevant to the substance of the case. When algorithms fail to meet these demands, the principle of equality before the law is undermined. The law loses its neutral face and becomes a tool that perpetuates injustice. Even more dangerous, inequities born of algorithms are harder to challenge. Humans can be sued, and judges can be criticized, but how do you sue a machine that has no malicious intent? How do you convince people that justice has been poisoned if the process is presented in the language of statistics and numbers that seem irrefutable?

This reflection on the concept of justice being torn apart requires us to consider what justice means in the digital age. If an algorithm is to be treated as an invisible judge, it must be subject to the same principles as a human judge. These principles include independence, transparency and accountability. Without them, we risk leaving justice in the hands of a cold, mechanical force that knows no compassion, understands no context and cannot weigh human values. The shadows of algorithmic bias remind us that technology, however advanced, remains only a reflection of the society that built it. If that society still harbours injustices, digital justice will only be a curtain that covers wounds, not a medicine that heals them.

2.2. Mirrors that must be clean

Justice is often depicted as a figure holding scales, closing his eyes to avoid taking sides, and hearing only the voice

of truth. In the digital age, this figure is given a new mirror: the algorithm. The mirror was expected to reflect a clear, measurable, and objective picture of the law. However, these mirrors are not always clean. There are scratches, cracks, and even blurry stains that make it difficult for anyone who wants to stare into the truth. Algorithms, as mirrors of justice, promise precision, but precision without ethical understanding can become an illusion. The image that emerges from that opaque mirror is often not the true face of justice but rather a shadow distorted by the way the algorithm structures data.

Digital laws that rely on machines to help make decisions may not accurately reflect reality. When a defendant is judged on an algorithm-generated risk score, his or her face in the mirror may appear darker or more blurry than it really is. This distortion is not only a technical problem but also a direct threat to the principles of due process of law and equality before the law. Legal uncertainty is no longer just born of human interpretation of norms, but also of mathematical formulas that cannot be explained in simple language (Ofori & Ad, 2020). A judge can still convey the reason for imposing a particular sentence, whereas an algorithm presents a number with no easy-to-understand explanation. When the reasons are unclear, the law's legitimacy falters.

Transparency is an absolute requirement for the public to believe in the institution of law. Confidence in the legal system gradually erodes if the public lacks understanding of the decision-making process (Muhtar *et al.*, 2022). Algorithms often operate as black boxes (Xi, 2024), obscuring their inner workings. The public cannot look inside; they do not know where the data comes from, how the model is trained, or which variables are considered. They receive

only the final result, without the opportunity to assess the process. Within the framework of a digital legal state, this condition is hazardous. Legal legitimacy can only survive when there is accountability, and without it, the law loses its social foundation.

The COMPAS case in the U.S. highlights the lack of transparency in risk-assessment systems, where defendants cannot question their risk scores, which violates fair-trial rights. Similarly, Indonesia's Digital Social Assistance Program also lacks transparency, as rejected citizens receive vague reasons for their disqualification without insight into the technical criteria used.

This closure widened the abyss of public distrust in the government while creating legal uncertainty. Therefore, the digital legal state must reveal the algorithmic mechanisms. Transparency does not require making the

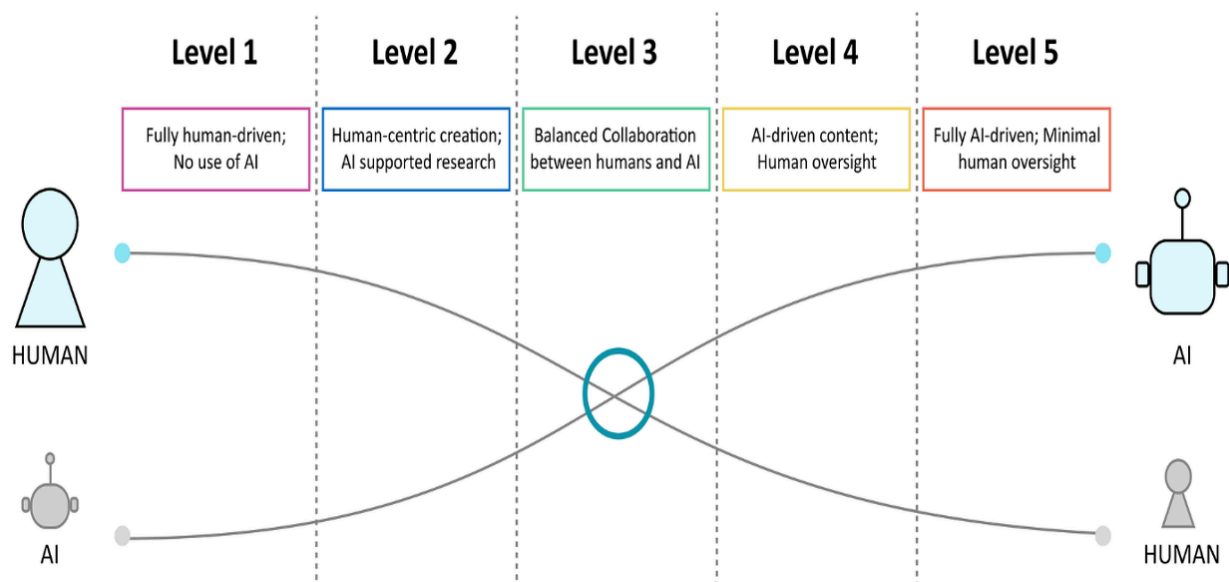
entire source code public; but it must ensure that the public, judges, lawyers, and defendants can understand the basis of the decision. The disclosure mechanism should include information on the data's origin, the method used to clean it, the variables used and the evaluation model.

Transparency standards must be supported by independent algorithmic audits. This kind of audit can be conducted by an academic institution, a supervisory authority, or an independent body that has legitimacy. Audits serve to ensure that algorithms are non-discriminatory, comply with regulations and are accountable. The financial world has long known auditing as a way of maintaining integrity. The digital world cannot be ignored. Without audits, algorithms are just mysterious judges who decide for no reason. One way to approach this problem is with the AI Transparency Framework.

Figure 1. AI Transparency Framework

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AI Transparency Framework



Source: UX Collective (LaMar, 2025)

The AI Transparency Framework shows five levels of human and artificial intelligence involvement in the decision-making process. The higher the level, the greater the role of AI and the smaller the human supervision. Within this framework, a conceptual map can be developed to

assess the risks of algorithmic bias, the collapse of accountability and the waning of transparency in the digital rule of law. The AI Transparency Framework levels are as follows (LaMar, 2025):

1. *Level 1 - Fully human-driven; No use of AI*

At this stage, all decisions are entirely in the hands of man. AI is not used at all. Transparency is relatively easy because every decision can be explained directly by human actors, although it remains susceptible to subjectivity and personal bias. In the legal context, this is a classic example of manual justice, in which the judge writes the judgment, ensuring clarity and accountability.

2. *Level 2 - Human-centric creation; AI-supported research*

AI is used as an auxiliary tool, but humans remain the leading actors. For example, judges use data analysis systems to identify patterns of prior rulings, but the final decision is still made by humans. Transparency at this level remains high because AI functions only as a "research assistant," not as a decision maker.

3. *Level 3 - Balanced collaboration between humans and AI*

At this stage, there is a balanced collaboration between humans and AI. Algorithms are beginning to take the lead, while humans continue to have significant oversight. This stage is a crucial point at which algorithmic bias can emerge more strongly, because decisions result from a combination of man and machine. Transparency also began to decline because it is difficult for the public to determine how many decisions are based on legal reasoning versus statistical logic.

4. *Level 4 - AI-driven content; Human oversight*

AI primarily drives decision-making, with humans overseeing only the outcomes. This creates a black-box problem in which judges and officials lack understanding of the algorithms, receiving only recommendations. Transparency diminishes, accountability weakens, and opportunities to contest algorithmic decisions are constrained. The COMPAS case exemplifies this, highlighting algorithms' dominance in assessing recidivism risk and relegating judges to a mere verification role.

5. *Level 5 - Fully AI-driven; Minimal human oversight*

AI makes all decisions, virtually eliminating human oversight. At this stage, legal accountability collapses. In the event of bias, discrimination, or fatal errors, it is difficult to determine who is responsible. In the context of digital law, this level is hazardous, as the principle of due process of law and the right to a fair trial can be lost. The logic of probability ultimately determines justice, leaving no room for appeal.

The framework outlines the relationship between AI dominance and levels of transparency and accountability, indicating that increased AI dominance can obscure accountability within the legal system. It emphasizes the necessity for close supervision to prevent the legal system from deteriorating to higher danger levels. Currently, Indonesia operates at levels 2-3, utilizing algorithms in social assistance and law enforcement, with a risk of moving to level 4 without regulation, which could erode public trust due to dependence on unverified AI systems.

Algorithmic justice relies on maintaining human control while using AI as an aid, ideally at levels 2-3. This requires clear accountability for algorithmic decisions, established through regulation. Additionally, implementing XAI is crucial for transparency, ensuring that the public and legal parties comprehend the reasoning behind digital decisions. Without transparency, the integrity of the law is compromised, and discrimination may persist. However, accountability is equally important; the key question remains: who is responsible when algorithms fail?

There are three potential parties responsible for algorithmic bias: the algorithm maker, the user or the country. Software developers claim to provide only tools, while users, such as judicial institutions, believe technology providers hold responsibility. Delays in regulatory clarity from the state leave victims of algorithmic bias with no one to hold accountable. To address this, a combination of explainable technology, sound public policies and accessible appeal mechanisms is necessary. The digital legal system must ensure that algorithmic decisions can be reviewed and challenged, mirroring the appeal process in human judicial rulings, thereby ensuring that humans remain the final decision-makers.

Accountability for algorithm failures cannot be separated from the issues of privacy and fundamental rights, because legal decisions in the digital realm almost always depend on the processing of personal data (Vadell, 2022). The absence of a firm accountable person pushes victims of bias or discrimination into "no-door" territory. At the same time, the impact extends to rights to data protection, equal treatment, and the right to challenge decisions that affect a person's legal position (Barona Vilar, 2023).

The European framework places data protection at the centre, as data protection rules provide space for rights regarding automated decisions and encourage real human supervision. At the same time, the new regime on AI involves risk classification and emphasizes the need for safe and ethical use (Medina & De Guzman, 2025). The next challenge arises when the two regimes do not move in harmony, as the dissynchronization actually creates a grey area of responsibility or an overload that hinders innovation without providing protection.

Mirror polishing in the judiciary necessitates a shift in legal culture, emphasizing the need for judges and prosecutors to possess digital literacy and understand algorithmic workings. Legal education should incorporate legal technologies to equip future legal professionals with knowledge of the risks and benefits of algorithms. This digital legal culture will enhance the judiciary's ability to oversee technology rather than merely comply with it. Transparency and accountability are vital for maintaining clarity in the justice system, which, without them, risks reflecting a distorted image of justice and eroding public trust in the law.

2.3. Taming the sphinx

At the gates of modern law stands a new Sphinx, a symbolic creature that poses a dangerous riddle (Painter, 2017). In ancient times, the Greek Sphinx posed questions to passersby, and if their answers were incorrect, it would devour them (Levy, 2022). Now, the Sphinx's face has become an algorithm that operates in silence, no longer guarding the gates of the city of Thebes but those of courtrooms, government offices, and public institutions. The puzzle is not a mythological poem but a sequence of codes and numbers that only a handful of technologists understand.

This modern Sphinx challenges the principle of justice with fundamental questions about who is responsible when an algorithm goes wrong, how to ensure it does not fall victim to bias, and to what extent the Constitution can subdue it. Answering these questions is a major task for the digital law state, because allowing algorithms to operate unchecked means handing justice over to a puzzle that can never be solved.

The question of algorithmic regulation is often framed as a choice between a sword of Damocles and a gust of shady

wind. The sword of Damocles represents the complex law approach: a harsh, binding regulation full of sanctions. This model consists of laws, government regulations, or formal legal instruments that expressly define the limits of algorithm use to guarantee and protect society with certainty. However, it is also frightening because its rigidity can hinder innovation.

On one hand, soft law comprising ethical guidelines, codes of conduct, and professional standards provides flexibility and quick adaptation to technological changes. However, its lack of enforcement makes it easily ignored, rendering it ineffective without sanctions. In digital law, a sole reliance on harsh measures can stifle innovation, while an exclusive focus on soft law leaves one vulnerable to challenges such as algorithmic bias.

The ideal regulation is the art of balancing the two approaches, ensuring the Sword of Damocles is not always a source of fear but remains ready to be wielded when necessary, while allowing the shady winds to fill the gaps the sword cannot reach. This is the idea of a hybrid regulatory model, in which the combination of formal legal instruments and a living ethical framework subjugates the Sphinx, preventing it from preying mercilessly.

The Constitution is the compass that guides this regulation. Its fundamental values gradually create external layers, each containing principles that emerge to address the complexities of a changing society (Bellanova & De Goede, 2022).

Today, analogue constitutional principles are no longer able to solve all the challenges of a digital society. The external form of constitutionalism is undoubtedly changing again. New constitutional layers are gradually being added to the existing ones. New principles have emerged to articulate the fundamental values of constitutionalism in response to the challenges of contemporary society. The scale of transformations triggered by the advent of the digital revolution is so significant that we can clearly distinguish the variety of new normative layers that embrace or even merge old layers (Shakhrai, 2018).

Learning from the global stage gives us an idea of how this modern Sphinx was conquered elsewhere. The European Union went so far as to formulate the EU AI Act, the world's first comprehensive regulation that classifies AI systems by risk level. AI used in the justice system, police,

or public services falls into the “high risk” category and must meet transparency, accountability, and human oversight standards (Aboy et al., 2024).

The European Union Artificial Intelligence Act represents the most comprehensive attempt to establish a binding legal framework for artificial intelligence at the supranational level. Its regulatory architecture departs from technology-specific prohibitions and instead adopts a graduated model that classifies AI systems by their potential impact on fundamental rights and societal interests (Voigt & Hullén, 2024). This approach allows the regulation to differentiate obligations across risk categories, thereby aligning regulatory intensity with the anticipated severity of harm rather than the mere presence of automated decision-making.

Procedural thinking in Europe has begun to respond by leaning on two ideas that make disputes more workable: first, access to evidence, so that relevant technical information can be requested and produced when needed; second, rebuttable presumptions, so that responsibility does not collapse simply because the injured party cannot penetrate a black-box design (Vallespín Pérez, 2025). Presumptions that a duty was breached, or that a causal link exists when fault is shown, can be overturned by the party best positioned to explain system behaviour, which reflects a simple fairness principle: proof should follow the side that actually controls the information.

Normative orientation in the AI Act is closely tied to the European Union's long-standing commitment to the protection of fundamental rights. Human oversight, transparency, accountability and non-discrimination operate not as abstract ethical aspirations but as legally operational principles embedded in compliance requirements for high-risk systems (Palmiotto, 2025). Such an arrangement reinforces the view that technological innovation must remain subordinate to constitutional values, particularly in contexts where algorithmic systems shape access to public services, employment or legal remedies (Stahl et al., 2022).

Regulatory coherence constitutes one of the principal strengths of the EU model, as uniform standards reduce fragmentation across Member States and enhance legal certainty for both developers and users. At the same time, the complexity of compliance mechanisms and the administrative burden associated with conformity assessments have raised concerns regarding barriers to

innovation, especially for smaller actors. These tensions illustrate the structural trade-off between robust rights protection and regulatory flexibility.

In the United States, regulation is more fragmented. There is no single national law that regulates AI across the board, but various standards, guidelines, and litigation that shape the regulatory landscape indirectly. Americans rely on a combination of common law and soft law, in which courts play a significant role in determining the limits on algorithmic use. Meanwhile, Japan and some other Asian countries are trying a more flexible approach, emphasizing ethical guidelines, voluntary certification, and collaboration between government and industry (Koos, 2022).

The United States has pursued a markedly different trajectory, relying on sectoral regulation, executive guidance, and *post hoc* enforcement rather than a single binding statute. Flexibility and an innovation-friendly governance approach emerge as clear advantages of this approach (Lenarczyk et al., 2025), enabling rapid technological development without extensive *ex ante* constraints (Radaelli & Rangoni, 2025). Legal uncertainty nonetheless persists due to the absence of uniform standards, particularly in areas where algorithmic systems affect civil rights, leaving protection largely dependent on litigation and agency discretion.

The regulatory stance adopted in the United Kingdom reflects a preference for principles-based governance anchored in existing institutional mandates. Regulatory authorities are encouraged to apply shared principles such as fairness, transparency and accountability within their respective domains, rather than through a centralized AI statute. Adaptive capacity is a key benefit of this model, though the lack of binding obligations may undermine enforceability and create inconsistencies across sectors, particularly when regulatory priorities diverge.

Indonesia faces a significant dilemma in determining its path. As a country with a civil law legal system that emphasizes codification, the tendency to choose complex law is powerful (Orhan et al., 2025). However, the dynamics of technology are moving too fast to be captured entirely in rigid laws. Herein lies the novelty of this research: Indonesia needs a hybrid regulatory model that combines legal certainty with technological flexibility. This model is not simply a compromise but rather a constitutional strategy that tames the algorithmic Sphinx without killing its innovation potential.

Indonesia's regulatory landscape remains characterized by a dispersed set of legal instruments addressing data protection, electronic systems and sector-specific governance (Sonni *et al.*, 2025). Contextual responsiveness and policy flexibility allow regulatory adaptation to national development priorities and institutional capacity. Structural fragmentation and limited coordination among regulatory bodies, however, constrain oversight effectiveness and complicate accountability mechanisms when algorithmic systems produce adverse social or legal consequences.

Comparison across these regulatory models reveals contrasting conceptions of how law should respond to algorithmic governance. The European Union emphasizes *ex ante* risk prevention through binding obligations, while the United States privileges innovation with corrective mechanisms activated primarily after harm occurs. The United Kingdom seeks balance through soft coordination, whereas Indonesia continues to navigate institutional consolidation.

The hybrid regulatory model emphasizes balancing legal certainty through complex law with the flexibility of innovation through soft law, using the Constitution as the main compass. This approach not only provides legal protection but also keeps algorithms adaptive, transparent, and accountable. In detail, the main characteristics include:

1. *Formal legal framework for high-risk areas*
 - a. Binding regulations should be applied to high-risk areas (high-risk AI), especially in the judiciary, law enforcement, and public administration (Review & Vasudevarao, 2025). It includes:
 - 1) There shall be a mandatory algorithmic audit conducted by an independent body.
 - 2) Minimum transparency standards should ensure that the variables influencing algorithmic decisions are clearly explainable.
 - 3) Developers, users and the state shall share tiered accountability for algorithmic errors.
 - b. High-risk sectors have direct consequences for citizens' constitutional rights. For instance, algorithms used within the judicial system may determine the length of a sentence or the likelihood of parole. When an algorithm errs, what is at stake is not merely economic rights but also the fundamental rights to liberty and justice. Therefore, legal certainty, achieved through the establishment of complex law, is imperative.
- c. Relationship with AI transparency framework:
 - 1) For level 3 (human-AI collaboration) up to level 5 (AI dominance), such hard law regulations function as safeguards
 - 2) The regulation ensures that AI systems shall not operate fully at level 5 without judicial oversight and transparency audits.
2. *Dynamic ethical guidelines and technical standards*
 - a. Stringent regulation cannot be alone. Flexible ethical guidelines and technical standards are required, maintained by the professional, academic and industry communities, and updated regularly. These guidelines include:
 - 1) An algorithmic code of ethics that governs the values of justice, non-discrimination and the protection of human rights.
 - 2) International technical standards, such as ISO/IEC standards for AI, which ensure interoperability and quality assurance.
 - 3) Best practices for technology implementation, including XAI methods such as LIME and SHAP, as well as local/global explainability approaches.
 - b. Soft law acts as a buffer, ensuring that legal systems remain adaptable to technological advancements. Relying solely on statutory law would render the law perpetually lagging, as the cycle of AI innovation moves far faster than the legislative process. Through dynamic ethical and technical standards, digital law can be harmonized with the rhythm of innovation without losing its normative grounding.
 - c. Relationship with the AI Transparency Framework:
 - 1) Ethical guidelines become particularly relevant at levels 2-3, when AI begins to be involved in decision-making processes.
 - 2) Transparency must be maintained by providing XAI mechanisms that enable the public, judges and defendants to understand the rationale behind decisions.
3. *Judicial control mechanism and appellate chamber*
 - a. All algorithmic decisions that have implications for citizens' rights must be testable in court (Deeks, 2019). The judicial control mechanism includes:
 - 1) The right of citizens to challenge algorithmic decisions when they believe they have been adversely affected.
 - 2) The authority of judges to reject or annul algorithmic recommendations proven to be discriminatory or contrary to the principles of justice.

- 3) The obligation of courts to obtain algorithmic explainability (Caja Moya & Quiroga Rodríguez, 2025) as a basis for judicial consideration.
- b. This mechanism guarantees that the algorithm never stands alone as the final judge. It is only an auxiliary tool that is always subject to human supervision. Without an appeal space, the principle of due process of law would collapse as citizens are forced to accept machine decisions without recourse to correction.
- c. Relationship with the AI Transparency Framework:
 - 1) At levels 4-5, judicial control serves as the final safeguard.
 - 2) Through appellate mechanisms, even a predominantly autonomous AI system cannot make decisions without human corrective oversight.
4. *Integration with the AI Transparency Framework*
This hybrid regulatory model can be mapped directly into the AI Transparency Framework to clarify its practices:
 - a. Levels 1-2 (human-driven and human-centric AI): ethical guidelines and professional standards are sufficient, as the risks remain low and human accountability is predominant.
 - b. Level 3 (balanced collaboration): audit standards and XAI mechanisms should be introduced to ensure that joint human-machine decisions remain accountable.
 - c. Level 4 (AI-driven with human oversight): must operate under formal regulation, with mandatory requirements for auditing, transparency, and appeal mechanisms.
 - d. Level 5 (fully AI-driven): prohibited in high-risk sectors, except in very limited cases subject to strict supervision and explicit legal authorization.
5. *Constitutional hybrid regulatory model*
 - a. Regulation of algorithms cannot be viewed solely from a technical or ethical perspective. It should be positioned within digital constitutionalism (De Minico, 2021).
 - b. This hybrid model confirms that:
 - 1) Strict legal regulation provides legal certainty and safeguards fundamental rights.
 - 2) Flexible normative instruments offer adaptability, ensuring that the law does not fall behind technological innovation.
 - 3) The AI Transparency Framework serves as a navigational guide to determine when ethical

guidelines suffice, when formal regulation is required, and when strict prohibition becomes necessary.

- 4) The Constitution functions as a moral and legal compass, ensuring that algorithms remain subject to the principles of human rights, due process and equality before the law.

With this hybrid model, Indonesia can adapt from Europe without copying its rules entirely and learn from America without falling into fragmentation. Most importantly, Indonesia insists that the Constitution is the cornerstone of AI regulation, not merely a technical legal instrument. The Constitution guarantees that justice is the ultimate goal, not mere efficiency. Thus, algorithms no longer serve as intimidating barriers to the law but rather as instruments that adhere to the highest legal principles.

During this time, debates often get stuck in the technical realm of how to ensure data is unbiased, how to design XAI, or how to regulate certifications. This study offers a new framework that places the regulation of algorithms within the framework of the Constitution, so that the issue is not only about technology but also about the rule of law and human rights. Indonesia is not just following the flow of global regulation but also creating its own model rooted in national legal traditions and in harmony with universal principles.

Taming the Sphinx involves making its riddles comprehensible rather than destroying them. By utilizing a balanced approach and a guiding constitutional framework, the digital law state can effectively navigate challenges. Algorithms are transformed from threats to allies, monitored to ensure they uphold justice. Indonesia can take the lead with a modern, adaptive regulatory framework that respects constitutional and humanitarian values, embodying a hybrid regulatory framework that governs technology while ensuring it aligns with legal principles.

Conclusion

This study confirms that integrating artificial intelligence within a digital legal state creates a paradox between the efficiency and acceleration of legal processes and the risks of algorithmic bias, blurred accountability and diminished transparency. These dynamics necessitate a hybrid regulatory model that combines the legal cer-

tainty of strict regulation with the flexibility of normative instruments, while upholding constitutional principles. Substantive recommendations include enhancing digital legal literacy, developing algorithmic audit mechanisms and appeal procedures, and implementing XAI technologies to promote openness and conduct hybrid regulatory experiments in high-risk sectors. Furthermore, strengthening international cooperation is crucial to align global standards with national constitutional values. Future research should pursue deeper empirical studies on the effectiveness of algorithmic systems and explore the potential for cross-sectoral hybrid regulation to ensure that AI becomes an adaptive, transparent and accountable instrument within the digital rule of law.

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