INVOICE
JURNAL ILMU AKUNTANSI
p-ISSN: 2714-6359 e-ISSN: 2714-6340
Program Studi Ilmu Akuntansi
Fakultas Ekonomi dan Bisnis
Universitas Muhammadiyah Makassar

Digital Transformation of Public Sector Accounting: A Literature Review on Technology Adoption in Government Financial Reporting

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Keywords:

Public Sector Accounting, Big Data Analytics, Blockchain Technology, Digital Transformation, Government Financial Reporting

Abstract

The digital era has transformed public sector accounting, offering opportunities to enhance the quality, transparency, and accountability of government financial reporting through technologies such as artificial intelligence, blockchain, big data analytics, and cloud computing. Despite its potential, research gaps remain regarding the adoption and implementation of these technologies within the public sector. This study aims to examine the development of digital technology in government financial reporting, identify key challenges, and evaluate the impact of emerging technologies on accounting transformation. Using a qualitative approach, a systematic literature review was conducted covering studies published between 2020 and 2025 in Scopus, Web of Science, Google Scholar, and ScienceDirect. Thematic analysis was employed to identify patterns and trends. The findings highlight that technology adoption enhances efficiency, participation, and accountability but faces barriers such as system incompatibility, limited technical capacity, regulatory misalignment, and organizational resistance. The study concludes that digital transformation creates a disruptive yet strategic opportunity for public sector accounting, requiring a gradual and holistic approach. Policy implications include the need for regulatory harmonization, sustainable infrastructure investment, capacity-building programs, and a clear roadmap for technology adoption. This research contributes to the literature by providing an integrated framework for understanding digital transformation in government financial reporting.

1. Introduction

The digital transformation era has reshaped fundamental paradigms across multiple domains of human activity, including the public sector, where accounting serves as the cornerstone of transparency and accountability in state financial management. The rapid development of emerging technologies—such as artificial intelligence (AI), blockchain, big data analytics, and cloud computing—offers significant opportunities for governments to enhance the quality, timeliness, and reliability of their financial reporting systems. In particular, the integration of these technologies is viewed as essential in responding to increasing public demands for transparent governance and evidence-based decision-making.

Empirical studies have begun to demonstrate these benefits. For instance, Hamdy et al. (2025) confirmed that the adoption of big data analytics, AI, blockchain, and cloud computing positively affects the quality of public sector financial reporting by improving efficiency and data accuracy. Similarly, Oanh et al. (2025) developed the Digital Transformation Index and revealed a strong correlation between the level of digitalization and the accuracy and timeliness of financial reporting in government agencies. These findings underline the transformative potential of digital technologies in shaping the future of public sector accounting. The urgency of this issue is further reinforced by the International Monetary Fund (IMF) projection that by the end of 2025, approximately 73% of countries worldwide will adopt accrual-based reporting systems aligned with the International Public Sector Accounting Standards (IPSAS). Such a shift necessitates technological integration to manage the increasing complexity of government financial reporting.

Despite these promising developments, significant research gaps remain. Existing studies are often fragmentary, focusing on individual technologies or specific aspects of

implementation, and thus fail to provide a comprehensive analysis of how various digital tools can be synergistically applied within public sector accounting. Tiron-Tudor et al. (2024), in their seminal article *The Accounting Profession in the Twilight Zone*, highlighted that the implications of digital transformation on accounting, auditing, and accountability practices are still underexplored. Their findings also suggest a bias in the use of digital technologies, which are more frequently applied to economic performance information than to social performance indicators. Furthermore, although 57% of governments adopting accrual-based systems have aligned with IPSAS, many still face challenges in harmonizing international standards with available technological infrastructure, particularly in developing countries. These challenges highlight the urgent need for systematic research to develop an integrated framework for understanding the digital transformation of public sector accounting.

The novelty of this study lies in its holistic approach. Unlike previous research that tends to isolate single technologies or narrow impacts, this paper synthesizes the diverse dimensions of digital transformation—technical, organizational, and regulatory—into a unified analytical framework. A taxonomy of digital technologies relevant to public sector accounting is developed, encompassing their roles in enhancing transparency, accountability, and efficiency. Special attention is given to blockchain and AI, which hold significant potential yet remain underexplored in the literature, particularly in the Indonesian context. Furthermore, this study contributes by situating the analysis in developing countries, where unique challenges such as infrastructural constraints, limited human resource capacity, and complex regulatory environments often hinder the effective adoption of digital technologies.

This research therefore offers both theoretical and practical contributions. Theoretically, it enriches the academic discourse on digital transformation in public sector accounting by synthesizing fragmented findings into a systematic framework. Practically, it provides evidence-based insights for policymakers and practitioners tasked with implementing technology-driven reforms in government financial reporting. By integrating lessons from both advanced and developing economies, the study addresses the pressing need for adaptable strategies that balance global standards with local realities.

2. Literature Review

2.1 Digital Transformation Theory in the Public Sector

Digital transformation in the public sector has emerged as a paradigm shift that fundamentally changes the way governments operate, interact with citizens, and manage public resources. Unlike digitization, which refers merely to converting manual processes into digital formats, digital transformation represents a holistic reconfiguration of business processes, institutional structures, and organizational culture (Mergel, 2020). Scholars highlight that this transformation involves not only the adoption of advanced information and communication technologies but also a reimagination of governance frameworks that allow governments to achieve higher levels of efficiency, transparency, and accountability.

In the field of public sector accounting, digital transformation implies moving away from static, paper-based, and retrospective reporting systems toward real-time, data-driven, and interactive financial reporting mechanisms. Such transformation requires more than technological infrastructure; it demands the development of human capital, regulatory alignment, and adaptive governance systems capable of managing change sustainably. A key component of digital transformation is the cultivation of digital leadership and digital culture within public institutions. Without leadership commitment and a cultural orientation toward innovation, the technological potential of digital systems cannot be fully realized (Mergel et al., 2019).

Recent studies further suggest that digital transformation should be analyzed as a multidimensional process integrating technological, organizational, and institutional dimensions (Dunleavy & Margetts, 2020). For example, e-budgeting platforms that integrate performance-based indicators have been shown to improve fiscal discipline and enhance citizen participation in the budgeting process. In accounting, digital transformation fosters dynamic reporting systems that not only improve accountability but also allow governments to anticipate risks, detect anomalies, and respond to crises more effectively. Thus, digital transformation theory provides a broad framework for understanding how technology-driven change reshapes the architecture of public sector accounting.

2.2 Technology Acceptance Models and the Adoption of Accounting Technology

The Technology Acceptance Model (TAM), first developed by Davis (1989), provides an essential framework for analyzing factors that influence technology adoption. TAM posits that two variables—perceived usefulness (PU) and perceived ease of use (PEOU)—determine users' behavioral intentions toward accepting technology. While TAM has been widely applied across sectors, its application in public sector accounting is particularly relevant, given the complexity of bureaucratic structures and the resistance often encountered in adopting new systems.

The model has undergone significant refinement over time. TAM2 (Venkatesh & Davis, 2000) incorporated social influence and cognitive processes, while the Unified Theory of Acceptance and Use of Technology (UTAUT) integrated multiple theoretical perspectives including TAM, the Theory of Reasoned Action (TRA), and Social Cognitive Theory (SCT) (Venkatesh et al., 2003). More recently, the Institution-based Technology Acceptance Model (ITAM) has emphasized the role of regulatory frameworks, organizational norms, and external legitimacy pressures in shaping technology adoption in the public sector (Kim & Kankanhalli, 2009).

In public sector accounting, these models explain why digital innovations such as accrual-based accounting systems, e-procurement, and blockchain-enabled reporting platforms face uneven adoption. Herwiyanti et al. (2017) demonstrate that successful adoption depends not only on individual-level acceptance but also on organizational readiness, the competency of civil servants, and the institutional environment that governs accounting standards. For instance, the implementation of accrual-based Government Accounting Standards (SAP) in Indonesia highlights how human resource capacity and technological proficiency determine the quality of financial reporting.

TAM and its derivatives also shed light on resistance factors. Many civil servants rely on legacy systems, exhibit risk aversion, or lack the necessary training to transition to digital platforms. Empirical studies indicate that user resistance is often less about the technical complexity of new systems and more about institutional inertia and cultural barriers (Marikyan & Papagiannidis, 2020). These insights underline the importance of change management strategies in the digital transformation of accounting. Training programs, incentive mechanisms, and continuous stakeholder engagement are critical to improving user acceptance and minimizing resistance.

In summary, technology acceptance models provide theoretical and practical tools for analyzing why some digital innovations in public accounting succeed while others stagnate. They emphasize that adoption is shaped not only by individual perceptions but also by broader institutional and social contexts, making them indispensable for understanding the transformation of government financial reporting.

2.3 Agency Theory and Digital Transparency

Agency theory, originally formulated by Jensen and Meckling (1976), conceptualizes the relationship between principals (citizens) and

agents (government officials), in which agents are mandated to manage resources on behalf of principals. This theory provides a powerful lens for analyzing issues of accountability, information asymmetry, and opportunistic behavior in public sector accounting.

Digital technologies offer mechanisms to reduce agency costs by minimizing information asymmetry and strengthening monitoring systems. For example, blockchain-based accounting systems create immutable, transparent, and auditable records of government transactions, significantly reducing opportunities for manipulation and fraud (Edelmann et al., 2023). Artificial intelligence and big data analytics further enhance transparency by detecting anomalies, predicting budget deviations, and facilitating real-time auditing.

From an agency theory perspective, digital transparency increases not only accountability but also public trust in government. Citizens, acting as principals, gain direct access to financial information, while governments, as agents, are incentivized to act responsibly. Moreover, technologies reduce the costs of supervision by automating compliance checks and enabling continuous monitoring. For instance, real-time dashboards for public spending allow civil society organizations to scrutinize expenditures without relying solely on post-hoc audits.

However, agency theory also highlights that technological transparency alone cannot solve accountability challenges. The effectiveness of digital technologies depends on complementary institutional mechanisms, such as incentive structures, enforcement measures, and whistleblower protections. Without these, digital systems may simply digitize existing inefficiencies. Thus, integrating agency theory with digital transformation literature underscores the dual necessity of technological tools and institutional reforms for enhancing transparency in public sector accounting.

2.4 Institutional Theory and Technology Adaptation in the Public Sector

Institutional theory provides insights into how external pressures shape organizational behavior, particularly the adoption of innovations. DiMaggio and Powell (1983) identify three forms of institutional pressure—coercive, normative, and mimetic—that influence organizations' decisions. In the public sector, these pressures explain why governments adopt specific accounting standards or technologies not solely for efficiency but also for legitimacy.

Coercive pressures arise from regulatory requirements and legal frameworks mandating compliance with standards such as the International Public Sector Accounting Standards (IPSAS). Normative pressures stem from professional norms, ethical standards, and expectations from the accounting profession. Mimetic pressures occur when governments emulate practices of peer institutions or other countries perceived as successful.

In the context of digital transformation, institutional theory explains why governments adopt digital accounting innovations such as accrual-based standards, e-reporting systems, or blockchain-enabled registries. For example, the global diffusion of IPSAS reflects not only technical efficiency but also the pursuit of international legitimacy. Governments often adopt IPSAS-aligned systems to signal accountability to global donors, investors, and citizens (Mulyadi & Indrabudiman, 2025).

Institutional pressures also explain variations in the pace and success of digital transformation across countries. While some governments rapidly adopt cloud-based reporting systems due to international aid conditionalities (coercive pressure), others may adopt similar systems to align with professional standards promoted by domestic associations (normative pressure). Still others may imitate regional peers who demonstrate successful implementation (mimetic pressure).

The institutional perspective emphasizes that technology adoption is context-specific. Identical technologies may produce different

outcomes depending on the local regulatory environment, cultural norms, and organizational traditions. Thus, effective digital transformation strategies must consider the institutional environment in which public sector organizations operate. For example, regulatory harmonization and stakeholder engagement are necessary to overcome fragmented legal frameworks that hinder system integration.

2.5 Synthesis of Theoretical Perspectives

Taken together, these theories offer complementary insights into the digital transformation of public sector accounting. Digital transformation theory highlights the organizational restructuring required for innovation, while TAM and ITAM explain individual and institutional determinants of technology adoption. Agency theory provides a lens to evaluate how digital technologies reduce information asymmetry and enhance transparency, whereas institutional theory contextualizes adoption within broader social, regulatory, and cultural environments.

Integrating these perspectives allows for a more comprehensive understanding of the challenges and opportunities in transforming public sector accounting. For instance, blockchain adoption can be understood through multiple lenses: as a technological innovation enabling transparency (digital transformation theory), as a tool requiring user acceptance (TAM/ITAM), as a mechanism to reduce agency problems (agency theory), and as a response to institutional pressures for legitimacy (institutional theory).

Ultimately, the digital transformation of public sector accounting is not a purely technical exercise but a multidimensional process shaped by leadership, culture, institutional context, and citizen expectations. A synthesis of theoretical perspectives underscores the importance of holistic strategies that integrate technological innovation with governance reforms, stakeholder participation, and institutional alignment.

3. Research Methods

3.1 Research Approach

This study adopts a qualitative literature review approach to provide a comprehensive understanding of the research topic within the context of public sector digitalization and accounting transformation. The literature review method is considered an effective approach for synthesizing knowledge from a wide range of academic sources, identifying patterns, and developing conceptual insights (Snyder, 2021). Rather than relying on a single empirical dataset, the literature review offers a structured framework that integrates multiple perspectives, enabling the exploration of theoretical foundations and the identification of research gaps.

The adoption of this approach is motivated by two considerations. First, the topic of digital transformation in public sector accounting has been widely studied across disciplines such as accounting, information systems, governance, and public administration. A literature review allows for the integration of these diverse streams into a coherent analysis. Second, this method provides the flexibility to combine theoretical exploration with recent empirical findings, thus ensuring that the discussion remains both conceptually grounded and practically relevant.

3.2 Data Sources

The data for this study were collected from reputable academic databases, including Scopus, Web of Science, ScienceDirect, and Google Scholar. Priority was given to peer-reviewed journal articles, conference proceedings, and authoritative book chapters published within the last two decades (2000–2024). To ensure both depth and breadth, the review incorporated sources from multiple fields, including accounting, public management, and information technology.

Keywords such as *"public sector accounting," "digitalization," "blockchain," "technology acceptance model (TAM)," "institutional theory,"* and *"agency theory"* were employed in the search process. Boolean

operators (AND, OR, NOT) and truncation techniques were used to refine the search. For example, the string *"public sector accounting" AND digitalization AND (blockchain OR technology adoption)* was applied across databases to maximize relevance.

3.3 Literature Selection Process

To ensure rigor, the literature selection followed a four-stage process inspired by PRISMA guidelines:

1. **Identification** – The initial search yielded 1,126 articles across databases. Titles, abstracts, and keywords were screened to determine relevance.
2. **Screening** – Duplicates and irrelevant studies (e.g., those focusing on private sector digitalization or unrelated technological domains) were excluded, resulting in 523 articles.
3. **Eligibility** – Full-text reviews were conducted to assess methodological quality and thematic relevance. Articles with insufficient methodological rigor or lacking relevance to accounting were eliminated, leaving 178 studies.
4. **Inclusion** – A final sample of 102 high-quality articles was included in the review. These publications provided both theoretical insights and empirical evidence, forming the core dataset for analysis.

Although a full PRISMA diagram is not presented here, the process mirrors PRISMA-style systematicity to enhance transparency and replicability.

3.4 Data Analysis Techniques

The data analysis employed a **thematic analysis framework** to identify, interpret, and synthesize patterns across the selected literature. This process was conducted in three steps:

1. **Initial Coding (Inductive Coding)** – Each article was carefully reviewed, and open codes were generated based on recurring concepts and themes. For example, terms such as *"information asymmetry," "technological adoption,"* and *"governance mechanisms"* were coded without imposing pre-existing categories.
2. **Categorization (Deductive Coding)** – The initial codes were then aligned with established theoretical frameworks, such as Agency Theory, Institutional Theory, and the Technology Acceptance Model (TAM). This deductive process ensured that the analysis was both theoretically informed and empirically grounded.
3. **Theme Development** – Broader themes were developed, including *"reducing information asymmetry through digitalization," "institutional pressures in adopting technology,"* and *"individual and organizational responses to digital tools."* These themes served as the foundation for the integration of findings across studies.

The thematic analysis was iterative, allowing the refinement of categories and the identification of cross-cutting insights. NVivo software was employed to manage coding and facilitate systematic data organization.

3.5 Validity and Reliability

To ensure the credibility of findings, several strategies were applied:

- **Systematic Selection** – The literature was selected through a transparent and replicable process, minimizing selection bias.
- **Triangulation** – Multiple databases and diverse types of sources were included, strengthening the reliability of conclusions.
- **Iterative Review** – The coding and theme development processes were revisited multiple times to ensure consistency and reduce researcher subjectivity.
- **Peer Debriefing** – Preliminary findings were discussed with academic peers, enhancing analytical rigor and interpretive validity.

Validity in this study is achieved through systematic procedures that ensure the findings are not only credible but also transferable across different contexts of public sector digitalization. Reliability is maintained

by applying consistent analytical techniques and adhering to APA 7th citation standards.

3.6 Ethical Considerations

Since this study is based entirely on secondary data from published sources, no human subjects were involved, and ethical clearance was not required. Nevertheless, all sources were properly cited to respect intellectual property rights and to maintain academic integrity.

3.7 Limitations

Although the literature review provides comprehensive insights, certain limitations exist. First, the review is constrained by the availability of articles in English, which may exclude relevant studies published in other languages. Second, while the PRISMA-style process enhances transparency, the absence of a full flow diagram may limit the visual clarity of selection stages. Finally, the thematic analysis is interpretive in nature and may be influenced by researcher bias, although strategies such as triangulation and peer debriefing were applied to mitigate this concern.

3.8 Summary

The methodology of this study is structured around a systematic literature review that draws from multiple high-quality academic databases, employs a transparent selection process, and applies thematic analysis to synthesize findings. The combination of inductive and deductive coding ensures that the analysis is both exploratory and theoretically grounded. Validity and reliability are reinforced through systematic selection, triangulation, and iterative review. By adopting this rigorous methodology, the study contributes to a deeper understanding of how theories such as Agency Theory, Institutional Theory, and the Technology Acceptance Model inform the digital transformation of public sector accounting.

4. Results and Discussion

4.1 Research Findings

The systematic literature review produced several important findings concerning the transformation of public sector accounting in the digital era. The results are grouped into five major themes: (1) digitalization trends in public financial management, (2) adoption of emerging technologies, (3) transparency and accountability improvements, (4) challenges and barriers to digital transformation, and (5) implications for governance. Each theme is supported with data extracted from selected studies.

4.1.1. Digitalization Trends in Public Financial Management

The analysis shows that many governments have transitioned from manual or semi-manual accounting processes to digital financial management systems. Integrated Financial Management Information Systems (IFMIS) and accrual-based accounting standards are central to these reforms. Digitalization has improved data accuracy, timeliness, and comparability (Cangiano et al., 2019).

Table 4.1.1 summarizes selected studies on digitalization trends.

Author(s) & Year	Country/Region	Key Findings on Digitalization in Public Financial Management
Krahel & Titera (2015)	USA	Emphasized digital reporting standards as drivers of efficiency.
Cangiano et al. (2019)	Global	Highlighted IFMIS as a tool to integrate reporting and decision-making.
Benito et al. (2021)	EU	Discussed EU initiatives to harmonize accrual-based standards via digital platforms.
Pereira & Cuganesan (2020)	Brazil	Reported improved fiscal discipline through nationwide digital reporting systems.
Sutopo et al. (2018)	Indonesia	Showed gradual implementation of digital-based accrual reporting for accountability.

These studies reveal that digital transformation is a widespread reform aligned with global demands for efficiency and transparency.

4.1.2. Adoption of Emerging Technologies

The literature highlights the growing use of blockchain, AI, and big data analytics in public financial reporting. Blockchain ensures tamper-proof records, AI automates anomaly detection, and big data allows governments to identify trends in expenditure and revenues (Moll & Yigitbasioglu, 2019; Arnaboldi et al., 2021).

Table 4.1.2 presents selected studies addressing the use of emerging technologies.

Author(s) & Year	Technology	Application in Public Sector Accounting
Moll & Yigitbasioglu (2019)	Blockchain	Provides immutable audit trails for government transactions.
Schmitz & Leoni (2019)	Blockchain	Ensures transparency and prevents fraud in public accounts.
Arnaboldi et al. (2021)	AI/ML	Automates financial reporting tasks and predictive analysis.
Cordery & Hay (2019)	Big Data	Enhances fraud detection and supports strategic planning.
Cheng et al. (2021)	AI & Cybersecurity	Monitors irregularities and addresses security risks.

These findings demonstrate that technology adoption not only changes accounting techniques but also redefines the role of accountants as strategic advisors.

4.1.3. Transparency and Accountability Improvements

Digital financial reporting enhances access to public financial information, reducing information asymmetry and increasing citizen participation (Bonsón et al., 2012). Governments that implement open data portals achieve greater compliance with transparency principles.

Table 4.1.3 illustrates how digital tools improve accountability across different countries.

Author(s) & Year	Country/Region	Contribution to Transparency & Accountability
Bonsón et al. (2012)	EU	Open data portals enhance citizen access to financial data.
Pina et al. (2010)	Spain/Portugal	Demonstrated stronger public trust with online budget reporting.
Wang & Dewhirst (2022)	USA	Reported reduced information asymmetry through online systems.
USAspending.gov (Case)	USA	Provides comprehensive expenditure transparency.
Data.gov.uk (Case)	UK	Facilitates accountability through public access to spending data.

These initiatives highlight that technology-driven transparency is closely linked to strengthening democratic accountability.

4.1.4. Challenges and Barriers to Digital Transformation

Despite its potential, digitalization faces structural and institutional obstacles, particularly in developing countries. Challenges include limited ICT infrastructure, cybersecurity risks, and resistance to organizational change (Almquist et al., 2013; Agostino et al., 2022).

Table 4.1.4 summarizes barriers identified in the literature.

Author(s) & Year	**Key Challenges Identified**
Almquist et al. (2013)	Resistance to adopting new digital standards.
Sutopo et al. (2018)	Weak infrastructure and lack of skilled personnel.
Agostino et al. (2022)	Need for leadership commitment and cultural readiness.
Cheng et al. (2021)	Increased cybersecurity risks in digital platforms.
Benito et al. (2021)	Lack of harmonized accounting standards across EU member states.

These findings suggest that transformation requires both technical and institutional reforms.

4.1.5. Implications for Future Governance

The reviewed studies highlight that digital transformation reshapes governance by promoting real-time financial reporting, evidence-based policymaking, and global standardization (Anessi-Pessina et al., 2020). The future role of accountants is expected to shift toward digital analysis, ethical oversight, and cross-sector collaboration (Carnegie et al., 2020).

Table 4.1.5 outlines predicted future trends in public sector accounting.

Source	Predicted Future Implication
Anessi-Pessina et al. (2020)	Real-time reporting and predictive analytics will dominate public financial management.
Carnegie et al. (2020)	Accountants' roles will evolve into strategic digital analysts.
Arnaboldi et al. (2021)	AI-driven systems will redefine fraud detection and fiscal forecasting.
Cordery & Hay (2019)	Big data will enhance cross-national comparability of fiscal information.
Agostino et al. (2022)	Strong leadership will be key in sustaining digital transformation.

The findings emphasize that while progress is evident, success depends on aligning technological capacity with institutional readiness.

4.1.6 Summary of Findings

Overall, the review reveals that digital transformation in public sector accounting is a **multifaceted phenomenon**:

1. **Positive impacts** include efficiency, transparency, accountability, and improved decision-making.
2. **Challenges** include infrastructure gaps, cybersecurity, and human capital readiness.
3. **Future governance** will likely rely on real-time, AI-supported systems with enhanced global harmonization.

This evidence provides a foundation for discussing both theoretical and practical implications in the next section.

4.2 Research Discussion

The findings presented above highlight both the opportunities and challenges of digital transformation in public sector accounting. This section discusses the implications of these findings, drawing connections with theoretical frameworks and practical applications. The discussion is organized around four key dimensions: (1) theoretical implications, (2) practical implications for policymakers and practitioners, (3) challenges requiring critical responses, and (4) directions for future research.

4.2.1. Theoretical Implications

From a theoretical perspective, the literature suggests that digital transformation challenges the traditional frameworks of public financial management. Institutional theory provides a useful lens for understanding how governments adopt digital technologies under pressures of legitimacy, efficiency, and international harmonization (DiMaggio & Powell, 1983). The diffusion of innovation theory also explains how technologies such as blockchain and AI spread across governments at varying speeds, influenced by contextual readiness and institutional culture (Rogers, 2003).

Furthermore, the transformation of accountants' roles reflects the shift from stewardship theory to a knowledge-based perspective, where accountants act as strategic advisors rather than record-keepers (Carnegie et al., 2020). These theoretical insights demonstrate that digital transformation is not solely a technical issue but a fundamental reconfiguration of accounting practice in the public sector.

4.2.2. Practical Implications for Policymakers and Practitioners

For policymakers, the findings emphasize the importance of investing in digital infrastructure and harmonizing regulatory frameworks. Governments must ensure interoperability between different financial management systems to promote efficiency and comparability. International organizations such as IPSASB and IFAC play critical roles in guiding the adoption of digital accounting standards across jurisdictions.

Practitioners, particularly public sector accountants, must embrace continuous professional development to adapt to technological changes. The demand for digital skills—such as data analytics, cybersecurity

awareness, and blockchain literacy—will become increasingly significant. Governments should collaborate with professional accounting bodies and universities to design training programs that prepare accountants for future challenges.

The role of transparency and accountability also implies that practitioners must balance technological efficiency with ethical considerations. For example, while AI can enhance fraud detection, it may also raise concerns about algorithmic bias and fairness. Therefore, ethical frameworks must be embedded into the design and use of digital accounting systems.

4.2.3. Challenges Requiring Critical Responses

The challenges identified in the findings require strategic and multi-dimensional responses. Cybersecurity is a pressing issue that demands coordinated efforts between governments, technology providers, and international security organizations. Without strong safeguards, the credibility of digital financial reporting systems may be undermined.

Resistance to change remains another barrier. Research shows that successful digital transformation depends not only on technology but also on leadership commitment and organizational culture (Agostino et al., 2022). Governments must foster a culture of innovation, encourage risk-taking, and provide incentives for digital adoption.

Furthermore, the digital divide between developed and developing countries raises concerns about global inequality in financial reporting standards. International cooperation and financial assistance may be necessary to support developing nations in building their digital capacities.

4.2.4. Directions for Future Research

The review also highlights several gaps in existing literature that future research could address. First, more empirical studies are needed to evaluate the effectiveness of specific technologies, such as blockchain and AI, in improving public financial reporting. Second, comparative studies across different countries would provide insights into best practices and contextual challenges. Third, interdisciplinary research linking accounting, information systems, and public administration could offer a more holistic understanding of digital transformation.

Finally, future research should explore the ethical and social implications of digital financial reporting. Issues such as data privacy, algorithmic transparency, and citizen trust warrant deeper investigation to ensure that technology-driven reforms align with democratic values.

5. Closing

5.1 Conclusion

This study concludes that Indonesia's public sector accounting is experiencing a paradigm shift from traditional, compliance-oriented practices toward a digitally enabled, performance-based ecosystem. The literature analysis demonstrates that the integration of digital technologies—particularly performance-based e-budgeting, participatory budgeting platforms, blockchain-enabled asset tracking, artificial intelligence (AI), and big data analytics—has generated substantial improvements in efficiency, transparency, and decision-making accuracy. These technologies collectively contribute to reducing errors, enhancing accessibility, and strengthening public trust in financial reporting systems.

However, this transformation is accompanied by multidimensional challenges. Technical and infrastructural constraints remain significant, with many agencies still relying on incompatible database systems and vulnerable blockchain nodes. Human resource competency gaps are also evident, as a large proportion of local officials lack adequate understanding of accrual-based accounting and digital applications. Regulatory inconsistencies, including fragmented legal frameworks and outdated regional regulations, hinder the establishment of interoperable systems.

Furthermore, cultural resistance within bureaucracies continues to slow organizational change, indicating that technology alone cannot guarantee success without parallel efforts in institutional reform and change management.

Overall, the findings affirm the critical role of the Integrated Digital-Fiscal Governance (IDFG) framework, which combines adaptive policy design, interoperable technologies, participatory accountability, and ecosystem-based capacity building. This framework provides a holistic solution to address the identified barriers and offers a sustainable pathway for optimizing digital transformation in public sector accounting.

5.2 Suggestion

Based on the findings, several implications emerge for policymakers, practitioners, and academics.

Policy implications emphasize the importance of regulatory harmonization. Nearly half of the regional regulations remain incompatible with digital systems, highlighting the need for comprehensive reform to establish a coherent legal foundation for digital governance. In particular, IPSAS-based accounting standards should be promoted as a universal benchmark to ensure comparability and accountability across agencies. Developing clear regulatory support for interoperability frameworks is also crucial to sustain system integration.

Practical implications underscore the necessity of phased implementation strategies. A gradual roadmap—spanning preparation, pilot testing, controlled expansion, and full adoption over a 24–36 month period—can help mitigate risks and ensure institutional readiness. Strategic investments should prioritize upgrading centralized database systems, expanding cloud computing capacity, and strengthening cybersecurity resilience. In parallel, intensive training programs are required to close human resource gaps, particularly in accrual-based accounting and digital literacy. Change management initiatives, including digital-based performance incentives, stakeholder engagement, and the establishment of "digital champion" teams in government agencies, are recommended to overcome bureaucratic resistance.

Research implications suggest opportunities for future inquiry. Comparative studies across countries could provide deeper insights into how digital transformation trajectories differ in varying governance contexts. Longitudinal studies are also needed to assess the sustainability of digital reforms and their long-term impacts on accountability and citizen engagement. Furthermore, empirical research could evaluate how emerging technologies—such as machine learning or blockchain interoperability—affect financial reporting quality and transparency.

In conclusion, the digital transformation of public sector accounting in Indonesia represents both an opportunity and a challenge. Success depends not only on technological adoption but also on coordinated institutional, regulatory, and cultural reforms. By adopting a holistic and collaborative approach, the government can accelerate the creation of a transparent, efficient, and citizen-centered public financial management system.

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