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Digital Fiscal Accountability under Indonesian Administrative Law: A Framework for AI-Driven Regional Budget Governance

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Abstract

Artificial intelligence (AI) is increasingly used to support public-sector fiscal analysis. Yet, its integration into regional budgeting creates a legal problem that existing Indonesian administrative-law arrangements do not expressly resolve: how AI-generated recommendations may be used without transferring legally binding decision-making authority from public officials to algorithmic systems. This article examines the normative conditions for using AI as a decision-support instrument in regional budget governance. It develops a digital fiscal accountability framework for addressing fiscal turbulence, transparency, responsibility, and reviewability. The research uses a normative juridical method based on statutory and conceptual approaches. Primary legal materials are analyzed to identify rules and principles concerning governmental authority, administrative procedure, accountability, data protection, and digital government, while secondary literature is used to construct the conceptual relationship between administrative law and algorithmic governance. The analysis finds that AI may improve fiscal forecasting, anomaly detection, and scenario analysis, but these benefits do not make AI an autonomous administrative decision-maker. The proposed framework therefore requires human validation, traceable decision records, data-quality controls, algorithmic auditability, contestability, and a clear allocation of responsibility among officials, institutions, and technology providers. Digital fiscal accountability is proposed as a normative reconstruction that connects existing administrative-law principles with AI-specific safeguards rather than as a claim that Indonesian law already comprehensively regulates AI-driven budgeting.

Keywords: *digital fiscal accountability; administrative law; algorithmic accountability; regional budget governance; AI governance.*

A. INTRODUCTION

Digital transformation is reshaping public administration by expanding the use of data-driven systems for policy analysis and governmental decision-making. Artificial intelligence (AI) is increasingly presented as a tool capable of processing large datasets, identifying patterns, and generating predictive recommendations for public policy. (Wirtz et al., 2019). In regional public finance, these capabilities are particularly relevant because budget decisions must respond to changing revenue, expenditure, and socioeconomic conditions. (Wirtz et al., 2019) However, technological capacity does not itself establish legal authority. The central legal issue is therefore not simply whether AI can make fiscal governance more efficient, but whether its use remains compatible with legality, accountable administration, and democratic control. (Straub et al., 2023)

Regional governments are particularly exposed to fiscal turbulence because local revenue can fluctuate with changes in tax and fee collection, economic activity, commodity prices, intergovernmental transfers, and broader macroeconomic conditions (Dicky Eko Prasetio, Muh Ali Masnun, 2024).. At the same time, expenditure commitments often cannot be adjusted at the same speed. Conventional linear budget planning may therefore fail to anticipate nonlinear interactions among revenue shocks, expenditure pressures, and policy changes (Mutai et al., 2025). In this article, fiscal turbulence refers to a condition in which unexpected or rapidly changing fiscal variables create significant pressure on regional budget balance, expenditure

capacity, or the sustainability of public programs. AI-based predictive analytics can assist by processing large and heterogeneous datasets, identifying patterns and anomalies, and generating scenarios before fiscal stress becomes acute (Nzazi et al., 2025). Nevertheless, predictive capacity does not confer legal authority: the resulting output remains a recommendation that must be evaluated by the competent public official.

The international literature shows both the opportunities and risks of algorithmic governance. Pasquale's concept of the Black Box Society highlights the difficulty of understanding decisions produced through opaque computational systems. (Pasquale, 2015) Yeung's account of algorithmic regulation demonstrates how computational systems can structure regulatory decisions through data collection, prediction, and automated or recommender functions. (Yeung, 2018) Coglianese and Lehr further explain that machine learning can be used in administrative decision-making but must remain compatible with legal requirements governing administrative action. (Coglianese & Lehr, 2017) These perspectives establish that AI should not be treated as a neutral substitute for administrative judgment; its use may reproduce institutional bias, obscure responsibility, and intensify administrative power if legal safeguards are inadequate. (Straub et al., 2023)

The governance literature similarly identifies a tension between technological efficiency and public accountability. (Chen et al., 2026) AI can support evidence-based policy and large-scale analysis, but its deployment also creates questions concerning transparency, bias, data governance, human control, and the attribution of responsibility. (Kuziemski & Misuraca, 2020) In fiscal governance, these concerns are especially consequential because algorithm-supported recommendations may

influence the distribution of public resources. Digital systems that are efficient but not legally explainable, contestable, or auditable may therefore strengthen administrative capacity while simultaneously weakening democratic accountability. (Madan & Ashok, 2023)

The central research gap is therefore not whether AI can improve fiscal forecasting, but how Indonesian administrative law should constrain the use of AI when algorithmic recommendations influence the allocation and management of regional public funds (Rizk & Lindgren, 2025). Existing literature has developed substantially on AI in public administration, digital government, and algorithmic accountability. Yet, the specific relationship between AI-supported regional budgeting, legally conferred authority, administrative discretion, due care, and fiscal accountability remains insufficiently articulated (Wenzelburger et al., 2024). This gap creates a precise legal question: under what legal and institutional conditions may AI be used in regional budget decision-making without producing an unlawful delegation of authority, weakening democratic accountability, or obscuring responsibility for the resulting administrative action? Administrative law provides a distinctive analytical framework because it determines who may act, on what legal basis, through which procedure, subject to which principles, and with what possibilities for review and remedy; these questions cannot be answered by technological efficiency or public-finance analysis alone.

In Indonesia, the constitutional and statutory framework already establishes important normative foundations for this problem. Article 23 of the 1945 Constitution provides the constitutional basis for accountable public financial management (Masnun, Muh Ali, Prasetio, Dicky Eko, Konara, 2026). Law Number 17 of 2003 on

State Finance establishes principles including efficiency, effectiveness, transparency, and accountability. Law Number 23 of 2014 on Regional Government places regional governments within the framework of regional autonomy and fiscal administration, while Law Number 30 of 2014 on Government Administration requires governmental action to be grounded in legality and the General Principles of Good Governance. Law Number 27 of 2022 on Personal Data Protection is relevant where fiscal systems process personal data, and Presidential Regulation Number 95 of 2018 on the Electronic-Based Government System provides a broader digital-governance framework. (Fitria et al., 2025) These instruments provide the legal premises for AI use, but they do not expressly establish a comprehensive regime for AI-supported regional budget decision-making.

Against this background, this article develops digital fiscal accountability as a proposed normative reconstruction that connects existing administrative-law principles with AI-specific safeguards. The concept differs from general algorithmic accountability by focusing specifically on the fiscal consequences of AI-supported governmental action and by linking traceability to legal authority, due care, human validation, and reviewability. AI-driven fiscal governance is consequently used here as a conceptual model, not as a claim that AI should autonomously determine regional budgets. The model treats AI as a decision-support system and reserves legally binding administrative authority for the competent public official or institution.

A comparative perspective further clarifies the proposed reconstruction. The European Union Artificial Intelligence Act adopts a risk-based framework that combines obligations concerning transparency, human oversight, documentation, and accountability for specified categories of AI systems. At the same time, the OECD AI

Principles emphasize trustworthy (European Parliament and Council of the European Union, 2024), human-centred AI, respect for the rule of law and democratic values, transparency, robustness, and accountability. These instruments do not directly govern Indonesian regional budgeting. Still, they demonstrate an emerging international direction in which AI deployment is conditioned by traceability, human control, risk management, and institutional responsibility. The Indonesian framework can therefore contribute to this broader discourse by translating existing administrative-law principles, particularly legality, authority, due care, accountability, and reviewability, into AI-specific controls for fiscal decision support. The contribution is thus a context-specific normative reconstruction rather than a claim that Indonesia has already adopted an equivalent AI Act. The research question addressed in this article is: how can administrative law structure the use of AI as a decision-support instrument in regional budget governance while preserving legal authority, accountability, transparency, and protection of citizens' rights? The analysis proceeds by first examining the administrative-law boundaries of AI-supported fiscal decision-making, including authority, discretion, legality, and due care; second, developing safeguards for fiscal-risk mitigation, transparency, human oversight, auditability, and responsibility; and third, formulating the digital fiscal accountability model and its implications for future regulatory development.

This study employs a normative juridical method using statutory and conceptual approaches. The primary legal materials comprise the 1945 Constitution of the Republic of Indonesia, Law Number 17 of 2003 on State Finance, Law Number 23 of 2014 on Regional Government, Law Number 30 of 2014 on Government Administration, Law Number 27 of 2022 on Personal Data Protection, and Presidential Regulation Number 95 of 2018 on the Electronic-Based Government System, together with relevant international instruments used for comparative analysis. Secondary legal materials consist of books and peer-reviewed scholarship on administrative law, algorithmic governance, AI accountability, digital government, and public financial management.

Materials were selected according to their direct relevance to governmental authority, administrative procedure, accountability, transparency, due care, data governance, and reviewability in AI-supported fiscal decision-making. The statutory approach identifies the legal principles and institutional competencies governing regional budgeting. In contrast, the conceptual approach synthesizes these principles with the literature on algorithmic governance to construct a normative model of digital fiscal accountability. Non-legal sources are used as contextual and conceptual materials, not as independent legal authority.

B. RESULT AND DISCUSSION

1. Administrative Law Boundaries for AI-Based Fiscal Decision Support in Regional Budget Governance

The management of the Regional Revenue and Expenditure Budget constitutes an integral component of the national financial system. It is normatively regulated within

the framework of public financial law and administrative law. In the Indonesian legal system, the fundamental principles governing public financial management derive from Article 23 of the 1945 Constitution of the Republic of Indonesia. This constitutional principle serves as the normative foundation for all mechanisms of public financial governance, including those relating to regional budgeting.

These constitutional provisions are further elaborated in Law Number 17 of 2003 on State Finance, which stipulates that the management of state finances must be carried out in an orderly manner, in compliance with statutory regulations, and in accordance with the principles of efficiency, economy, effectiveness, transparency, and accountability. These principles indicate that the management of public budgets is not merely an administrative activity but also forms part of the broader mechanism of constitutional accountability within the system of government.

Within the framework of fiscal decentralization, the authority of regional governments to manage the APBD is regulated under Law Number 23 of 2014 on Regional Government, which grants regional administrations the autonomy to regulate and administer governmental affairs based on the principles of regional autonomy and co-administration. This authority positions regional governments as the principal actors in regional fiscal management, thereby requiring that budgetary decisions taken at the local level remain subject to the principles of administrative law.

From the perspective of administrative law, any fiscal policy adopted by regional governments constitutes a form of governmental action (bestuursdaad) that must satisfy the essential elements of authority, procedure, and substantive legality (Muh. Ali Masnun, 2026). These three elements serve as the primary parameters for assessing the legality of administrative actions and form the basis for legal oversight mechanisms

over governmental conduct (Hananto Widodo, Dicky Eko Prasetio, Ridwan Arma Subagyo, 2024). Accordingly, the management of the APBD does not merely concern the technical aspects of budgeting but is also closely related to the principles of legality and accountability in public administration.

The boundary between bureaucratic discretion (freies Ermessen) and algorithmic automation is central to the legality of AI-supported regional budgeting. Under the administrative-law framework, discretion remains an exercise of legally conferred governmental authority by a public official; an AI system cannot independently possess that authority merely because its output is technically sophisticated. AI should therefore be classified as a decision-support instrument whose recommendation has evidentiary and analytical value but no autonomous legal force. Where an official approves an AI recommendation without meaningful examination of its legal basis, data quality, assumptions, and fiscal consequences, the problem is not simply technological error but a failure to exercise administrative discretion properly. Such blind reliance may create grounds for reviewing the decision as an abuse or misuse of authority, arbitrariness, or failure to satisfy the duty of care, depending on the facts and the applicable administrative-law remedies.

The principle of due care (zorgvuldigheidsbeginsel) should operate as a concrete pre-decision control on AI-generated fiscal recommendations (Roehl & Hansen, 2024). Before relying on an AI output, the responsible official should verify at least the provenance and completeness of the underlying fiscal data, the existence of material errors or anomalies, the relevance of the variables used, the validity of the model for the fiscal context concerned, the consistency of the output with statutory authority and budgetary rules, and the availability of an explanation and audit trail

sufficient for later review. Historical budget data should therefore undergo cleansing, validation, and documentation before being used for training or prediction (Igirisa et al., 2024). If material data defects are known or reasonably discoverable and the official nevertheless relies on the output without verification, the resulting administrative action may contain a substantive or procedural defect attributable to inadequate care. These controls translate the AUPB from a general principle into an operational legal obligation for AI-supported fiscal governance.

The legal consequence of an AI-supported recommendation must also depend on the nature of the defect. If an AI recommendation exceeds the statutory authority of the responsible institution, it must be rejected because an algorithm cannot enlarge governmental competence. If the recommendation is affected by material data error or algorithmic bias, the official must suspend reliance on the output and conduct additional verification or obtain a corrected analysis before deciding. (Chen et al., 2026) If the prediction proves inaccurate despite reasonable validation, the error does not convert the recommendation into a legally binding decision; the relevant question becomes whether the official and institution complied with applicable duties of care, competence, documentation, and oversight. This distinction prevents technological error from being confused with the legal validity of the administrative decision.

The human-in-the-loop principle should be understood carefully in doctrinal terms. Indonesian administrative law does not expressly formulate “human in the loop” as an AI-specific statutory doctrine. Its normative basis can nevertheless be derived from the existing requirements of legal authority, administrative discretion, due care, accountability, and responsibility of public officials. The article therefore treats human-in-the-loop governance as a proposed normative specification of those existing

principles for AI-supported fiscal administration. The originality lies not in claiming that Indonesian law already contains an AI-specific human-in-the-loop rule, but in showing how established administrative-law requirements should operate when algorithmic recommendations become part of the decision process.

In line with the evolution of modern governance, the concept of accountability in public administration has undergone significant transformation as the complexity of public policy continues to increase. (Zuiderwijk et al., 2021) Research on digital government governance indicates that public authorities are increasingly relying on data technologies and algorithmic systems in the process of public policy decision-making. This transformation reflects a broader shift from traditional bureaucratic models toward data-driven governance, in which digital technologies are utilized to enhance the effectiveness of public policy. (Aldemir & Uçma Uysal, 2025).

These developments are also consistent with findings from various studies indicating that artificial intelligence holds significant potential to enhance the analytical capacity of public policymaking through large-scale data processing and more accurate predictive analytics (Masnun et al., 2025). The integration of this technology enables governments to identify policy patterns, anticipate fiscal dynamics, and improve the quality of administrative decision-making in a more systematic manner. (Aldemir & Uçma Uysal, 2025). Accordingly, in the context of regional financial management, the utilization of digital technologies cannot be separated from the need to strengthen fiscal governance systems capable of addressing the growing complexity of public policy in the digital era.

The use of artificial intelligence in governmental administration forms part of a broader transformation in digital government governance. In the literature on public

administration, this phenomenon is frequently referred to as algorithmic governance, namely the use of algorithms and analytical systems in the process of public policy decision-making. This concept signifies a paradigmatic shift in public administration from conventional bureaucratic decision-making toward systems that increasingly rely on data analytics and automated processes. (Katzenbach & Ulbricht, 2019)

In the context of public financial management, the use of artificial intelligence is becoming increasingly relevant due to the growing complexity of fiscal governance. Regional governments are required to manage multiple sources of revenue, allocate budgets across various sectors of public service delivery, and maintain fiscal stability in the face of uncertain economic dynamics. Artificial intelligence-based analytical systems enable governments to integrate diverse sources of fiscal data and generate more accurate policy projections.

Recent studies indicate that the use of artificial intelligence in the public sector can enhance administrative efficiency, strengthen fiscal accountability, and improve transparency in the management of public finances. In several advanced jurisdictions, this technology has been utilized to improve government financial reporting systems, detect potential irregularities in budget management, and enhance the effectiveness of fiscal oversight (Aldemir & Uçma Uysal, 2025). Artificial intelligence also enables governments to conduct predictive analyses of fiscal risks that may arise within the budget cycle. By utilizing machine learning techniques and large-scale data analytics, public authorities can identify potential budgetary imbalances, anticipate trends in regional revenue, and formulate fiscal policies that are more adaptive to evolving economic dynamics (Zuiderwijk et al., 2021).

The use of algorithmic technologies in governmental decision-making is not without institutional and legal challenges. A number of studies indicate that the integration of artificial intelligence into public administration may alter bureaucratic decision-making structures and generate new dynamics in the relationship between technology, bureaucracy, and society (Mahroof et al., 2025). This development indicates that the use of artificial intelligence in public financial management should be understood not merely as a technological innovation but also as an institutional transformation that requires corresponding adjustments within the framework of administrative law.

One of the central issues in the literature on algorithmic governance concerns the question of administrative accountability. When algorithmic systems influence governmental decisions, questions arise as to who bears responsibility for such decisions and how oversight mechanisms can be exercised over systems that are inherently technical and complex. (Alon-Barkat et al., 2025). Studies on algorithmic governance indicate that the use of automated systems in government has the potential to reshape the structure of bureaucratic accountability.

The integration of algorithmic systems into public administration may shift decision-making patterns from human discretion-based bureaucratic models toward system-based decision-making structures (Katzenbach & Ulbricht, 2019). Such changes give rise to new challenges in ensuring that administrative decisions remain legally accountable. Within the framework of administrative law, accountability constitutes a fundamental principle that ensures governmental actions can be subject to public scrutiny and reviewed through available legal mechanisms.

One of the risks frequently discussed in the literature on artificial intelligence in the public sector is the emergence of what is often referred to as black box administration. This phenomenon describes a situation in which governmental decision-making processes are based on algorithmic systems that are not fully transparent or readily understandable to the public. When algorithms serve as the basis for public policy recommendations, the decision-making process may become difficult to audit through legal mechanisms. (Saldanha et al., 2022). The use of artificial intelligence in public administration also raises concerns regarding the potential for algorithmic bias and discriminatory outcomes in governmental decision-making. Recent studies indicate that algorithmic systems employed in the public sector may produce unjust decisions when the data used to train such systems contain underlying structural biases. (Alon-Barkat et al., 2025).

In the context of regional financial management, these concerns are particularly significant, as budgetary decisions have direct implications for the distribution of public resources. The use of algorithmic systems in fiscal decision-making must therefore be accompanied by adequate legal oversight mechanisms to ensure that the resulting decisions remain consistent with the principles of justice and public accountability. To address these challenges, a number of administrative law scholars emphasize the importance of developing administrative law safeguards governing the use of artificial intelligence in government. Such a framework is intended to ensure that the deployment of digital technologies in public administration remains subject to the fundamental principles of the rule of law.

In the context of regional financial management, the application of artificial intelligence must be accompanied by several legal safeguards. The first concerns

algorithmic transparency, namely the obligation of public authorities to ensure that digital systems used in public decision-making incorporate adequate documentation mechanisms that allow decision-making processes to be traced and audited.

The second concerns human oversight, which requires the involvement of public officials at every stage of technology-based decision-making. This principle affirms that administrative decisions cannot be entirely delegated to algorithmic systems, but must remain under the authority of public officials who bear legal responsibility for such decisions.

The third safeguard concerns the auditability of digital systems, namely the capacity of oversight institutions to examine both the processes and outputs of algorithmic systems employed in public administration. In the context of public financial management, digital auditing mechanisms are particularly important to ensure that the use of technology within budgeting systems does not create risks of abuse of authority. Research on the governance of artificial intelligence in the public sector further indicates that the integration of digital technologies in government must be accompanied by a regulatory framework capable of maintaining a balance between technological innovation and the protection of democratic values. (Kuziemski & Misuraca, 2020).

Studies on the implementation of artificial intelligence within public organizations indicate that the successful deployment of such technologies largely depends on the institutional capacity to integrate ethical principles, regulatory standards, and data governance frameworks into the development of digital systems (de Almeida & dos Santos Júnior, 2025). In the Indonesian context, these principles

are also consistent with the provisions of Law Number 30 of 2014 on Government Administration, which affirms that every governmental action must be grounded in the principle of legality and the General Principles of Good Governance.

These provisions emphasize that the use of digital technologies in public administration must not diminish the principles of accountability and the legal responsibility of public officials.

The digital transformation of governance in Indonesia also finds normative support in Presidential Regulation Number 95 of 2018 on the Electronic-Based Government System, which promotes the use of digital technologies in public administration in order to enhance efficiency, transparency, and accountability in public service delivery. Based on this analysis, it may be concluded that the use of artificial intelligence in regional financial management holds considerable potential to improve both the efficiency and the quality of fiscal policymaking. Nevertheless, the integration of such technologies into governmental administrative systems must be undertaken with caution in order to prevent the emergence of legal challenges in public governance.

Accordingly, there is a pressing need to develop a model of digital fiscal accountability capable of integrating artificial intelligence technologies with the principles of administrative law. Such a model positions artificial intelligence-based decision support systems as analytical instruments that assist fiscal decision-making, without replacing the authority of public officials within the administrative system of government. In this regard, artificial intelligence is not conceived as a substitute for administrative decision-making mechanisms, but rather as a supporting tool in the process of fiscal policy analysis that remains subject to the principles of legality,

transparency, and public accountability. The integration of digital technologies with administrative law therefore constitutes a fundamental prerequisite to ensure that digital transformation in regional financial management can enhance the efficiency of fiscal policy while preserving the core principles of the rule of law in public administration.

2. AI-Driven Fiscal Risk Mitigation and Digital Accountability in Regional Public Finance

In the era of digital transformation, marked by the rapid development of analytical technologies, artificial intelligence, and large-scale data processing (big data analytics), the management of public finances can no longer be understood merely as a static and procedural administrative process. Rather, governmental fiscal management now operates within an increasingly dynamic and complex policy environment, in which shifts in economic conditions, national policies, and social dynamics may influence budgetary stability rapidly and significantly. This situation is often associated with the phenomenon of fiscal turbulence, referring to conditions of fiscal volatility in which sudden changes in government revenue or expenditure structures create pressure on budgetary stability and the sustainability of public policies.

The expansion of the digital economy and the forces of globalization have further accelerated these dynamics, thereby requiring regional governments to develop institutional capacities capable of responding more effectively to changes in fiscal conditions. Within systems of fiscal decentralization, such as that adopted in Indonesia, regional authorities are not only responsible for managing local revenue

sources. Still, they must also adjust public expenditure policies in response to developments in national fiscal policy as well as shifts in the global economic environment.

These circumstances indicate that regional fiscal stability depends not solely on the economic capacity of the region but also on the ability of governmental institutions to manage fiscal information accurately and in a data-driven manner. Digital transformation in public administration creates new opportunities for governments to develop fiscal governance systems that are more adaptive to changing policy environments. The integration of digital technologies into governmental governance enables public authorities to process fiscal data on a large scale and to generate more comprehensive and real-time policy analyses.

Research on digital government governance indicates that the use of analytical technologies in the public sector can enhance the quality of policy decision-making by providing more accurate information and supporting evidence-based policymaking. (Janssen & van der Voort, 2020). In the context of regional financial management, the use of digital technologies serves not merely as an administrative tool but also as a strategic instrument for strengthening the capacity of regional governments to address the risks of fiscal turbulence.

The development of artificial intelligence technologies in recent years has brought about significant changes in the paradigm of public policy management. Within contemporary public administration scholarship, artificial intelligence is regarded as a technology capable of enhancing the analytical capacity of government policymaking through large-scale data processing and more accurate predictive analysis compared with conventional methods (Gong et al., 2020).

In the context of public financial management, the use of artificial intelligence enables governments to integrate various sources of fiscal, economic, and social data into a comprehensive policy analysis system. Machine learning technologies allow such systems to identify and learn from historical patterns in public financial data, thereby generating predictive models that assist governments in anticipating potential budget deficits or future fiscal imbalances. (Kuziemski & Misuraca, 2020).

Advances in cloud computing technologies, the Internet of Things (IoT), and the integration of inter-agency data systems have further expanded the potential application of artificial intelligence in public policy management. Governments now possess the capacity to monitor fiscal conditions in real time through the integration of data from multiple sources, including tax records, public expenditure data, and regional economic indicators. With the support of artificial intelligence-based analytical systems, regional governments are able to conduct fiscal policy simulations based on various economic scenarios, thereby improving the accuracy of budget planning.

Digital transformation in government demonstrates that the use of analytical technologies in the public sector can enhance the effectiveness of governmental policies by providing more comprehensive information for decision-makers. Artificial intelligence technologies also enable governments to identify patterns of inefficiency in the use of public budgets and to detect potential irregularities in the management of public finances. Accordingly, the integration of artificial intelligence into regional fiscal management may make a significant contribution to improving the efficiency of fiscal policy while simultaneously strengthening systems of public financial oversight.

Despite offering various potential benefits in the management of public policy, the use of artificial intelligence in governmental administration also introduces new challenges for systems of administrative accountability. Within the framework of administrative law, every governmental action must be legally accountable and subject to review through administrative as well as judicial oversight mechanisms. The integration of algorithmic systems into governmental decision-making processes therefore has the potential to reshape the structure of bureaucratic decision-making.

The accountability problem becomes clearer when responsibility is separated according to the lifecycle of an AI-supported fiscal system. Data quality is primarily the responsibility of the public institution that controls the fiscal data; system procurement and selection are the responsibility of the authorized institution; algorithm design, technical performance, security, and documentation must be governed through appropriate contractual and regulatory obligations; human validation belongs to the responsible official; and the final administrative decision remains attributable to the legally authorized public official or institution. (Wang & Tang, 2026). The use of AI therefore creates a distributed accountability chain, but it does not create an accountability vacuum. A provider may be responsible for defects arising from its own contractual or technical conduct. At the same time, the public authority remains responsible for the legality of the administrative decision that it ultimately adopts.

This phenomenon is often described as black box governance, referring to a situation in which the logic underlying decision-making within algorithmic systems is not fully transparent to the public or to oversight institutions. In the context of public policy, such conditions may raise concerns regarding governmental legitimacy when

policy decisions cannot be adequately explained to society (Pasquale, 2015). A number of studies further indicate that algorithmic systems may generate policy bias when the data used in the training process contain underlying structural biases.

Algorithmic bias may affect the distribution of public resources when training data reflect historical inequalities or institutional distortions. In regional fiscal governance, this risk has legal significance because an apparently technical recommendation may produce unequal allocation outcomes while obscuring the reasons for the disparity. (Idil & Alimuddin, 2024) The responsible authority should therefore test relevant data and model outputs for material bias, document the basis for accepting the recommendation, and provide a mechanism for correction or contestation where affected interests are adversely impacted. Transparency, human validation, and auditability are consequently not optional ethical additions but safeguards for maintaining legality, fairness, and administrative accountability.

This concept refers to a fiscal governance system that integrates digital technologies with the principles of legal accountability in public administration. Digital fiscal accountability emphasizes the importance of developing technological governance mechanisms capable of ensuring the traceability of public policy decision-making processes. In the context of regional financial management, such a system allows every budgetary decision supported by technological tools to be traced through transparent digital auditing mechanisms.

Studies on the governance of artificial intelligence in the public sector indicate that the successful implementation of algorithmic technologies largely depends on the ability of governmental institutions to develop governance frameworks that integrate ethical principles, regulatory standards, and data governance in the design and

development of digital systems (de Almeida & dos Santos Júnior, 2025). The framework of algorithmic accountability also emphasizes the importance of developing mechanisms for algorithmic auditing and documenting data-driven decision-making processes to ensure that decisions generated by digital systems remain traceable and legally auditable.

From the perspective of administrative law, the integration of artificial intelligence in the management of fiscal policy must remain situated within the framework of the rule of law. This principle requires that every governmental action be grounded in a clear legal basis and remain subject to review through established legal oversight mechanisms. The use of artificial intelligence in regional financial management must be accompanied by administrative law safeguards that ensure decisions generated through digital systems remain subject to the principles of legality, transparency, and administrative accountability. These principles are consistent with the provisions of Law Number 30 of 2014 on Government Administration, which affirms that every administrative decision must be grounded in the principle of legality and the General Principles of Good Governance.

Digital transformation in the administration of government in Indonesia also finds normative support in the Electronic Based Government System, which promotes the use of digital technologies to enhance transparency and accountability in public service delivery. Based on this analysis, it may be concluded that the utilization of artificial intelligence in regional financial management holds considerable potential to improve the efficiency of fiscal policy while simultaneously strengthening public accountability in governmental governance.

The successful integration of such technologies, however, largely depends on the capacity of governmental institutions to develop governance frameworks capable of maintaining a balance between technological innovation and the principles of administrative law. The AI-driven fiscal governance model developed in this study positions artificial intelligence as a policy-analysis support system that assists regional governments in managing the complexity of fiscal policy. Nevertheless, decision-making authority remains vested in public officials who bear legal responsibility for such decisions. This approach enables the integration of digital technologies in regional financial management without diminishing the principle of public accountability in public administration.

A comparative perspective further clarifies the proposed reconstruction. The European Union Artificial Intelligence Act adopts a risk-based framework that combines obligations concerning transparency, human oversight, documentation, and accountability for specified categories of AI systems. At the same time, the OECD AI Principles emphasize trustworthy, human-centred AI, respect for the rule of law and democratic values, transparency, robustness, and accountability. These instruments do not directly govern Indonesian regional budgeting. Still, they demonstrate an emerging international direction in which AI deployment is conditioned by traceability, human control, risk management, and institutional responsibility.

The Indonesian framework can therefore contribute to this broader discourse by translating existing administrative-law principles, particularly legality, authority, due care, accountability, and reviewability, into AI-specific controls for fiscal decision support. The contribution is thus a context-specific normative reconstruction rather than a claim that Indonesia has already adopted an equivalent AI Act.

C. CONCLUSION

This study concludes that AI may be incorporated into regional fiscal governance only as a legally controlled decision-support instrument, not as an autonomous holder of governmental decision-making authority. Although Indonesian administrative law already provides principles of legality, authority, due process, accountability, citizens' rights protection, and the General Principles of Good Governance, these principles have not yet been transformed into a specific legal framework for AI-mediated fiscal decision-making. The principal novelty of this study is the formulation of a Digital Fiscal Accountability framework that reconstructs these existing administrative-law principles into an integrated, AI-specific accountability model for regional budgeting. The framework establishes a clear legal boundary between algorithmic recommendation and governmental authority: AI may analyze data, generate forecasts, identify fiscal risks, and recommend budgetary options, but only the legally competent official may exercise governmental discretion and make the final decision.

Accordingly, the framework introduces five interconnected safeguards: legality and authority, data and algorithmic transparency, mandatory human validation, traceability and algorithmic auditability, and contestability with differentiated responsibility among public officials, government institutions, and technology providers. Its distinctive contribution is therefore not merely the application of AI to public budgeting or the repetition of general principles of administrative law, but the creation of a normative accountability chain that determines who may decide, how AI recommendations must be verified, how decisions must be documented and audited,

and who bears legal responsibility when AI-supported fiscal decisions cause administrative or legal consequences. In this construction, an AI recommendation has no independent legal force and cannot transfer, dilute, or obscure the responsibility of the authorized official. The study therefore provides a normative bridge between conventional administrative law and algorithmic governance by establishing legal conditions for the legitimate use of AI in regional fiscal decision-making, while recognizing that empirical testing of institutional readiness, procurement practices, and actual AI-supported budgeting remains a subject for future research.

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