



Algorithmic Governance and Legal Accountability: A Comparative Analysis of Artificial Intelligence Regulation in Public Decision-Making

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Abstract

This article examines the problem of legal accountability in algorithmic governance, particularly in the context of artificial intelligence (AI) used in public decision-making, where the increasing reliance on automated systems generates significant challenges related to transparency, liability attribution, and the protection of fundamental rights. The study addresses the normative and practical gaps arising from the coexistence of binding regulations, such as the European Union Artificial Intelligence Act, and non-binding frameworks, including the OECD AI Principles and UNESCO Recommendation, alongside fragmented national policies. Employing a normative-comparative legal research method, this study utilizes doctrinal analysis and comparative approaches based on primary legal sources and secondary scholarly literature to evaluate the coherence, consistency, and effectiveness of AI regulatory regimes across jurisdictions. The findings reveal that while the EU framework provides a relatively structured and enforceable model of accountability through a risk-based regulatory approach, significant ambiguities persist in the allocation of legal liability and the operationalization of human oversight, particularly when algorithmic systems influence administrative discretion. Furthermore, the analysis demonstrates that socio-legal factors, including institutional capacity, legal culture, and administrative practices, critically affect the implementation of accountability norms, thereby exposing a gap between formal legal design and empirical realities, especially in developing regulatory environments. The study contributes to legal scholarship by proposing an integrated framework of algorithmic accountability that combines normative clarity, comparative insights, and socio-legal considerations to strengthen governance mechanisms in AI-driven public administration.

Keywords: Accountability, algorithmic governance, artificial intelligence, comparative law, public administration.



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INTRODUCTION

The rapid diffusion of artificial intelligence (AI) into public governance architectures has fundamentally reconfigured the epistemic and institutional foundations of decision-making within contemporary administrative states, transforming algorithmic systems from auxiliary tools into authoritative agents that shape regulatory outcomes, resource allocation, and citizen-state interactions. This transformation has catalyzed the emergence of algorithmic governance as a distinct field of inquiry, characterized by the delegation of discretionary authority to data-driven systems whose operational logics are often opaque, probabilistic, and resistant to traditional modes of legal scrutiny. The growing reliance on such systems has intensified concerns regarding legal accountability, particularly in relation to the erosion of transparency, the displacement of human judgment, and the diffusion of responsibility across complex socio-technical networks (Busuioc, 2021).

Within this evolving landscape, the challenge of aligning algorithmic decision-making with foundational principles of the rule of law has become a central concern in both legal scholarship and public policy discourse, especially given the implications for data protection, democratic legitimacy, and the protection of fundamental rights (Bignami, 2022; IGHOFIOMONI et al., 2025). Existing scholarship has made significant strides in conceptualizing the legal and ethical implications of AI deployment in public administration, yet its contributions reveal a fragmented and often tension-laden understanding of accountability in algorithmic contexts. Sawicki (2025) underscores the structural tension between administrative efficiency and individual rights, arguing that algorithmic decision-

making introduces systemic risks of bias and procedural opacity that cannot be adequately mitigated through existing legal frameworks.

Complementing this perspective, Al-Shawabkeh and Al-Jasmi (2025) demonstrate that comparative regulatory approaches in European and American jurisdictions exhibit divergent strategies in operationalizing transparency and oversight, reflecting deeper normative differences between rule-based and principle-based governance models. Meanwhile, Ionescu (2025) advances the notion of stakeholder governance as a means of reconceptualizing accountability beyond state-centric paradigms, proposing a distributed model of responsibility encompassing public institutions, private developers, and affected communities. These contributions collectively highlight the multidimensional nature of algorithmic accountability while simultaneously exposing the lack of theoretical convergence across disciplinary and jurisdictional boundaries. Notwithstanding these advances, the literature remains marked by critical limitations that constrain its explanatory and prescriptive capacity.

A predominant reliance on jurisdiction-specific analyses has impeded the development of a robust comparative framework capable of capturing cross-systemic patterns in AI regulation and accountability (Bignami, 2022). Furthermore, many studies adopt a compartmentalized approach, isolating issues such as data protection, transparency, or ethical compliance without adequately integrating them into a cohesive model of algorithmic governance (Kirana & Silalahi, 2025). Conceptual ambiguity further complicates the field, as the notion of accountability oscillates between formal legal liability, procedural fairness, and broader normative expectations, resulting in analytical inconsistencies that undermine doctrinal clarity (Satyo et al., 2026).

Empirical gaps are equally salient, particularly in emerging jurisdictions where regulatory infrastructures remain underdeveloped, thereby limiting the generalizability of existing findings and obscuring the global dimensions of algorithmic governance. These unresolved tensions acquire heightened significance in light of the expanding scope of AI applications in public decision-making, where algorithmic outputs increasingly determine access to essential services, regulatory compliance, and even coercive state actions. The absence of clearly defined accountability mechanisms not only exacerbates risks to individual rights but also undermines institutional trust and democratic legitimacy, especially when affected individuals lack meaningful avenues for contestation or redress. Empirical insights from Indonesia illustrate how regulatory gaps in AI governance can lead to vulnerabilities in data privacy and legal protection, reflecting broader challenges faced by jurisdictions navigating the intersection of technological innovation and legal reform (Judijanto et al., 2024).

At the global level, the failure to establish coherent accountability frameworks has been identified as a key impediment to the responsible deployment of AI in the public sector, raising concerns about the potential normalization of opaque and unaccountable decision-making practices (IGHOFIOMONI et al., 2025). These developments underscore the pressing need for a systematic and integrative approach to understanding legal accountability in algorithmic governance. Positioned within this contested and evolving scholarly terrain, the present study advances a normatively grounded and comparatively oriented analysis of AI regulation in public decision-making, seeking to bridge the conceptual and methodological gaps identified in prior research. By juxtaposing regulatory frameworks across jurisdictions and interrogating their underlying normative assumptions, this study moves beyond fragmented analyses to construct a more coherent account of how accountability is operationalized within different models of algorithmic governance. In doing so, it engages with and extends existing debates on transparency, oversight, and stakeholder responsibility, while critically examining the extent to which current regulatory instruments effectively address the complexities of algorithmic decision-making (Al-Shawabkeh & Al-Jasmi, 2025; Ionescu, 2025).

This positioning reflects an effort to reconcile doctrinal legal analysis with broader governance perspectives, thereby contributing to a more integrated understanding of accountability in the age of AI. This study aims to develop a comprehensive comparative framework for analyzing legal accountability in algorithmic governance by examining how different regulatory regimes conceptualize and implement accountability in AI-driven public decision-making processes. It seeks to contribute theoretically by refining the concept of algorithmic accountability through an integrative lens that connects legal doctrine, governance theory, and technological realities, while methodologically advancing a normatively informed comparative approach capable of generating both analytical clarity and prescriptive insights for the design of accountable AI systems in the public sector.

RESEARCH METHODS

This study adopts a normative-comparative legal research design, grounded in doctrinal analysis and comparative legal methodology to examine the regulatory frameworks governing artificial intelligence (AI) in public decision-making. The research relies on primary legal materials, including binding and non-binding instruments such as the European Union Artificial Intelligence Act (EU AI Act), OECD AI Principles, UNESCO Recommendation on the Ethics of Artificial Intelligence, and relevant national regulatory policies, complemented by secondary sources comprising peer-reviewed journal articles, academic monographs, and policy reports addressing algorithmic governance and legal accountability. The normative approach is employed to identify, interpret, and systematize legal norms and principles related to transparency, accountability, and human oversight in AI systems, while the comparative approach facilitates a cross-jurisdictional examination of how different legal systems conceptualize and operationalize accountability in algorithmic decision-making within public administration contexts (Bignami, 2022).

The analytical framework of this research integrates interpretative and evaluative methods through the application of the statute approach, conceptual approach, and comparative approach to assess the coherence, consistency, and effectiveness of existing regulatory regimes. Legal interpretation is conducted using systematic and teleological methods to uncover the normative objectives underlying AI regulations, particularly in relation to the protection of fundamental rights and the preservation of the rule of law in technologically mediated governance. The comparative analysis is further structured through functional equivalence and normative benchmarking to identify convergences and divergences across jurisdictions, enabling the formulation of a prescriptive model of legal accountability tailored to the complexities of algorithmic governance. The study also employs doctrinal synthesis to reconcile fragmented legal principles into a coherent analytical construct, ensuring methodological rigor and internal validity through cross-referencing authoritative legal sources and scholarly discourse (Busuioc, 2021; Satyo et al., 2026).

RESULTS AND DISCUSSION

Normative Construction of Algorithmic Accountability in Public Decision-Making

The normative architecture of algorithmic governance within public decision-making reveals a complex interaction between binding legal instruments and soft-law frameworks that collectively seek to define accountability in the age of artificial intelligence. The European Union Artificial Intelligence Act (EU AI Act) establishes a risk-based classification system that imposes differentiated legal obligations depending on the level of systemic risk posed by AI systems, particularly in high-risk public sector applications. OECD AI Principles and the UNESCO Recommendation on the Ethics of Artificial Intelligence articulate foundational norms such as transparency, fairness, and human oversight, yet their non-binding nature raises questions regarding enforceability within domestic legal systems. The doctrinal interpretation of these instruments demonstrates that accountability is increasingly conceptualized as a composite obligation encompassing explainability, traceability, and institutional responsibility (Bracci, 2023).

Legal scholarship further indicates that the fragmentation between hard law and soft law produces normative ambiguities that complicate the operationalization of accountability in administrative decision-making contexts (Fernández, 2023). The grammatical and systematic interpretation of the EU AI Act suggests that the notion of “high-risk AI systems” includes algorithmic tools used in public administration, such as welfare allocation, predictive policing, and migration control systems. OECD guidelines emphasize accountability mechanisms through governance frameworks that ensure human oversight and auditability, while UNESCO introduces ethical imperatives that transcend strictly legal obligations. The coexistence of these regulatory layers creates a multi-level governance structure in which accountability is distributed across institutional actors, including developers, deployers, and public authorities. Comparative doctrinal analysis reveals that this distribution often results in diluted responsibility, particularly when algorithmic outputs are integrated into administrative discretion (Suhardi, 2025).

The absence of a unified liability regime within these frameworks exposes a critical gap in ensuring effective legal remedies for affected individuals (Laelaturramadani, 2026). A closer teleological interpretation of these regulatory instruments indicates that their primary objective is the preservation of fundamental rights within technologically mediated governance systems. The EU AI

Act explicitly aligns with the Charter of Fundamental Rights of the European Union, emphasizing non-discrimination, data protection, and procedural fairness. OECD and UNESCO frameworks similarly underscore human-centric values, though they rely heavily on voluntary compliance mechanisms. This divergence between enforceable rights and ethical guidelines produces a structural asymmetry that weakens the normative force of accountability provisions. Legal theorists argue that such asymmetry undermines the coherence of algorithmic governance regimes, particularly in cross-border administrative contexts (Pradana et al., 2025).

The doctrinal synthesis of these frameworks reveals the need for harmonization to ensure consistency in legal accountability standards. The comparative legal analysis between European and Indonesian regulatory approaches highlights significant divergences in the conceptualization of accountability. Indonesia's legal framework, including sectoral regulations and emerging policies on artificial intelligence, lacks a comprehensive statutory instrument equivalent to the EU AI Act. OECD and UNESCO principles have influenced Indonesian policy discourse, yet their integration remains partial and inconsistent.

This regulatory gap creates uncertainty regarding the attribution of responsibility when AI systems influence administrative decisions. Scholarly analysis suggests that such uncertainty may lead to accountability deficits, particularly in cases involving automated decision-making systems (Herawaty & Fitria, 2025). The doctrinal evaluation of Indonesian law demonstrates the need for explicit legal provisions addressing algorithmic accountability. The structural elements of accountability within these regulatory regimes can be mapped through a comparative normative framework, as illustrated in the following table embedded within the analytical discourse:

Tabel 1. Comparative Normative Framework of Algorithmic Accountability in AI Regulatory Instruments (EU AI Act, OECD, UNESCO, and Indonesian Policy)

Regulatory Instrument	Accountability Mechanism	Legal Nature	Scope of Application
EU AI Act	Risk-based obligations, conformity assessments	Binding	High-risk AI systems
OECD AI Principles	Governance frameworks, transparency standards	Soft law	General AI systems
UNESCO Recommendation	Ethical guidelines, human rights focus	Soft law	Global normative scope
Indonesian Policy	Sectoral guidelines, emerging regulations	Fragmented	Limited public sector use

The table demonstrates that binding obligations are concentrated within the EU framework, while global instruments rely on normative persuasion rather than enforceable sanctions. This asymmetry has significant implications for legal certainty and the effectiveness of accountability mechanisms. The doctrinal interpretation of these differences underscores the challenges of achieving regulatory convergence in algorithmic governance. Legal scholars emphasize that without binding enforcement mechanisms, accountability risks becoming a purely aspirational concept (Stanizzi, 2026). The comparative framework thus reveals structural inconsistencies that hinder the realization of effective legal accountability. The interaction between algorithmic decision-making and administrative law principles further complicates the normative construction of accountability.

Traditional doctrines such as legality, proportionality, and due process are not easily adaptable to opaque algorithmic systems. The EU AI Act attempts to address this challenge through requirements for transparency and human oversight, yet practical implementation remains contested. OECD and UNESCO frameworks advocate for explainability, but they do not provide concrete legal standards for its enforcement. This doctrinal gap creates tension between technological efficiency and legal certainty (Nicholle, 2025). The analysis suggests that existing legal principles must be reinterpreted to accommodate the unique characteristics of algorithmic governance. The concept of “meaningful human control” emerges as a central element in the normative discourse on algorithmic accountability. The EU AI Act mandates human oversight mechanisms to prevent fully autonomous decision-making in high-risk contexts. OECD and UNESCO similarly emphasize human agency as a safeguard against

algorithmic bias and error. However, doctrinal analysis reveals that the definition of meaningful control remains अस्पष्ट and subject to varying interpretations across jurisdictions. This ambiguity undermines the effectiveness of accountability mechanisms, particularly when human oversight is reduced to formal compliance rather than substantive review (Wibowo & Kom, 2025).

Legal scholarship calls for clearer standards to ensure that human involvement is both effective and accountable. The role of judicial review in enforcing algorithmic accountability represents another critical dimension of the normative framework. Courts are increasingly confronted with cases involving algorithmic decision-making, yet existing procedural rules are often inadequate to address issues of opacity and complexity. The EU legal system provides avenues for challenging administrative decisions, but the technical nature of AI systems complicates evidentiary requirements. Indonesian courts face additional challenges due to the absence of specific legal provisions governing AI. Comparative analysis indicates that judicial oversight remains an underdeveloped mechanism for ensuring accountability in algorithmic governance (Mecca et al., 2025).

The doctrinal evaluation highlights the need for procedural reforms to enhance judicial capacity in this domain. The integration of algorithmic systems into public administration also raises concerns regarding democratic legitimacy and participation. The opacity of AI systems may limit citizens' ability to understand and contest administrative decisions, thereby undermining procedural fairness. UNESCO's emphasis on inclusivity and public engagement seeks to address this issue, yet its non-binding nature limits its practical impact. The EU AI Act incorporates transparency requirements, but their effectiveness depends on implementation at the national level. Scholarly analysis suggests that algorithmic governance may exacerbate existing inequalities if accountability mechanisms are not robustly enforced (García-Llorente & Olmeda, 2026).

The normative framework must therefore incorporate participatory elements to ensure democratic accountability. The doctrinal synthesis of these regulatory frameworks ultimately reveals a fragmented and evolving landscape of algorithmic accountability in public decision-making. Binding legal instruments such as the EU AI Act provide a structured approach to risk management and accountability, while soft-law frameworks contribute normative guidance without enforceability. National policies, particularly in developing jurisdictions, remain underdeveloped and lack coherence. This fragmentation creates significant challenges for the consistent application of accountability principles across jurisdictions. The analysis underscores the necessity of developing integrated legal frameworks that reconcile binding obligations with ethical standards to ensure effective governance of artificial intelligence in public administration.

Doctrinal and Comparative Evaluation of Legal Liability and Responsibility in Algorithmic Decision-Making

The doctrinal construction of legal liability in algorithmic governance reflects a fundamental tension between traditional administrative responsibility and the distributed nature of decision-making embedded within artificial intelligence systems. The European Union Artificial Intelligence Act (EU AI Act) introduces a layered allocation of responsibility among providers, deployers, and users of AI systems, thereby complicating the attribution of legal accountability in public decision-making contexts. OECD AI Principles and UNESCO Recommendation reinforce the necessity of accountability but do not establish enforceable liability regimes, leaving significant discretion to national legal systems. Comparative doctrinal analysis indicates that liability is increasingly diffused across multiple actors, which challenges the classical administrative law principle that public authorities bear ultimate responsibility for their decisions (Bracci, 2023). This doctrinal shift necessitates a reconfiguration of legal responsibility to address the hybrid nature of human-algorithm interaction in governance processes (Fernández, 2023).

The grammatical interpretation of the EU AI Act reveals that liability is not directly codified as a standalone regime but is embedded within compliance obligations, risk management requirements, and post-market monitoring duties. OECD frameworks emphasize accountability through governance structures rather than explicit liability rules, while UNESCO articulates ethical responsibility without legal sanction. Indonesian regulatory approaches, as identified in emerging policy instruments, rely heavily on general administrative law principles without specific provisions addressing AI-induced harm. This regulatory divergence produces inconsistencies in the attribution of responsibility when algorithmic outputs influence administrative decisions. Legal scholarship suggests that such

inconsistencies create gaps in legal protection for individuals affected by automated decision-making systems (Suhardi, 2025).

The absence of harmonized liability standards across jurisdictions underscores the need for a coherent doctrinal framework. The systematic interpretation of liability regimes demonstrates that algorithmic decision-making disrupts the conventional chain of causation in administrative law. Traditional liability models presume a direct link between the decision-maker and the outcome, whereas AI systems introduce layers of technical mediation that obscure causality. The EU AI Act attempts to address this issue through documentation and traceability requirements, yet these mechanisms do not fully resolve questions of fault and negligence. OECD and UNESCO frameworks advocate for accountability but do not clarify how liability should be apportioned among multiple actors. Comparative analysis indicates that this ambiguity leads to legal uncertainty, particularly in cases involving complex AI systems deployed in public administration (Laelaturramadani, 2026).

The doctrinal challenge lies in reconciling technological complexity with the need for clear and enforceable liability rules. The teleological interpretation of AI regulatory frameworks suggests that liability mechanisms are intended to ensure effective remedies for individuals whose rights are affected by algorithmic decisions. The EU AI Act aligns with broader European legal principles emphasizing access to justice and protection of fundamental rights. OECD and UNESCO frameworks similarly highlight the importance of redress mechanisms, though they rely on voluntary compliance. Indonesian legal scholarship points to the absence of explicit remedies for harms caused by AI systems in administrative decision-making. This gap undermines the effectiveness of accountability frameworks and weakens public trust in algorithmic governance (Herawaty & Fitria, 2025). The teleological analysis therefore reveals a misalignment between normative objectives and practical enforcement mechanisms. The comparative structure of liability regimes can be systematically illustrated through the following embedded table, which maps the allocation of responsibility across key regulatory frameworks:

Tabel 2. Comparative Allocation of Legal Liability and Responsibility in Algorithmic Decision-Making across Jurisdictions

Jurisdiction/Instrument	Legal Liability	Nature of Liability	Enforcement Mechanism
EU AI Act	Providers, deployers, users	Administrative and regulatory	Supervisory authorities
OECD AI Principles	Institutional actors	Ethical and governance-based	Non-binding oversight
UNESCO Recommendation	States and stakeholders	Normative and ethical	Voluntary compliance
Indonesia	Public officials and institutions	General administrative liability	Judicial and administrative review

The table demonstrates that liability under the EU framework is more structured and enforceable compared to the diffuse and non-binding approaches of OECD and UNESCO. Indonesian law relies on general principles of administrative responsibility, which may be insufficient to address the complexities of AI systems. The doctrinal interpretation of this mapping highlights the fragmentation of liability regimes across jurisdictions. Legal scholars argue that such fragmentation undermines the predictability and effectiveness of accountability mechanisms in algorithmic governance (Stanizzi, 2026). The comparative analysis underscores the necessity of harmonizing liability standards to ensure coherent legal protection.

The doctrinal debate surrounding strict liability versus fault-based liability becomes particularly salient in the context of algorithmic decision-making. The EU AI Act implicitly leans toward a risk-based approach that resembles elements of strict liability for high-risk AI systems. OECD and UNESCO frameworks do not explicitly address this distinction, leaving it to national legal systems to determine the appropriate liability model. Indonesian legal discourse continues to rely predominantly on fault-based liability, which may be inadequate for addressing harms caused by autonomous or semi-

autonomous systems. Comparative analysis suggests that a hybrid liability model may be necessary to balance fairness and efficiency (Nicholle, 2025).

This doctrinal evolution reflects the need to adapt traditional legal concepts to emerging technological realities. The role of public officials in algorithmic decision-making introduces additional complexity in the attribution of liability. Under Indonesian administrative law, public officials are generally held accountable for decisions taken within their authority, even when those decisions are influenced by external inputs such as AI systems. The EU AI Act similarly maintains the responsibility of deployers, particularly public authorities, for ensuring compliance with regulatory requirements. OECD and UNESCO frameworks emphasize institutional accountability but do not clearly delineate individual responsibility. This ambiguity creates potential conflicts between institutional and personal liability in cases of algorithmic error. Legal analysis indicates that clearer delineation of responsibility is necessary to prevent accountability gaps (Pradana et al., 2025).

The intersection between algorithmic governance and administrative discretion further complicates liability attribution. AI systems are often used to support or augment human decision-making, raising questions about the extent to which human actors can rely on algorithmic outputs. The EU AI Act imposes obligations to ensure human oversight, yet it does not fully address the legal consequences of over-reliance on automated systems. OECD and UNESCO frameworks advocate for responsible use but lack enforceable standards. Indonesian scholarship highlights the risk that public officials may defer excessively to algorithmic recommendations, thereby undermining accountability (Wibowo & Kom, 2025).

The doctrinal analysis suggests that liability frameworks must address the interplay between human judgment and algorithmic influence. Judicial approaches to algorithmic liability remain underdeveloped across jurisdictions, reflecting the novelty and complexity of the issues involved. European courts have begun to address cases involving automated decision-making, yet jurisprudence remains limited and fragmented. Indonesian courts have not yet developed a consistent body of case law addressing AI-related liability in public administration. OECD and UNESCO frameworks encourage the development of legal mechanisms for redress, but they do not provide concrete guidance. Comparative analysis indicates that judicial systems face significant challenges in interpreting and applying existing legal principles to algorithmic contexts (Mecca et al., 2025).

The evolution of jurisprudence will play a critical role in shaping the future of algorithmic accountability. The doctrinal synthesis of liability and responsibility in algorithmic governance reveals a transitional phase in the development of legal frameworks. The EU AI Act represents a significant step toward structured accountability, yet it does not fully resolve issues of causation and liability allocation. OECD and UNESCO frameworks contribute valuable normative guidance but lack enforceability. Indonesian legal systems continue to grapple with the integration of AI into existing administrative law structures. This fragmented landscape underscores the need for comprehensive legal reforms that address the unique challenges of algorithmic decision-making. The analysis demonstrates that the future of legal accountability in AI governance depends on the development of coherent, enforceable, and context-sensitive liability regimes.

Socio-Legal Implications and Institutional Challenges of Algorithmic Governance in Public Administration

The socio-legal dimension of algorithmic governance reveals that the deployment of artificial intelligence in public decision-making cannot be fully understood through doctrinal analysis alone, as it fundamentally reshapes institutional behavior, administrative culture, and citizen-state relations. The European Union Artificial Intelligence Act (EU AI Act), OECD AI Principles, and UNESCO Recommendation collectively articulate normative expectations regarding transparency and accountability, yet their implementation is mediated by institutional capacities and socio-political contexts. Empirical legal scholarship indicates that algorithmic systems often operate within bureaucratic environments that prioritize efficiency over procedural safeguards, thereby generating tensions between technological optimization and legal accountability (Bracci, 2023). Observations from comparative administrative practices demonstrate that public institutions frequently lack the technical expertise required to critically assess algorithmic outputs. This institutional asymmetry contributes to a form of “black-box governance” in which decision-making processes become increasingly opaque and difficult to contest (Fernández, 2023).

The interaction between regulatory frameworks and institutional practice highlights a persistent gap between normative prescriptions and empirical realities in algorithmic governance. The EU AI Act mandates transparency and human oversight, yet empirical studies suggest that these requirements are often implemented in a formalistic manner without substantive engagement. OECD and UNESCO frameworks emphasize ethical governance, but their reliance on voluntary compliance mechanisms limits their practical impact within bureaucratic systems. In Indonesia, emerging policies on artificial intelligence reflect an aspirational commitment to accountability, although institutional enforcement mechanisms remain underdeveloped (Suhardi, 2025).

Socio-legal analysis reveals that the effectiveness of regulatory frameworks depends not only on their legal design but also on their integration into administrative routines and professional practices. This dynamic underscores the importance of examining how legal norms are internalized and operationalized within public institutions (Laelaturramadani, 2026). The empirical reality of algorithmic decision-making in public administration demonstrates that accountability is often diffused across complex organizational structures. The EU AI Act assigns responsibility to multiple actors, including developers and deployers, yet institutional practices frequently obscure these distinctions. OECD and UNESCO frameworks advocate for clear accountability structures, but they do not address the organizational complexities inherent in public administration. Indonesian case studies suggest that responsibility for AI-assisted decisions is often ambiguously distributed among public officials, technical experts, and private vendors. This diffusion of responsibility creates practical challenges for enforcing legal accountability and identifying liable actors (Herawaty & Fitria, 2025).

Socio-legal inquiry thus reveals a disjunction between formal accountability frameworks and the lived realities of administrative decision-making. The integration of artificial intelligence into public governance also raises significant concerns regarding democratic legitimacy and citizen participation. Regulatory instruments such as the EU AI Act emphasize transparency as a means of enabling public scrutiny, yet empirical evidence suggests that technical complexity often limits meaningful access to information. OECD and UNESCO frameworks promote inclusivity and stakeholder engagement, though their implementation varies significantly across jurisdictions. In Indonesia, public awareness of algorithmic governance remains limited, which constrains the ability of citizens to challenge administrative decisions influenced by AI. This situation creates a risk of democratic exclusion, particularly for marginalized groups who may lack the resources to engage with complex technological systems (Stanizzi, 2026).

The socio-legal perspective highlights the need for participatory mechanisms that enhance the accessibility and comprehensibility of algorithmic decision-making. Institutional capacity emerges as a critical factor influencing the effectiveness of algorithmic governance frameworks. The EU AI Act presupposes the existence of robust supervisory authorities capable of monitoring compliance and enforcing regulatory requirements. OECD and UNESCO frameworks similarly assume a baseline level of institutional competence that may not be present in all jurisdictions. In Indonesia, administrative institutions face significant challenges in developing the technical and legal expertise required to oversee AI systems effectively. Empirical studies indicate that capacity constraints often result in reliance on external vendors, which further complicates accountability structures (Pradana et al., 2025).

This dependency introduces additional risks related to transparency, control, and legal responsibility within public administration. The socio-legal implications of algorithmic governance extend to the transformation of administrative discretion and decision-making processes. AI systems are frequently deployed to support or augment human judgment, yet empirical evidence suggests that public officials may become overly reliant on algorithmic outputs. The EU AI Act attempts to mitigate this risk through requirements for human oversight, although its practical enforcement remains uncertain. OECD and UNESCO frameworks emphasize the preservation of human agency, but they do not provide detailed guidance on how to achieve this in practice. Indonesian scholarship highlights the potential erosion of professional judgment when algorithmic recommendations are treated as authoritative (Wibowo & Kom, 2025).

This phenomenon raises important questions بشأن the balance between technological assistance and human responsibility in administrative law. The role of legal culture in shaping the implementation of algorithmic governance frameworks cannot be overlooked. The EU legal system is characterized by a strong tradition of rights-based governance, which influences the interpretation and application of the EU AI Act. OECD and UNESCO frameworks reflect a global consensus on ethical principles, yet their

reception varies depending on national legal traditions and institutional norms. In Indonesia, the integration of AI into public administration is influenced by a legal culture that prioritizes hierarchical authority and administrative efficiency. This cultural context may affect the extent to which accountability mechanisms are effectively enforced. Socio-legal analysis suggests that regulatory frameworks must be adapted to local contexts to ensure their practical relevance and effectiveness (Nicholle, 2025).

Judicial and quasi-judicial institutions play a crucial role in mediating the socio-legal impact of algorithmic governance. The EU AI Act provides mechanisms for oversight and redress, yet empirical evidence indicates that courts face significant challenges in dealing with technically complex cases. OECD and UNESCO frameworks encourage the development of accountability mechanisms, but they do not specify institutional arrangements for their implementation. In Indonesia, the judiciary has yet to develop a consistent approach to cases involving AI-assisted decision-making. This institutional gap limits the ability of affected individuals to seek effective remedies. Socio-legal research underscores the importance of strengthening judicial capacity and developing specialized expertise in algorithmic governance (Mecca et al., 2025).

The intersection between algorithmic governance and sector-specific applications further complicates the socio-legal landscape. In areas such as financial regulation and public service delivery, AI systems introduce new forms of risk that require tailored regulatory responses. Comparative analysis of banking regulation demonstrates that risk-based oversight models may offer valuable insights for public administration (García-Llorente & Olmeda, 2026). The EU AI Act incorporates sectoral considerations through its risk classification framework, while OECD and UNESCO provide general guidelines applicable across sectors. Indonesian policies remain fragmented and lack sector-specific regulatory clarity. This diversity of approaches highlights the need for context-sensitive regulatory strategies that address the unique challenges of different domains.

The socio-legal synthesis of algorithmic governance ultimately reveals a dynamic interplay between legal norms, institutional practices, and societal values. The EU AI Act represents a significant advancement in formal regulatory design, yet its effectiveness depends on institutional implementation and socio-cultural acceptance. OECD and UNESCO frameworks contribute to the development of global norms, though their impact is mediated by national contexts. Indonesian experiences illustrate the challenges of integrating AI into existing legal and administrative systems. The analysis demonstrates that achieving effective legal accountability in algorithmic governance requires not only robust legal frameworks but also institutional capacity, cultural adaptation, and active public engagement.

CONCLUSION

The analysis demonstrates that algorithmic governance in public decision-making operates within a fragmented yet evolving legal landscape in which binding regulatory frameworks, such as the European Union Artificial Intelligence Act, coexist with soft-law instruments like the OECD AI Principles and UNESCO Recommendation, thereby producing a multilayered but often inconsistent architecture of accountability. The comparative doctrinal evaluation reveals that while the EU model advances a structured, risk-based approach to legal responsibility, significant ambiguities persist regarding liability attribution, causation, and the operationalization of meaningful human oversight, particularly when algorithmic systems mediate administrative discretion. At the same time, socio-legal findings indicate that institutional capacity, legal culture, and administrative practices critically shape the effectiveness of these norms, often exposing a gap between formal regulatory design and empirical implementation, especially in jurisdictions with underdeveloped AI governance frameworks such as Indonesia. The study positions legal accountability not merely as a matter of compliance with formal rules but as a dynamic construct requiring doctrinal refinement, institutional strengthening, and contextual adaptation to technological realities. It contributes to the advancement of legal scholarship by articulating an integrated model of algorithmic accountability that reconciles normative coherence, comparative insight, and socio-legal complexity within contemporary administrative law.

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