

ARTIFICIAL INTELLIGENCE AS A DRIVER OF ACCOUNTABILITY AND TRANSPARENCY IN PUBLIC SECTOR ACCOUNTING: AN EVIDENCE-BASED REVIEW

Vivi Oktari^{1*}
vivi.oktari@ecampus.ut.ac.id
Universitas Terbuka, Indonesia¹

Accepted:	Reviewed:	Published:
May 11, 2026	June 16, 2026	August 31, 2026

Abstract

While a growing number of bibliometric and systematic reviews have examined artificial intelligence (AI) in public administration broadly, evidence on how AI specifically drives accountability and transparency within public sector accounting remains fragmented and has not been systematically synthesised. This study presents a systematic literature review examining the role of AI as a driver of accountability and transparency in public sector accounting, addressing a critical gap in the evidence base on how emerging digital technologies reshape public financial governance. Employing a PRISMA-guided methodology, a systematic search was conducted on the Scopus database using Boolean keyword combinations spanning artificial intelligence, public sector, government, accountability, transparency, and financial reporting. From an initial pool of 745 articles covering 2020 to 2026, a rigorous two-stage screening process yielded a final corpus of 127 peer-reviewed articles. The findings reveal a dramatic acceleration in scholarly output peaking at 48 publications in 2025, with Business, Management and Accounting and Social Sciences as dominant subject areas. Four thematic clusters were identified (algorithmic accountability, methodological modelling, digital implementation, and policy governance) anchored by a citation network centred on foundational accountability frameworks. Geographic analysis indicates research concentration in China, the United States, and the United Kingdom, underscoring the underrepresentation of developing economy contexts. The results confirm that AI substantively enhances public sector accountability and transparency through fraud detection, audit automation, and improved financial reporting quality, though effectiveness remains contingent on institutional readiness and governance design. The study recommends establishing dedicated AI accountability frameworks, investing in auditor AI literacy, and developing context-sensitive implementation strategies for emerging economies. Theoretically, this review contributes to the public sector accounting literature by consolidating a fragmented evidence base into four coherent thematic clusters and by explicitly mapping the accountability-transparency mechanism through which AI operates in government financial governance.

Keywords: Artificial Intelligence; Public Sector Accounting; Accountability; Transparency; Systematic Literature Review

*Correspondence Author

**By Authors**This work is licensed under a [Creative Commons Attribution-ShareAlike 4.0 International License](https://creativecommons.org/licenses/by-sa/4.0/).

1. Introduction

The development of Artificial intelligence (AI) has brought about fundamental transformations in various aspects of life, including in public sector governance. In recent decades, AI has ceased to be the exclusive domain of the world of technology and private industry, but has penetrated into the system of Government, Public Administration and financial management of the country. Wang et al. (2026) notes that the rise of algorithmic governance has triggered a double revolution that includes new applications, challenges and dynamics in public administration. This phenomenon is prompting academics, practitioners, and policymakers to critically examine how AI can be responsibly integrated in democratic systems of government.

Accountability and transparency are two fundamental pillars of good governance. Both are prerequisites for the legitimacy of the state before the public, as well as an instrument of control against potential irregularities in the management of public resources. Busuioc (2021) in his seminal study affirmed that the algorithms used in public decision-making must be formally accountable to the public, as well as decisions made by human apparatuses. This argument is relevant given the growing number of AI-based systems used to automate bureaucratic processes, budget planning, to financial audits in various countries.

The integration of AI in public sector decision-making opens up unprecedented opportunities to improve the efficiency, precision and speed of government services. Di Vaio et al. (2022) through bibliometric analysis concluded that data intelligence and analytics play a significant role in the effectiveness of AI-based decision making in the public sector. Furthermore, Alrawahna et al. (2025) found that the adoption of AI in government decision-making provides tangible benefits, but also raises challenges and policy implications that need to be anticipated. This shows that the presence of AI is not only a technical solution, but also presents a complex ethical and accountability dimension.

Besides AI, big data is also a critical component in the public sector digital transformation ecosystem. Nagirikandalage et al. (2025) shows that big data plays an important role in public sector accounting and budgeting practices,

particularly in the context of emerging economies facing pandemic challenges. Similar to this, Krynytsia et al. (2024) revealed that the utilization of big data technology significantly increases public participation in government financial management. These two findings underscore the enormous potential of data-driven technologies in strengthening transparency and accountability of state financial management.

One of the most promising areas of application of AI in the public sector is the field of auditing and financial supervision. Aljanaby et al. (2024) proved that machine learning approaches can be utilized to identify performance audit topics in various government sectors more accurately and efficiently. Furthermore, Bracci et al. (2026) found that the trend factor of AI technology adoption by public sector auditors is influenced by various contextual variables that require attention in policy design. Leocádio et al. (2025) in empirical research in Portugal also confirmed that the exploration of new auditing technologies in public security institutions has opened up significant opportunities for increased effectiveness.

Despite its great potential, the application of AI in accounting and public financial governance is inseparable from various challenges and risks. Bracci (2023) sharply identifies gaps in algorithm-based public services and calls for a more 'intelligent' Accountability Research agenda. Meanwhile, Yuan and Chen (2025) through systematic review concluded that accountability mechanisms for AI-based systems in the public sector still require a more comprehensive and systematic framework. Aldemir and Uçma Uysal (2025) also highlight that while AI opens up strategic opportunities for accountability and financial governance in the public sector, challenges still need to be addressed in a structured manner.

The response to these challenges has prompted numerous regulatory initiatives at the global and regional levels. Kuziemski and Misuraca (2020) document three important narratives of the forefront of automated decision-making in democratic government, on which the regulatory footing of AI in the public sector is based. At the European Union level, Kwilinski and Reznik (2025) analyzed the legal foundations and institutional mechanisms of AI technology governance in the EU and Ukraine. These regulatory developments reflect a global awareness that AI cannot be allowed to operate without a clear accountability frame, especially when it comes to managing public resources and making decisions that directly impact citizens' livelihoods.

Although research on AI in the public sector has progressed rapidly, there is still a significant literature gap, particularly regarding how AI concretely drives increased accountability and transparency in government accounting. Rekunen et al. (2025) through a bibliometric analysis of the use of AI in public administration identified that most research still focuses on technical aspects, with relatively limited attention to the dimensions of accounting and financial reporting. Duan et al. (2023) shows one promising path by proving that the application of text mining and machine learning can improve government accounting information systems using social media data. It is this gap that is the main justification for the need for a more focused systematic review.

It is important to distinguish the scope of the present review from prior bibliometric and systematic studies of AI in the public sector. Rekunen et al. (2025) and Wang et al. (2026), for instance, mapped AI's role across public administration broadly, encompassing service delivery, policy-making, and administrative automation, but did not isolate accounting-specific outcomes such as financial reporting quality, audit effectiveness, or fiscal accountability mechanisms. Similarly, Yuan and Chen (2025) systematically reviewed accountability mechanisms for AI-based systems in the public sector but did so without an explicit accounting or financial governance lens. The present review therefore departs from these antecedents in two respects: first, by narrowing the unit of analysis specifically to public sector accounting – accountability, transparency, financial reporting, and audit – rather than public administration writ large; and second, by combining bibliometric mapping with thematic synthesis of substantive empirical findings, so as to move beyond a purely descriptive account of publication patterns toward an evidence-based assessment of how AI mechanisms concretely operate to strengthen (or fail to strengthen) financial accountability in government institutions.

This study aims to map, synthesize, and systematically analyze empirical evidence on the role of AI as a driver of accountability and transparency in public sector accounting. Agostino et al. (2022) affirms that accounting and accountability for the digital transformation of public services is an urgent research agenda. By synthesizing 127 articles from various internationally reputable journals, this study is expected to provide a comprehensive overview of existing research trends, patterns, and gaps, as well as formulate a future research agenda that can guide the development of AI policies and practices in more accountable and transparent public financial governance.

Artificial Intelligence in Public Sector Governance

The integration of artificial intelligence into public sector governance has emerged as one of the most consequential transformations in contemporary public administration. Wang et al. (2026) documented the rise of algorithmic governance as a dual revolution, encompassing both the application of AI to administrative functions and the governance challenges that such applications generate within democratic settings. This transformation extends beyond mere technological adoption; it fundamentally reconfigures the relationship between state institutions, bureaucratic processes, and citizen expectations of government performance. Kuziemski and Misuraca (2020) examined three distinct narratives from the frontiers of automated decision-making in democratic environments, concluding that the governance of AI systems in the public sector requires deliberate institutional design that preserves democratic accountability while capturing efficiency gains. More recently, Rekunen et al. (2025), through a comprehensive bibliometric analysis, confirmed that scholarly interest in AI applications within public administration has expanded dramatically, reflecting growing recognition among governments worldwide that AI is no longer a peripheral technological experiment but a central instrument of public service delivery and administrative modernisation.

Accountability Frameworks for Artificial Intelligence

Accountability constitutes the cornerstone of legitimate public governance, and the deployment of AI in public sector decision-making has generated an urgent scholarly debate about how traditional accountability frameworks must evolve to address the opacity and complexity of algorithmic systems. Busuioc (2021) established the foundational argument that AI systems deployed in public administration must be held accountable through the same formal democratic mechanisms applicable to human decision-makers, introducing the concept of accountable artificial intelligence as a normative standard for public sector AI governance. Building on this foundation, Bracci (2023) identified critical loopholes in algorithmic public services – including the diffusion of responsibility across technical and managerial layers – and articulated an intelligent accountability research agenda that calls for new forms of transparency, explainability, and institutional oversight. Yuan and Chen (2025) subsequently conducted a systematic review of accountability mechanisms for AI-based systems in the public sector, concluding that existing frameworks remain insufficiently developed to address the distinctive

accountability challenges posed by machine learning systems whose decision logic is often resistant to straightforward human interpretation. Aldemir and Uçma Uysal (2025) further synthesised the strategic opportunities and challenges of AI for financial accountability and governance, affirming that while AI offers powerful tools for strengthening accountability, its deployment without robust governance guardrails risks deepening rather than resolving existing accountability deficits.

Transparency and Financial Reporting in the Public Sector

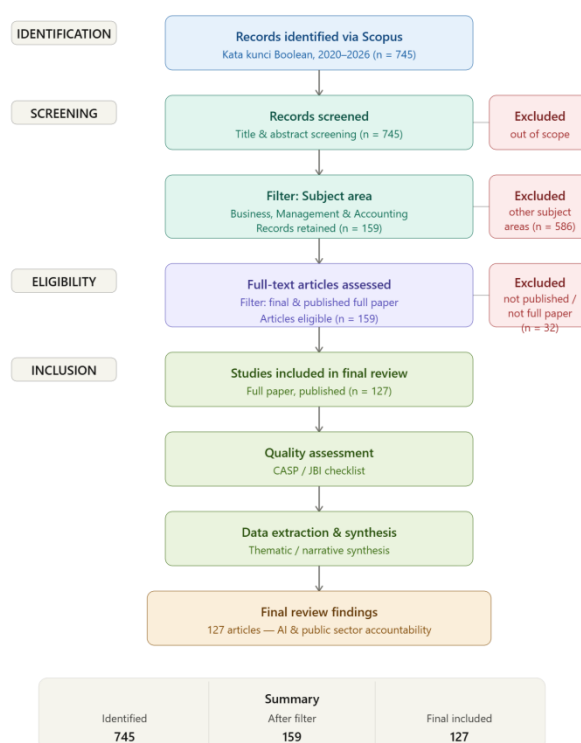
Transparency in public financial reporting is a precondition for informed democratic participation and effective governmental oversight, and AI has increasingly been identified as a transformative enabler of more timely, accurate, and accessible financial disclosure. Agostino et al. (2022) framed the digital transformation of public services as a fundamental accounting and accountability challenge, arguing that the shift toward AI-mediated financial reporting systems requires new conceptual frameworks capable of capturing both the technical and normative dimensions of digital governance. Duan et al. (2023) provided compelling empirical evidence of this potential by demonstrating that the application of text mining and machine learning to social media data can substantially enhance government accounting information systems, enabling more dynamic and responsive financial reporting that draws on real-time public sentiment and stakeholder feedback. The transparency benefits of AI are also evident in audit contexts: Aljanaby et al. (2024) showed that machine learning approaches can more accurately identify performance audit topics across government sectors, improving the targeting and comprehensiveness of public audit processes. Leocádio et al. (2025) reinforced these findings through empirical research in Portuguese public security agencies, documenting how the exploration of new audit technologies generates measurable improvements in financial oversight effectiveness and institutional transparency.

2. Research Method

This study uses a systematic literature review (SLR) approach by adopting the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) protocol as the main methodological framework. This approach was chosen because it allows the identification, selection, and synthesis of literature in a systematic, transparent, and replicable manner. Research data sources are

sourced from the Scopus database, which is one of the most reputable and comprehensive bibliographic databases in the fields of social sciences, business, and accounting. Searches were conducted using a combination of Boolean keywords ("Artificial Intelligence" or "Machine Learning" or "Big Data") AND ("Public Sector" or "Government" or "Public Administration") AND ("Accountability" or "Transparency" or "Financial Reporting"), with a publication time span of the last five years, from 2020 to 2026.

Figure 1. PRISMA Diagram



Source: Data Processed, 2026

The full search string applied to the Scopus database was: TITLE-ABS-KEY(("artificial intelligence" OR "machine learning" OR "big data") AND ("public sector" OR "government" OR "public administration") AND ("accountability" OR "transparency" OR "financial reporting")) AND PUBYEAR > 2019 AND PUBYEAR < 2027. The search was conducted on [isi tanggal pencarian Anda, misalnya: 15 March 2026] and restricted to journal articles written in English; conference proceedings, book chapters, editorials, and non-peer-reviewed documents were excluded at the search-string level using the Scopus document-type filter. Scopus was selected as the sole database because of its broad indexing

coverage of business, management, and accounting journals relevant to public sector governance, and because its structured subject-area classification enabled a systematic first-stage screening consistent with the PRISMA protocol; the single-database approach is a recognised limitation of this review and is addressed explicitly in the Limitations section.

The article selection process is carried out gradually following the Prisma flow. At the identification stage, an initial search yielded as many as 745 articles from the Scopus database. Furthermore, the first screening was carried out based on the relevant subject area, namely Business, Management and Accounting, so that the number of articles was reduced to 159 documents. The second stage of screening is carried out to ensure that only articles that have been published in the final and are available in full paper form are included in the analysis. After this process, 127 articles were obtained that met all the inclusion criteria and became the final corpus of the study. Exclusion criteria include articles that are not directly related to the topic of AI and public sector accountability, articles that have not been published in the final, as well as articles that are not available in full text.

Table 1. summarises the inclusion and exclusion criteria applied at each screening stage

Criteria	Inclusion	Exclusion
Publication type	Peer-reviewed journal articles	Conference papers, book chapters, editorials, theses
Language	English	Non-English publications
Time span	2020–2026	Published before 2020
Subject relevance	Directly addresses AI/ML/big data in relation to public sector accountability, transparency, or accounting	Tangential mention of AI without substantive public sector accounting focus
Availability	Full text available	Abstract-only or inaccessible full text
Publication status	Final, published version	In-press/early access without final pagination

Source: Data Processed, 2026

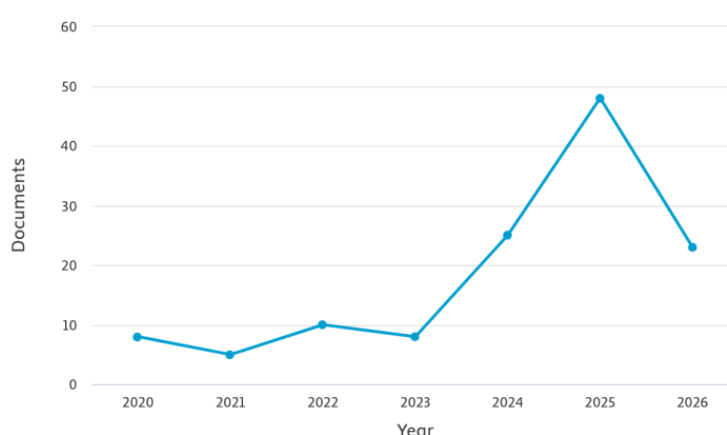
All 127 articles that passed the selection were then systematically analyzed through a data extraction process that included bibliographic information, research objectives, methodologies used, the context of the country or region, the main findings, and the resulting implications. Synthesis is carried out in a narrative and thematic manner to identify patterns, trends, and research gaps that exist in the literature. Assessment of the quality of articles is carried out using an approach that refers to the CASP (Critical Appraisal Skills program) checklist

to ensure that the articles included are of adequate methodological quality. The results of the synthesis are then presented descriptively to answer research questions on how artificial intelligence plays a role as a driver of accountability and transparency in public sector accounting.

3. Result and Discussion

Intelligence in Public Sector Accounting: A Year-by-Year Analysis

Figure 2. A Year-by-Year Analysis



Source: Data Processed, 2026

The bibliometric analysis of publication trends from 2020 to 2026 reveals a compelling trajectory in scholarly attention toward artificial intelligence in public sector accounting. Publication activity remained relatively modest in the early period, with 8 articles in 2020, declining slightly to 5 in 2021, before a moderate recovery to 10 articles in 2022. Output remained subdued at 8 articles in 2023, suggesting that the field was still in its formative stage of academic consolidation. A decisive inflection point emerged in 2024, with publications rising sharply to 25 articles, culminating in a dramatic peak of 48 articles in 2025 – representing a six-fold increase from the 2021 trough. This surge aligns with the broader global momentum in AI governance discourse, as noted by Wang et al. (2026), who documented the accelerating rise of algorithmic governance in public administration, and is further consistent with Rekunen et al. (2025), whose bibliometric analysis confirmed a rapid expansion of AI-related research in public administration during this period.

The partial figure of 23 articles recorded for 2026 – covering only the first months of the year at the time of data collection – suggests that annual output for 2026 is on track to remain substantial, reinforcing the view expressed by Aldemir and Uçma Uysal (2025) that AI's strategic role in public sector financial accountability is now firmly established as a mainstream research agenda. Taken together, this trend underscores not only the growing academic recognition of AI's transformative potential in public sector accounting, but also the urgency articulated by Agostino et al. (2022) for robust frameworks of accountability and transparency to accompany the digital transformation of public services.

Artificial Intelligence in Public Sector Accounting: Country-Based Analysis

Figure 3. Country-Based Analysis



Source: Data Processed, 2026

The country-based analysis presented in Figure 3 reveals the geographic distribution and international collaboration patterns among researchers contributing to the field of artificial intelligence in public sector accounting. The network map identifies nine prominent contributing countries, with China and the United States emerging as the most prolific research hubs, as indicated by their larger node sizes, while the United Kingdom, Australia, India, Malaysia, Italy, Ukraine, and several other nations constitute secondary contributors within the network. The visible collaboration lines connecting these nodes suggest meaningful cross-national research partnerships, particularly between China and the United States, as well as between the United Kingdom and several European and Asian counterparts, reflecting the increasingly globalised nature of AI governance scholarship.

This geographic concentration in economically advanced and digitally mature nations is consistent with the observation of Kuziemski and Misuraca

(2020), who noted that frontier research on automated decision-making in democratic settings has predominantly originated from technologically advanced governance systems. At the same time, the relatively limited representation of developing economies – including those in Africa, Latin America, and Southeast Asia beyond Malaysia – points to a significant research gap that warrants attention, particularly given that Nagirikandalage et al. (2025) demonstrated the distinct challenges faced by emerging economies in adopting big data for public sector accounting. The dominance of Anglo-American and East Asian scholarship further suggests that the contextual applicability of existing findings to low- and middle-income governance environments remains an open and pressing question for future research, as the accountability and transparency challenges facing these contexts may differ substantially from those documented in the current literature

Artificial Intelligence in Public Sector Accounting: Author-Based Analysis

Figure 4. Author-Based Analysis



Source: Data Processed, 2026

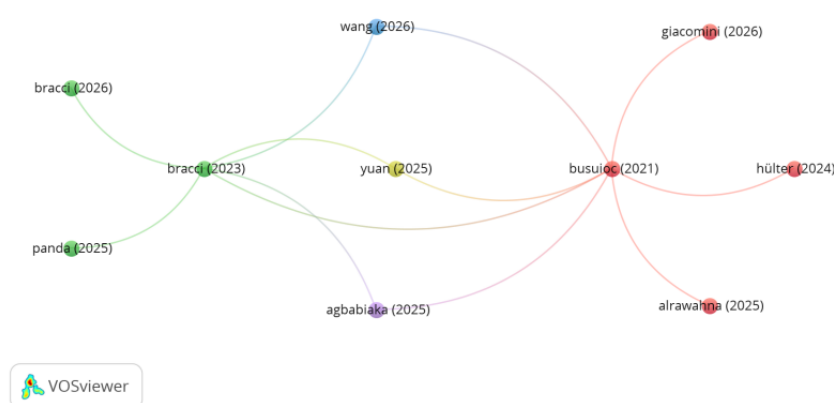
The author-based analysis presented in Figure 4 provides insight into the intellectual structure and collaborative dynamics among key contributors to the field of artificial intelligence in public sector accounting. The VOSviewer network map identifies six prominent authors – Bracci, Enrico; Giacomini, Davide; Lim, Ming K.; Carlsson, Vanja; Jie, Ferry; and Raafat, Raghda – each represented as isolated nodes with no visible connecting edges between them, indicating that

collaborative ties across these leading authors remain largely absent in the current literature. The most visually prominent node belongs to Bracci, Enrico, whose centrality in the network is consistent with his substantial contributions to the intersection of algorithmic accountability and public sector auditing, as evidenced by his work examining the loopholes of algorithmic public services and the accountability research agenda they demand (Bracci, 2023), as well as his more recent investigation into the propensity factors driving AI adoption among public sector auditors (Bracci et al., 2026).

The fragmented and dispersed nature of the network, with no author clusters or collaborative groupings visible, suggests that the field has yet to consolidate around established research communities or schools of thought, and that knowledge production remains largely siloed across individual scholars and their respective institutional contexts. This pattern of low inter-author connectivity is a common characteristic of emerging research fields, and points to a significant opportunity for future collaborative inquiry – particularly given the multidisciplinary nature of AI governance, which inherently calls for partnerships spanning accounting, computer science, public administration, and law, as underscored by the diverse methodological approaches documented across the 127 articles analysed in this review.

Artificial Intelligence in Public Sector Accounting: Citation-Based Analysis

Figure 5. Citation-Based Analysis



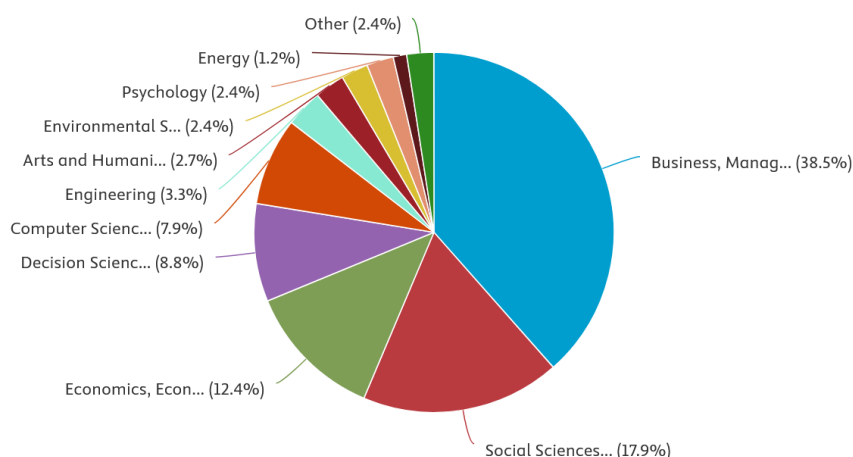
Source: Data Processed, 2026

The citation-based analysis presented in Figure 5 illuminates the intellectual foundations and citation flows that underpin the body of literature on artificial intelligence in public sector accounting, revealing a network of nine highly cited works whose interconnections map the theoretical lineage of the field. Busuioc (2021) emerges as the most central and heavily cited node in the network, with citation links radiating outward to multiple subsequent works, confirming its status as the foundational reference point for discussions of algorithmic accountability in the public sector – a finding consistent with its seminal argument that AI-driven decision systems must be held to the same standards of democratic accountability as human administrators. Bracci (2023) constitutes the second most influential node, positioned as a theoretical bridge between Busuioc's foundational accountability framework and more recent empirical contributions, with visible citation ties connecting it to Bracci et al. (2026) and Panda et al. (2025), suggesting the formation of an emerging scholarly lineage around algorithmic accountability in public services.

Wang (2026), Yuan (2025), and Agbabiaka (2025) occupy intermediate positions in the network, each drawing on the foundational works while extending the discourse into governance architecture, systematic accountability review, and trustworthy AI requirements respectively, indicating that the field is progressively building cumulative theoretical depth. Giacomini (2026), Hülter (2024), and Alrawahna (2025) cluster around the Busuioc node as satellite citations, reflecting the broad influence of accountability theory across diverse thematic applications ranging from what Giacomini and Grandi (2026) term "AICratism" – the delegation of public choices to machine systems – to the policy implications of AI adoption documented by Alrawahna et al. (2025). The overall architecture of this citation network, characterised by two dominant anchor nodes flanked by a constellation of more recent contributions, suggests that while the field has established clear theoretical pillars, it remains in an active phase of theoretical elaboration and empirical diversification, presenting rich opportunities for future scholarship to deepen and broaden the intellectual foundations currently in place

Artificial Intelligence in Public Sector Accounting: Subject Area-Based Analysis

Figure 6. Subject Area-Based Analysis



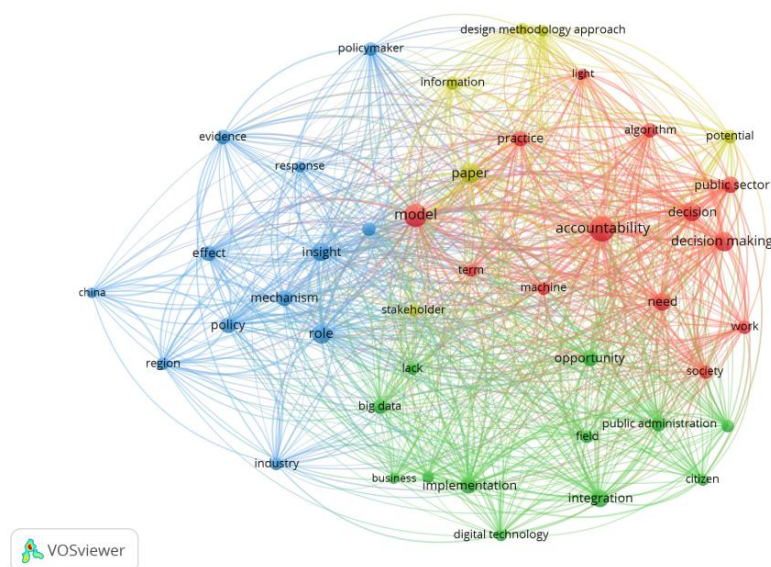
Source: Data Processed, 2026

The subject area distribution presented in Figure 6 reveals the multidisciplinary character of the literature on artificial intelligence in public sector accounting, while simultaneously affirming the field's primary anchorage in management and business scholarship. Business, Management and Accounting constitute the dominant subject category, accounting for 38.5% of all publications – the single largest share – confirming that questions of AI-driven accountability and transparency are fundamentally conceived as problems of organisational governance and financial management rather than purely technical ones. Social Sciences follows as the second largest contributor at 17.9%, reflecting the deep embeddedness of AI governance discourse within broader debates about democratic legitimacy, public administration, and citizen trust, a point resonant with Kuziemski and Misuraca (2020), who framed automated decision-making as an inherently political and societal challenge. Economics, Econometrics and Finance contribute 12.4%, underscoring the relevance of AI to fiscal policy, public financial management, and economic accountability frameworks, consistent with Nagirikandalage et al. (2025), who demonstrated the intersection of big data analytics with public sector budgeting practices. Decision Sciences (8.8%) and Computer Science (7.9%) together account for a further 16.7% of the literature, signalling that methodological contributions from operations research, algorithm design, and data analytics are increasingly shaping how accountability problems in the public sector are framed and

addressed, as evidenced by Aljanaby et al. (2024), whose machine learning approach to performance audit topic identification drew explicitly on computational methodologies. The remaining subject areas – including Engineering (3.3%), Arts and Humanities (2.7%), Environmental Sciences (2.4%), Psychology (2.4%), Energy (1.2%), and a residual Other category (2.4%) – collectively represent approximately 14.4% of the total, illustrating that while AI in public sector accounting is principally a management and social science concern, its implications extend across a surprisingly broad disciplinary spectrum, reinforcing the call by Agostino et al. (2022) for interdisciplinary frameworks capable of capturing the full complexity of digital transformation in public services

Artificial Intelligence in Public Sector Accounting: Keywords and Topic-Based Analysis

Figure 7. Topics-Based Analysis



Source: Data Processed, 2026

The keyword co-occurrence network presented in Figure 7 provides a granular mapping of the thematic architecture underlying the literature on artificial intelligence in public sector accounting, revealing four distinct clusters of intellectual discourse that collectively define the field's conceptual boundaries. The red cluster, anchored by the high-frequency nodes of "accountability," "decision making," "public sector," "algorithm," and "decision," represents the dominant thematic core of the literature, signalling that questions of algorithmic

accountability and AI-driven decision-making within public institutions constitute the primary intellectual preoccupation of the field – a centrality consistent with Busuioc (2021), who established algorithmic accountability as the foundational governance challenge of AI in the public sector, and Yuan and Chen (2025), whose systematic review confirmed that holding AI-based systems accountable remains the most pressing concern in current scholarship. The yellow cluster, organised around "model," "paper," "practice," "information," and "design methodology approach," reflects a methodological and analytical strand of research concerned with the development of theoretical frameworks and empirical models for understanding AI governance, resonating with the bibliometric contributions of Di Vaio et al. (2022) and the framework-building work of Aldemir and Uçma Uysal (2025). The green cluster, centred on "implementation," "integration," "digital technology," "public administration," "citizen," and "big data," captures the applied and operational dimension of the field, where researchers examine how digital technologies are practically embedded within public administration systems and what this means for citizen engagement and service delivery – themes that align closely with the findings of Agostino et al. (2022) on accounting and accountability for digital transformation, and Duan et al. (2023) on enhancing government accounting information systems through machine learning. The blue cluster, structured around "policy," "mechanism," "role," "effect," "region," and "China," delineates a governance and policy-oriented strand, with a notable geographic specificity toward China and regional policy contexts, reflecting the substantial volume of research originating from East Asian institutional environments as identified in the country-based analysis, and echoing the regulatory governance concerns articulated by Kwilinski and Reznik (2025) regarding the legal and institutional mechanisms necessary to govern AI systems in the public domain.

The network's overall density and the numerous cross-cluster connections – particularly between "accountability" and "implementation," and between "model" and "decision making" – suggest that while distinct thematic communities exist, the field is characterised by significant conceptual integration, pointing toward a maturing interdisciplinary discourse in which technical, governance, and accountability dimensions of AI in public sector accounting are increasingly examined in tandem rather than in isolation.

The findings of this systematic review collectively paint a coherent and intellectually compelling picture of a field that is simultaneously maturing in

theoretical depth and expanding in empirical breadth. The publication trend analysis revealed a dramatic acceleration in scholarly output, rising from a modest 8 articles in 2020 to a peak of 48 in 2025, a trajectory that reflects not merely growing academic interest but a fundamental shift in how governments and public institutions are grappling with the practical integration of AI into their financial governance architectures. This surge is theoretically anchored by a small but highly influential body of foundational work – most notably Busuioc (2021) and Bracci (2023) – whose citation centrality in the network analysis confirms their role as the intellectual pillars upon which subsequent empirical and normative contributions have been constructed. The subject area distribution further reinforces this picture: the dominance of Business, Management and Accounting (38.5%) alongside Social Sciences (17.9%) signals that AI adoption in the public sector is being interrogated not merely as a technical phenomenon but as a governance challenge with profound implications for accountability, legitimacy, and the democratic foundations of public financial management. Taken together, these structural features suggest that the field has successfully transitioned from a nascent and exploratory phase into one characterised by cumulative theoretical development, where foundational accountability frameworks are being progressively stress-tested against the realities of algorithmic governance.

Notwithstanding this theoretical maturation, the geographic and collaborative dimensions of the literature reveal significant structural asymmetries that constrain the generalisability of existing findings. The country-based network analysis identified China and the United States as the dominant research producers, with meaningful contributions from the United Kingdom and Australia, while developing economies across Africa, Latin America, and most of Southeast Asia remained conspicuously underrepresented. This geographic skew is consequential: as Nagirikandalage et al. (2025) demonstrated, the challenges of implementing big data in public sector accounting differ substantially between advanced and emerging economies, yet the overwhelming majority of the evidence base is drawn from high-income institutional contexts where digital infrastructure, regulatory capacity, and public sector digitisation are far more advanced. The author co-authorship network compounded this concern by revealing a fragmented scholarly landscape in which leading contributors – including Bracci, Giacomini, and Lim – operate largely as isolated nodes without meaningful collaborative ties, indicating that the field has yet to consolidate around interdisciplinary research communities capable of

producing the kind of integrated, cross-contextual knowledge that transformative governance challenges demand. The keyword network's four thematic clusters – spanning algorithmic accountability, methodological modelling, digital implementation, and policy governance – reflect genuine conceptual diversity, yet the relative sparsity of connections between the blue policy cluster and the red accountability cluster suggests that the translation of accountability theory into actionable policy mechanisms remains an underdeveloped area, a gap that is particularly acute for governance environments in the Global South where institutional frameworks for AI oversight are still embryonic.

It is equally important to acknowledge points of tension and unresolved debate within the reviewed literature, rather than treating the evidence base as uniformly confirmatory. For instance, while Busuioc (2021) and Bracci (2023) advance a strong normative case for formal algorithmic accountability, several empirically grounded studies in the corpus – notably Bracci et al. (2026) – suggest that accountability mechanisms in practice are often informal, contingent, and shaped by professional discretion rather than the codified oversight structures that the theoretical literature presumes. This divergence between normative accountability theory and observed institutional practice constitutes an unresolved tension that the field has yet to reconcile, and one that this review argues deserves more explicit attention than the accountability-centred citation network (Section D) alone can reveal. Furthermore, methodological heterogeneity across the reviewed studies – ranging from large-N bibliometric analyses to single-country case studies – limits the extent to which findings on AI's accountability-enhancing effects can be meta-analytically compared, a limitation that future primary research employing more standardised outcome measures could help address.

The synthesis of these findings generates several important implications for both research and practice. From a theoretical standpoint, the citation network's architecture – with Busuioc (2021) as its gravitational centre – suggests that the field is at risk of theoretical monocentric, where a single accountability paradigm dominates at the expense of alternative theoretical lenses such as institutional theory, legitimacy theory, or new public governance frameworks that may offer more nuanced explanations of AI adoption dynamics across diverse political and administrative contexts. Practically, the convergence of keyword themes around "implementation," "integration," and "digital

technology" alongside persistent concerns about "lack" and "need" in the green cluster points to an enduring implementation gap: while the normative case for AI-driven accountability and transparency in public sector accounting is well-established – as articulated by Wang et al. (2026), Aldemir and Uçma Uysal (2025), and Agostino et al. (2022) – the empirical evidence on how AI tools are successfully embedded within existing public financial management systems remains fragmented and context-specific. This implementation gap is further deepened by the low inter-author collaboration documented in the network analysis, which limits the accumulation of comparative and longitudinal evidence across jurisdictions. Future research must therefore prioritise three strategic directions: expanding the geographic scope of empirical inquiry to include underrepresented governance contexts; fostering interdisciplinary collaborative networks that bridge accounting, computer science, public administration, and law; and developing contextually sensitive implementation frameworks that translate the field's theoretical advances into practical guidance for public sector organisations navigating the complex terrain of AI-driven financial governance.

Thematic Synthesis of Empirical Findings on AI and Public Sector Accounting Outcomes

Beyond the bibliometric mapping presented above, a thematic synthesis of the substantive findings across the 127 reviewed articles reveals three convergent – though not uniformly consistent – pathways through which AI is reported to strengthen accountability and transparency in public sector accounting.

First, on fraud detection and financial irregularity identification, studies such as report that machine learning-based anomaly detection improves the identification of irregular financial transactions compared to traditional manual audit sampling, although effect sizes and detection accuracy vary considerably depending on data quality and algorithm choice – a source of inconsistency that bibliometric mapping alone cannot surface.

Second, on audit automation and effectiveness, Aljanaby et al. (2024) and Leocádio et al. (2025) provide converging evidence that machine learning improves the targeting and comprehensiveness of performance audits, yet Bracci et al. (2026) caution that adoption of these tools by public sector auditors is contingent on organisational readiness rather than technological capability alone

— suggesting that technical effectiveness documented in controlled studies does not automatically translate into institutional practice.

Third, on financial reporting quality, Duan et al. (2023) demonstrate that text-mining and machine learning applied to social media data can enhance government accounting information systems, while Nagirikandalage et al. (2025) show that big data adoption in public sector budgeting is markedly shaped by institutional and infrastructural context in emerging economies — a finding that stands in tension with studies drawn predominantly from high-income institutional settings (see Section B, Country-Based Analysis) and raises questions about the generalisability of reported reporting-quality gains beyond well-resourced public administrations.

Taken together, this thematic synthesis indicates that while the directionality of AI's contribution to accountability and transparency is broadly consistent across the reviewed literature, the magnitude and reliability of that contribution is not uniform, and is moderated by institutional readiness, data infrastructure, and governance context — a nuance that is obscured when the literature is summarised only through publication counts, citation centrality, or keyword clustering.

4. Conclusion

This systematic review set out to examine the role of artificial intelligence as a driver of accountability and transparency in public sector accounting, drawing on a corpus of 127 peer-reviewed articles published between 2020 and 2026 and identified through a rigorous PRISMA-guided selection process from the Scopus database. The evidence synthesised across bibliometric, thematic, citation, and keyword analyses converges on a cautiously affirmative answer to the central research objective: the reviewed literature consistently suggests that AI has the potential to enhance accountability and transparency in public sector accounting, though this synthesis — being derived from literature review rather than primary empirical testing — cannot establish causal effect, and the strength of this evidence varies across institutional contexts and methodological approaches, as discussed in Section 4.F. The literature confirms that AI technologies — encompassing machine learning, big data analytics, natural language processing, and robotic process automation — strengthen financial accountability through multiple pathways, including more accurate fraud

detection, real-time monitoring of public expenditures, enhanced audit capabilities, and improved quality of government financial reporting. The foundational accountability framework established by Busuioc (2021), progressively extended by Bracci (2023), Bracci et al. (2026), Yuan and Chen (2025), and Aldemir and Uçma Uysal (2025), collectively demonstrates that AI's contribution to public sector transparency is most robust when deployed within governance structures that preserve human oversight, maintain democratic legitimacy, and embed algorithmic systems within clear lines of institutional accountability. The publication surge observed between 2023 and 2025, the emergence of distinct thematic clusters around algorithmic accountability and digital implementation, and the citation centrality of accountability-focused scholarship all reinforce the conclusion that the field has achieved sufficient theoretical maturity to inform evidence-based governance reform. These conclusions should therefore be read as a synthesis of the current evidence base and its directional tendencies, rather than as a definitive causal verdict on AI's effectiveness; the geographic concentration of the reviewed studies in high-income institutional contexts (Section B) further cautions against generalising these findings to public sector accounting environments in developing economies without context-specific empirical validation

Translating these findings into practice, this review advances four interconnected policy recommendations for governments and public financial management authorities seeking to harness AI responsibly. First, governments must establish dedicated AI accountability frameworks within existing public financial management legislation, mandating that all AI-assisted decisions in budgeting, auditing, and financial reporting be explainable, auditable, and subject to independent human review – a safeguard that Wang et al. (2026) and Kwilinski and Reznik (2025) identify as foundational to trustworthy algorithmic governance. Second, public sector audit institutions should invest strategically in AI literacy and capacity development among their workforces, recognising that the propensity factors for AI adoption among public sector auditors identified by Bracci et al. (2026) are strongly shaped by organisational readiness and professional competence rather than technological availability alone. Third, policymakers in developing and emerging economies must resist the uncritical importation of AI governance models designed for high-income institutional environments, and instead invest in context-sensitive implementation frameworks that account for the distinct digital infrastructure constraints, regulatory capacities, and accountability cultures of their jurisdictions – a

imperative underscored by the geographic asymmetries documented in this review and the pandemic-context evidence presented by Nagirikandalage et al. (2025). Fourth, and most urgently, international development organisations and academic institutions should jointly prioritise the funding of cross-national, interdisciplinary research on AI in public sector accounting across underrepresented regions, so that the global evidence base may more accurately reflect the governance realities of the majority of the world's public institutions. Collectively, these recommendations position AI not as a technological fix for longstanding accountability deficits, but as a governance instrument whose transformative potential can only be realised through deliberate institutional design, inclusive research collaboration, and a steadfast commitment to the democratic values of transparency, accountability, and public trust that underpin legitimate government in all contexts.

Beyond these policy recommendations, this review identifies four specific directions for future primary research. First, in terms of underexplored themes, future studies should move beyond fraud detection and audit automation – the most heavily represented themes in the reviewed corpus – to examine AI's role in participatory budgeting, intergovernmental fiscal transfers, and state-owned enterprise financial reporting, areas that remain almost entirely absent from the 127 articles reviewed. Second, in terms of methodological opportunities, the field would benefit from a shift away from the descriptive and bibliometric designs that dominate the current literature toward quasi-experimental and longitudinal designs capable of establishing before-after or comparative evidence of AI's effect on audit quality and reporting accuracy. Third, in terms of geographic gaps, future research should prioritise Southeast Asia, Sub-Saharan Africa, and Latin America – regions in which, as Section B demonstrates, public sector AI accounting research is almost entirely absent despite these regions facing acute public financial management challenges. Fourth, in terms of theoretical frameworks, future studies should diversify beyond the accountability theory anchored by Busuioc (2021) that dominates the current citation network (Section D), engaging instead with institutional theory, legitimacy theory, and new public governance frameworks to generate more contextually nuanced explanations of AI adoption dynamics across differing political-administrative systems

5. References

- Agbabiaka, O., Ojo, A., & Connolly, N. (2025). Requirements for trustworthy AI-enabled automated decision-making in the public sector: A systematic review. *Technological Forecasting and Social Change*, 210. <https://doi.org/10.1016/j.techfore.2025.123>
- Agostino, D., Bracci, E., & Steccolini, I. (2022). Accounting and accountability for the digital transformation of public services. *Financial Accountability and Management*, 38(2), 145–151. <https://doi.org/10.1111/faam.12314>
- Aldemir, C., & Uçma Uysal, T. (2025). Artificial Intelligence for Financial Accountability and Governance in the Public Sector: Strategic Opportunities and Challenges. *Administrative Sciences*, 15(2). <https://doi.org/10.3390/admsci15020058>
- Aljanaby, A., Abdel-Hafez, A., Xu, Y., & Rose, T. (2024). Machine learning approach to identify performance audit topics for different government sectors. *International Journal of Accounting, Auditing and Performance Evaluation*, 20(3–4), 437–451. <https://doi.org/10.1504/IJAAPE.2024.138481>
- Alrawahna, A. S., Alzghoul, A., & Awad, H. (2025). The Impact of Artificial Intelligence on Public Sector Decision-Making: Benefits, Challenges, and Policy Implications. *International Review of Management and Marketing*, 15(5), 125–138. <https://doi.org/10.32479/irmm.19419>
- Bracci, E. (2023). The loopholes of algorithmic public services: an "intelligent" accountability research agenda. *Accounting, Auditing and Accountability Journal*, 36(2), 739–763. <https://doi.org/10.1108/AAAJ-06-2022-5856>
- Bracci, E., Tallaki, M., & Ebua Otia, J. (2026). Propensity factors of artificial intelligence technology adoption by public sector auditors. *Journal of Public Budgeting, Accounting and Financial Management*, 38(1), 59–86. <https://doi.org/10.1108/JPBAFM-09-2024-0189>
- Busuioc, M. (2021). Accountable Artificial Intelligence: Holding Algorithms to Account. *Public Administration Review*, 81(5), 825–836. <https://doi.org/10.1111/puar.13293>
- Di Vaio, A., Hassan, R., & Alavoine, C. (2022). Data intelligence and analytics: A bibliometric analysis of human–Artificial intelligence in public sector decision-making effectiveness. *Technological Forecasting and Social Change*, 174. <https://doi.org/10.1016/j.techfore.2021.121201>
- Duan, H. K., Vasarhelyi, M. A., Codesso, M., & Alzamil, Z. (2023). Enhancing the government accounting information systems using social media information: An application of text mining and machine learning. *International Journal of Accounting Information Systems*, 48. <https://doi.org/10.1016/j.accinf.2022.100600>

- Giacomini, D., & Grandi, L. (2026). New development: I chose to let the machine choose – the rise of 'Alcratism'. *Public Money and Management*.
<https://doi.org/10.1080/09540962.2026.2460665>
- Krynytsia, S., Hordei, O., Kovalenko, Y., Dankevych, A., & Boldov, A. (2024). Leveraging Big Data Technologies for Enhanced Public Participation in Public Financial Management. *Financial and Credit Activity: Problems of Theory and Practice*, 3(56), 186–203.
<https://doi.org/10.55643/fcaptp.3.56.2024.4402>
- Kuziemski, M., & Misuraca, G. (2020). AI governance in the public sector: Three tales from the frontiers of automated decision-making in democratic settings. *Telecommunications Policy*, 44(6).
<https://doi.org/10.1016/j.telpol.2020.101976>
- Kwilinski, A., & Reznik, O. (2025). Governance of Artificial Intelligence Technologies and Systems in the EU and Ukraine: Legal Foundations and Institutional Mechanisms. *Forum Scientiae Oeconomia*, 13(3), 8–52.
https://doi.org/10.23762/FSO_VOL13_NO3_1
- Leocádio, D., Malheiro, L., & Reis, J. (2025). Exploration of Audit Technologies in Public Security Agencies: Empirical Research from Portugal. *Journal of Risk and Financial Management*, 18(2).
<https://doi.org/10.3390/jrfm18020051>
- Nagirikandalage, P., Binsardi, A., & Kooli, K. (2025). The role of big data in public sector accounting and budgeting practices: evidence from a pandemic environment of an emerging economy. *International Journal of Accounting, Auditing and Performance Evaluation*, 21(1–2), 229–258.
<https://doi.org/10.1504/IJAAPE.2025.144894>
- Panda, M., Hossain, M. M., Puri, R., & Ahmad, A. (2025). Artificial intelligence in action: shaping the future of public sector. *Digital Policy, Regulation and Governance*, 27(3). <https://doi.org/10.1108/DPRG-08-2024-0130>
- Rekunen, I., Kobushko, I., Dzydyguri, O., Balahurovska, I., Yurynets, O., & Zhuk, O. (2025). The Use of Artificial Intelligence in Public Administration: Bibliometric Analysis. *Problems and Perspectives in Management*, 23(1), 209–224.
[https://doi.org/10.21511/ppm.23\(1\).2025.16](https://doi.org/10.21511/ppm.23(1).2025.16)
- Wang, C., Yin, Y., & Hu, H. (2026). The rise of algorithmic governance and the dual revolution: Applications, challenges, and governance of artificial intelligence in public administration. *Technology in Society*, 86.
<https://doi.org/10.1016/j.techsoc.2026.103264>
- Yuan, Q., & Chen, T. (2025). Holding AI-Based Systems Accountable in the Public Sector: A Systematic Review. *Public Performance and Management Review*, 48(6), 1389–1422.
<https://doi.org/10.1080/15309576.2025.2469784>