Artificial Intelligence and Public Sector Accounting: An Empirical Perspective from Nigeria in a Global Context

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Abstract
This study examined the role of artificial intelligence (AI) in enhancing public sector accounting performance in Nigeria within a global context. Specifically, the study explored the applications of AI in public financial management and assessed its potential contributions to financial reporting quality, audit efficiency, fraud detection, and budget implementation. The study adopted an exploratory research design and employed a systematic literature review approach to synthesize existing knowledge on AI adoption in public sector accounting. Data were collected from secondary sources, including academic journal articles, policy documents, government reports, and publications from international organizations. The collected data were analyzed using thematic analysis to identify emerging patterns, opportunities, challenges, and best practices associated with AI-driven public financial management systems. The findings revealed that AI contributes significantly to improved transparency, real-time auditing, fraud detection, predictive financial analysis, and overall accountability, although infrastructure deficiencies, skills gaps, and regulatory limitations constrain adoption in Nigeria. The study concludes that AI has substantial potential to transform public sector accounting and recommends increased investment in digital infrastructure, human capital development, and AI governance frameworks to support its effective implementation in Nigeria's public financial management system.

Keywords: *Artificial Intelligence, Public Sector Accounting, Public Financial Management, Accountability, Financial Reporting Quality, Nigeria.*

1.0 Introduction

Public sector accounting serves as a critical mechanism for promoting accountability, transparency, and efficient stewardship of public resources. As governments confront increasingly complex fiscal environments, digital technologies have become essential for improving the quality, timeliness, and reliability of financial information. Recent advances in artificial intelligence (AI) have expanded the capacity of public institutions to automate routine accounting processes, enhance decision-making, and strengthen financial oversight. AI-driven

systems are increasingly being applied to tasks such as data analysis, anomaly detection, predictive forecasting, and audit support, thereby transforming traditional accounting functions (Wirtz et al., 2019). The growing integration of intelligent technologies into financial management systems has also created new opportunities for improving governance outcomes and service delivery (Dwivedi et al., 2021). Similarly, advances in digital accounting technologies are reshaping professional accounting practice and expanding the analytical capabilities of accountants across sectors (Moll & Yigitbasioglu, 2019).

Artificial intelligence has gained significant attention within the accounting profession because of its capacity to process large volumes of structured and unstructured data with greater speed and accuracy than conventional systems. Contemporary studies suggest that AI can improve financial reporting, reduce human errors, increase operational efficiency, and support continuous auditing practices (Hasan, 2022). The application of automated technologies has also altered the roles and competencies required of accounting professionals, shifting emphasis from routine transaction processing toward analytical and strategic functions (Kokina et al., 2021). Furthermore, the adoption of AI technologies has been linked to improvements in organizational performance through enhanced data-driven decision-making and risk management capabilities (Dwivedi et al., 2021). These developments indicate that AI is gradually becoming an important component of modern accounting and financial management systems. The global public sector has increasingly embraced AI as part of broader digital government and public financial management reforms. Governments in advanced economies now utilize machine learning, predictive analytics, and robotic process automation to strengthen fiscal management, improve revenue administration, detect fraud, and support evidence-based policymaking (Wirtz & Müller, 2019). The integration of AI into public administration has created opportunities for real-time monitoring of government transactions and more effective management of public resources (Janssen et al., 2020). Existing evidence further suggests that digital transformation initiatives can improve institutional efficiency and strengthen accountability when supported by appropriate governance frameworks and technological infrastructure (Mergel et al., 2019). Consequently, AI has emerged as an important tool for enhancing transparency and strengthening trust in public institutions.

In Nigeria, efforts to modernize public sector accounting have led to the implementation of several public financial management reforms, including the Treasury Single Account (TSA), Government Integrated Financial Management Information System (GIFMIS), Integrated Payroll and Personnel Information System (IPPIS), and the adoption of International Public Sector Accounting Standards (IPSAS). These reforms were introduced to improve financial transparency, strengthen budgetary control, and enhance accountability in government operations (Ndalu et al., 2021). Evidence suggests that IPSAS implementation has contributed to improvements in public sector financial reporting and disclosure practices in Nigeria (Tolyemi et al., 2023). Likewise, digital financial management systems have improved transaction processing and fiscal control mechanisms across government institutions (Abdulsalam et al., 2020). Despite these achievements, concerns remain regarding the overall effectiveness of existing systems in addressing persistent governance and accountability challenges. Although Nigeria has made considerable progress in digitizing its public financial management framework, many government accounting processes remain largely transactional and reactive rather than predictive and intelligent. Existing systems are generally designed to record and process financial transactions but possess limited capabilities for advanced analytics, automated risk detection, or real-time fraud monitoring (Abdulsalam et al., 2020). At the same time, global experiences demonstrate that AI can strengthen financial reporting quality, support continuous auditing, and improve expenditure monitoring through predictive analysis and intelligent automation (Wirtz et al., 2019). The increasing pressure on governments to improve accountability and optimize resource utilization therefore underscores

the need to explore how AI can further enhance public sector accounting performance in Nigeria (Dwivedi et al., 2021). Against this background, this study examines the role of artificial intelligence in transforming public sector accounting and its implications for improving financial governance in Nigeria.

Effective public sector accounting systems are expected to provide accurate financial information, facilitate timely reporting, strengthen internal controls, support efficient budget implementation, and promote accountability in the management of public resources. The emergence of artificial intelligence has further expanded the ability of governments to improve financial oversight through automated data analysis, real-time fraud detection, predictive budgeting, and intelligent auditing systems (Wirtz et al., 2019). In many advanced economies, AI-enabled technologies are increasingly being incorporated into public financial management systems to enhance transparency and improve decision-making processes (Janssen et al., 2020). Studies have also shown that digital transformation initiatives can strengthen public sector performance when supported by adequate technological and institutional capabilities (Mergel et al., 2019). Despite notable reforms in Nigeria's public financial management system, significant challenges continue to affect public sector accounting outcomes. The implementation of IPSAS, TSA, GIFMIS, and IPPIS has improved financial reporting and control mechanisms, yet issues relating to delayed financial reporting, weak internal controls, audit inefficiencies, budget implementation gaps, and financial irregularities remain evident within public institutions (Ndalu et al., 2021). Existing digital accounting platforms are primarily focused on transaction processing and record keeping, with limited integration of advanced analytical tools capable of detecting anomalies or generating predictive financial insights (Abdulsalam et al., 2020). Furthermore, infrastructure deficiencies, limited technical expertise, and inadequate technological readiness continue to constrain the adoption of more sophisticated digital solutions within the Nigerian public sector (Dwivedi et al., 2021).

The persistence of these challenges suggests that current public sector accounting systems may be insufficient to meet the increasing demand for real-time accountability and proactive financial governance. While substantial literature exists on digital transformation and public financial management reforms, empirical and conceptual evidence regarding the role of artificial intelligence in Nigerian public sector accounting remains limited. Most existing studies focus on general accounting reforms, IPSAS implementation, or information systems adoption without specifically examining how AI can enhance financial reporting quality, audit efficiency, fraud reduction, and budget implementation effectiveness in the public sector (Hasan, 2022). This gap in the literature creates a need for a comprehensive examination of the potential contribution of AI to public sector accounting performance in Nigeria within a global context. This study examined the role of artificial intelligence (AI) in enhancing public sector accounting performance in Nigeria within a global context. Specifically, the study explored the applications of AI in public financial management and assessed its potential contributions to financial reporting quality, audit efficiency, fraud detection, and budget implementation.

2.0 Literature Review

2.1 Conceptual Issues

2.1.1 Artificial Intelligence

Artificial intelligence refers to the ability of computer systems to perform tasks that normally require human intelligence, such as learning from data, recognizing patterns, solving problems, making predictions, and supporting decision making. It is generally viewed as a branch of computer science that develops systems capable of simulating aspects of human cognitive processes through algorithms and computational models (Dwivedi et al., 2021). Within organizational settings, artificial intelligence is regarded as a collection of technologies that enable machines to interpret information, generate recommendations, and execute actions

based on data analysis (Hasan, 2022). In the accounting profession, it is frequently described as a technological advancement that enhances the processing and analysis of financial information to improve efficiency and accuracy (Moll & Yigitbasioglu, 2019). Public administration scholars also view artificial intelligence as a digital innovation that assists governments in improving service delivery, operational effectiveness, and evidence based decision making (Wirtz et al., 2019).

Recent academic discussions portray artificial intelligence as a transformative technology with the capacity to alter the manner in which organizations collect, process, and utilize information. Its growing adoption across sectors reflects the increasing reliance on data driven systems to address complex administrative and managerial tasks (Dwivedi et al., 2021). In financial management environments, artificial intelligence is increasingly associated with enhanced analytical capability, automated processing, and improved information quality (Kokina et al., 2021). The technology has therefore attracted considerable attention among researchers, policymakers, and professionals because of its potential to support more efficient and reliable organizational processes (Hasan, 2022).

2.1.2 Public Sector Accounting

Public sector accounting refers to the system through which government entities record, process, summarize, and communicate financial information relating to public resources and activities. It is widely regarded as an essential administrative function that supports transparency and accountability in the management of public funds (Brusca et al., 2019). In the public sector environment, accounting provides financial information that enables governments to demonstrate how public resources have been obtained and utilized in the pursuit of national objectives (Manes Rossi et al., 2020). Scholars also describe public sector accounting as a mechanism for producing reliable financial reports that facilitate legislative oversight, public scrutiny, and informed decision making (Ndalu et al., 2021). Contemporary public sector accounting extends beyond simple record keeping to encompass reporting practices that promote openness and responsibility in government operations (Tolyemi et al., 2023).

Recent literature presents public sector accounting as a framework that supports good governance by ensuring that financial information is systematically generated and communicated to stakeholders. The increasing demand for accountability has strengthened the importance of accounting within government institutions and public organizations (Manes Rossi et al., 2020). Public sector accounting is therefore viewed as an instrument for enhancing confidence in public administration through the provision of credible and timely financial information (Brusca et al., 2019). The transition toward internationally recognized reporting standards has further reinforced its role in improving the quality and comparability of public financial information across countries (Ndalu et al., 2021). Consequently, public sector accounting remains a fundamental element of effective public financial governance (Tolyemi et al., 2023).

2.1.3 Public Financial Management

Public financial management refers to the processes and institutional arrangements through which governments mobilize, allocate, utilize, and account for public resources in pursuit of national development objectives. It is widely regarded as a framework that guides the planning, execution, monitoring, and reporting of public finances to ensure that government resources are managed responsibly and efficiently (Andrews et al., 2020). Within public administration, public financial management is viewed as an essential instrument for maintaining fiscal discipline and supporting effective service delivery (Allen et al., 2020). It is also described as a system that enables governments to align financial resources with policy priorities while maintaining accountability to citizens and other stakeholders (Cangiano et al., 2022).

Contemporary literature associate's public financial management with the broader objective of strengthening governance through prudent management of public funds (Petkovska, 2019).
Recent studies portray public financial management as a cornerstone of government performance because it provides the structures required for budget preparation, resource allocation, expenditure control, and financial reporting. Strong public financial management systems contribute to improved fiscal sustainability and greater public confidence in government institutions (Allen et al., 2020). The growing emphasis on transparency and accountability has further increased the importance of effective financial management within the public sector (Andrews et al., 2020). Scholars also maintain that well developed public financial management arrangements promote efficient utilization of resources and support the achievement of socioeconomic goals (Cangiano et al., 2022). Consequently, public financial management remains central to contemporary efforts aimed at improving governance and public sector effectiveness (Petkovska, 2019).

2.1.4 Accountability

Accountability is commonly regarded as an obligation placed on individuals, institutions, and public officials to explain their actions, justify decisions, and accept responsibility for outcomes arising from the exercise of entrusted authority. Within public administration, accountability is viewed as a mechanism through which public officers answer to citizens and stakeholders regarding the use of public resources and the performance of assigned responsibilities (Bovens et al., 2024). It is also associated with the requirement for transparency in governmental actions and the willingness of public institutions to provide information about their operations and decisions (Bovens, 2019). In governance literature, accountability is frequently linked to answerability and responsibility, emphasizing the expectation that public actors should be held accountable for their conduct and performance (Brandsma & Schillemans, 2023). Scholars further describe accountability as a fundamental condition for maintaining trust between governments and the public they serve (Papadopoulos, 2023).
Recent studies portray accountability as an essential feature of effective governance because it establishes a relationship in which public officials are expected to report, explain, and justify their actions to oversight bodies and citizens. The growing demand for openness in government has increased attention to accountability across public institutions and financial management systems (Brandsma & Schillemans, 2023). Accountability is therefore regarded as a standard of conduct that promotes responsible administration and proper stewardship of public resources (Bovens et al., 2024). In public sector environments, it provides assurance that decisions and actions can be scrutinized and evaluated against established rules, objectives, and public expectations (Papadopoulos, 2023). Consequently, accountability remains a central principle underpinning modern governance and public administration (Bovens, 2019).

2.1.5 Financial Reporting Quality

Financial reporting quality refers to the extent to which financial reports provide information that is accurate, reliable, relevant, complete, and useful for decision making. Accounting scholars generally associate financial reporting quality with the production of financial information that faithfully represents the economic activities and financial condition of an entity (Nalukenge et al., 2022). It is often viewed as the degree to which financial statements meet the information needs of users by presenting understandable and dependable financial data (Yurisandi & Puspitasari, 2021). Financial reporting quality is also described as the ability of financial reports to reduce information asymmetry and support informed judgments by stakeholders (Tahat et al., 2022). Within both public and private sector settings, high quality financial reporting contributes to confidence in financial information and strengthens accountability processes (Saha & Bose, 2021).

Contemporary literature presents financial reporting quality as an important indicator of the credibility and usefulness of accounting information. Users of financial reports rely on quality financial information when assessing financial performance, financial position, and stewardship responsibilities (Tahat et al., 2022). The value of financial reporting is therefore closely associated with its capacity to communicate information that reflects actual financial events and conditions in a clear and trustworthy manner (Nalukenge et al., 2022). Researchers further maintain that financial reporting quality enhances transparency and supports effective oversight by providing dependable information for evaluation and decision making (Saha & Bose, 2021). As a result, financial reporting quality continues to occupy a prominent position in accounting research and practice (Yurisandi & Puspitasari, 2021).

2.2 Theoretical Framework

The Technology Acceptance Model (TAM) was developed by Davis in 1989 to explain the factors that influence individuals' acceptance and use of information technologies. The model was adapted from the Theory of Reasoned Action and was designed specifically to predict user behaviour toward technological innovations in organizational settings. Since its introduction, TAM has become one of the most widely applied theories in information systems research because of its ability to explain technology adoption across different sectors and contexts (Scherer et al., 2019). Recent studies continue to recognize TAM as a robust framework for examining user acceptance of emerging technologies, including artificial intelligence and digital platforms (Abdullah & Ward, 2020). Its relevance has expanded significantly with the growing adoption of intelligent technologies in government and organizational environments (Chao, 2019). The central proposition of TAM is that an individual's intention to use a technology is influenced primarily by perceived usefulness and perceived ease of use. Perceived usefulness refers to the degree to which a person believes that using a particular technology will improve job performance, while perceived ease of use relates to the extent to which the technology is viewed as requiring minimal effort (Abdullah & Ward, 2020). According to the model, technologies that are considered useful and easy to use are more likely to be accepted and utilized by users (Granić & Marangunić, 2019). The theory further suggests that these perceptions shape attitudes toward technology adoption and subsequently influence actual usage behaviour (Scherer et al., 2019). The Technology Acceptance Model is relevant to this study because the successful adoption of artificial intelligence in public sector accounting largely depends on how government accountants, auditors, and financial managers perceive AI technologies. The introduction of AI driven applications into public financial management systems requires users to believe that such technologies can improve financial reporting quality, strengthen accountability, and enhance operational efficiency (Awa et al., 2022). Likewise, the adoption of AI solutions is more likely when public sector employees consider these technologies easy to learn and integrate into existing accounting processes (Chao, 2019). Therefore, TAM provides a useful theoretical lens for explaining how user perceptions can influence the acceptance and utilization of artificial intelligence within Nigeria's public sector accounting environment (Granić & Marangunić, 2019).

2.3 Synthesis of Existing Empirical Studies

Empirical evidence on artificial intelligence adoption in accounting and public financial management generally indicates that AI contributes positively to the quality and efficiency of financial processes. Hasan (2022) reviewed existing studies on AI in accounting and auditing and found that AI applications improve the processing of financial information, enhance accuracy, and support more reliable reporting practices. Similarly, Kokina et al. (2021) reported that automation technologies are reshaping accounting functions by enabling accountants to perform more analytical tasks while reducing routine manual activities. In

another study, Moll and Yigitbasioglu (2019) observed that emerging digital technologies have altered traditional accounting practices through enhanced data processing and analytical capabilities. Consistent with these findings, Dwivedi et al. (2021) noted that AI technologies facilitate improved organizational decision making by enabling the analysis of complex datasets that would be difficult to process through conventional approaches. Collectively, these studies suggest that AI has become an important technological resource for improving accounting operations and information quality.

Within the auditing environment, empirical studies have shown that AI can enhance audit effectiveness and strengthen monitoring processes. Hasan (2022) found that AI driven systems support continuous auditing by automating the examination of financial transactions and identifying unusual patterns that may require further investigation. Wirtz et al. (2019) similarly reported that public sector organizations increasingly employ artificial intelligence to improve oversight and administrative efficiency through advanced analytical capabilities. Janssen et al. (2020) further observed that intelligent data management systems can support more reliable public sector decision making when supported by appropriate governance arrangements. Supporting this position, Mergel et al. (2019) found that digital transformation initiatives within government institutions contribute to more efficient administrative processes and better service outcomes. Although these studies were conducted in different contexts, they consistently indicate that AI can strengthen auditing and oversight functions by improving the speed, reliability, and effectiveness of financial reviews. Empirical findings also highlight the role of AI in fraud detection and financial accountability. Wirtz and Müller (2019) reported that artificial intelligence applications enable government institutions to identify irregular financial activities through advanced pattern recognition and analytical models. Dwivedi et al. (2021) likewise observed that AI technologies can improve risk management by detecting anomalies that may indicate financial misconduct or inefficiencies. Hasan (2022) found that machine learning applications assist organizations in identifying fraudulent transactions with greater speed and precision than many traditional approaches. In addition, Kokina et al. (2021) argued that intelligent technologies provide accountants with enhanced capabilities for data examination and control monitoring, thereby contributing to improved accountability. These findings suggest that AI can serve as an effective instrument for strengthening financial integrity and reducing opportunities for fraud within public financial management systems. Despite the reported benefits, empirical evidence shows that successful AI adoption is often influenced by institutional, technological, and human factors. Dwivedi et al. (2021) identified organizational readiness, technological infrastructure, and user competence as major determinants of successful AI implementation. Mergel et al. (2019) similarly found that digital transformation efforts are more effective when institutions possess adequate technological capacity and supportive governance structures. Janssen et al. (2020) emphasized the importance of data governance frameworks in ensuring the effective use of intelligent technologies within public organizations. Furthermore, Wirtz et al. (2019) reported that public sector agencies frequently encounter challenges relating to skills shortages, ethical concerns, and implementation capacity during AI adoption. A critical review of these studies reveals broad agreement that while artificial intelligence has considerable potential to improve financial reporting quality, audit efficiency, fraud detection, and accountability, the realization of these benefits depends largely on the availability of strong institutional support, appropriate infrastructure, and adequately trained personnel.

2.4 Gap in Literature

A review of existing literature shows that artificial intelligence has been widely examined in accounting, auditing, fraud detection, and digital transformation studies (Moll & Yigitbasioglu, 2019; Hasan, 2022). Studies by Wirtz et al. (2019) and Janssen et al. (2020) focused on AI

applications in public administration and governance, while Kokina et al. (2021) explored its implications for accounting practice. However, limited attention has been given to the Nigerian public sector accounting environment. Additionally, existing studies have rarely examined financial reporting quality, audit efficiency, fraud detection, and budget implementation within a single framework. This gap necessitates further investigation into the role of artificial intelligence in enhancing public sector accounting performance in Nigeria.

3.0 Methodology

This study adopted an exploratory research design to examine the role of artificial intelligence (AI) in enhancing public sector accounting performance in Nigeria within a global context. The exploratory design was considered appropriate because the subject remains relatively new within the Nigerian public sector accounting environment and requires an in-depth examination of existing evidence, emerging trends, and practical experiences from different jurisdictions. The design enabled the study to gain a broad understanding of how artificial intelligence is being applied in public financial management systems and to identify its potential contributions to financial reporting quality, audit efficiency, fraud detection, accountability, and budget implementation. The exploratory approach also facilitated the examination of existing knowledge without manipulating variables or conducting field investigations.

The study employed a systematic literature review approach to ensure a structured and comprehensive examination of relevant scholarly and policy literature. The systematic review method provided a rigorous procedure for identifying, selecting, evaluating, and synthesizing available evidence on artificial intelligence and public sector accounting. The approach was particularly suitable because it enabled the integration of findings from different studies, countries, and institutional contexts in order to develop a comprehensive understanding of the subject under investigation. Through this method, evidence from both developed and developing economies was reviewed to provide a balanced perspective on the opportunities and challenges associated with AI adoption in public financial management environments.

Data for the study were obtained exclusively from secondary sources. These sources included peer reviewed journal articles, conference proceedings, textbooks, government publications, policy reports, professional accounting reports, working papers, and reports published by international organizations such as the World Bank, International Monetary Fund, Organisation for Economic Cooperation and Development, and the United Nations. Relevant documents were selected based on their relevance to artificial intelligence, public sector accounting, public financial management, accountability, financial reporting quality, auditing, and digital transformation. Preference was given to recent publications to ensure that the study reflected current developments in artificial intelligence applications and public financial management practices. The collected data were analyzed using thematic analysis. This method involved carefully reviewing and organizing the selected literature into recurring themes that reflected the major issues associated with artificial intelligence in public sector accounting. During the analysis, patterns relating to financial reporting quality, audit efficiency, fraud detection, budget implementation, transparency, accountability, technological infrastructure, human capital capacity, and regulatory readiness were identified and examined. Similar findings from different studies were grouped together, while areas of disagreement were critically compared to provide a balanced assessment of existing evidence. The thematic approach enabled the study to synthesize diverse findings into coherent themes that addressed the objectives of the research. To enhance the credibility of the study, only relevant and verifiable academic and institutional sources were included in the review process. Furthermore, evidence obtained from multiple sources was compared and synthesized to strengthen the reliability of the conclusions drawn. Through the adoption of an exploratory research design, systematic literature review approach, secondary data collection method, and thematic analysis technique, the study

provided a comprehensive assessment of the contribution of artificial intelligence to public sector accounting performance and its implications for public financial management in Nigeria.

4.0 Data Analyses

4.1 Analysis of Research Questions

Research Question 1: How is AI being applied in public sector accounting globally?

The reviewed studies show that artificial intelligence is increasingly being integrated into accounting and public financial management systems across the world to improve efficiency, transparency, and accountability. Wirtz et al. (2019) found that governments are utilizing AI to strengthen administrative processes, improve financial oversight, and support evidence-based decision making. Similarly, Janssen et al. (2020) observed that intelligent data management systems assist public institutions in processing large volumes of financial information more effectively. Hasan (2022) reported that AI applications support automated transaction processing, continuous auditing, and fraud detection within accounting environments. Furthermore, Kokina et al. (2021) noted that automation technologies are transforming traditional accounting functions by reducing manual activities and enhancing analytical capabilities. Moll and Yigitbasioglu (2019) also found that digital technologies have expanded the scope of accounting through improved information processing and reporting functions. The evidence therefore indicates that AI is being applied globally in areas such as financial reporting, audit support, risk assessment, fraud detection, and data analytics, thereby improving the efficiency and effectiveness of public sector accounting systems.

Major Finding: Artificial intelligence is globally applied in public sector accounting to automate financial processes, strengthen auditing, improve reporting quality, and enhance accountability.

Research Question 2: What is the current state of public financial management systems in Nigeria?

Evidence from the literature indicates that Nigeria has made substantial progress in public financial management through reforms such as the Treasury Single Account, Government Integrated Financial Management Information System, Integrated Payroll and Personnel Information System, and the adoption of IPSAS. However, the reviewed studies suggest that these systems remain largely transactional and possess limited intelligent analytical capabilities. Wirtz et al. (2019) emphasized that advanced economies have moved beyond basic digitalization to AI enabled financial management systems, whereas developing countries are still experiencing implementation challenges. Similarly, Janssen et al. (2020) highlighted the importance of data governance and technological readiness for successful digital transformation. Dwivedi et al. (2021) identified infrastructure limitations, inadequate technical expertise, and organizational readiness as major barriers to technology adoption. Hasan (2022) further noted that the benefits of AI are often constrained where technological and human resource capacities are insufficient. Consequently, while Nigeria has established important digital financial management platforms, the available evidence suggests that the country remains at an early stage of integrating artificial intelligence into public sector accounting operations.

Major Finding: Nigeria's public financial management systems have achieved significant digitalization but remain at an emerging stage of AI adoption due to infrastructure, capacity, and technological constraints.

Research Question 3: How can AI improve transparency and accountability in Nigerian public sector accounting?

The empirical evidence demonstrates that artificial intelligence can significantly strengthen transparency and accountability through enhanced monitoring, fraud detection, and data analysis capabilities. Hasan (2022) found that AI improves the accuracy and reliability of accounting information by automating financial processes and reducing human errors. Wirtz and Müller (2019) reported that AI systems facilitate the early detection of irregular transactions through advanced analytical techniques, thereby supporting stronger accountability mechanisms. Likewise, Dwivedi et al. (2021) observed that intelligent technologies can improve organizational monitoring and risk management by identifying anomalies that might otherwise remain undiscovered. Kokina et al. (2021) further argued that AI enables more comprehensive examination of financial data, thereby strengthening internal control and oversight functions. The reviewed studies collectively suggest that AI can support real time monitoring of government transactions, improve the quality of financial information, and reduce opportunities for fraud. Through these capabilities, artificial intelligence has the potential to improve openness, strengthen financial accountability, and increase public confidence in government financial management processes.

Major Finding: Artificial intelligence enhances transparency and accountability by improving financial monitoring, detecting irregularities, reducing fraud, and strengthening financial reporting.

Research Question 4: What institutional and technical barriers affect AI adoption in Nigeria?

The reviewed literature reveals that several institutional and technical barriers hinder the adoption of artificial intelligence in public sector accounting. Dwivedi et al. (2021) identified inadequate technological infrastructure and insufficient organizational readiness as significant factors limiting AI implementation. Similarly, Mergel et al. (2019) found that successful digital transformation depends heavily on the existence of supportive administrative structures and technological capacity. Janssen et al. (2020) emphasized that effective data governance frameworks are necessary for the successful deployment of intelligent technologies in public institutions. Wirtz et al. (2019) further noted that public organizations often face challenges arising from workforce skill shortages, ethical concerns, and implementation difficulties during technology adoption processes. Hasan (2022) also highlighted the importance of technical expertise in maximizing the benefits of AI applications. These findings suggest that inadequate infrastructure, limited human capital, weak regulatory frameworks, data governance challenges, and organizational resistance constitute significant obstacles to the integration of AI into Nigeria's public sector accounting environment.

Major Finding: Inadequate infrastructure, limited technical expertise, weak institutional readiness, and insufficient regulatory support are the major barriers to AI adoption in Nigeria.

Research Question 5: What relationships exist between AI adoption and financial reporting quality?

The empirical studies reviewed consistently indicate a positive relationship between artificial intelligence adoption and financial reporting quality. Hasan (2022) found that AI improves the accuracy, consistency, and timeliness of accounting information through automated data processing and analysis. Moll and Yigitbasioglu (2019) similarly reported that digital technologies enhance the production and communication of financial information by improving accounting processes. Kokina et al. (2021) observed that intelligent technologies

contribute to more efficient handling of accounting data, leading to better quality financial reports. Dwivedi et al. (2021) further noted that AI enhances data analysis and decision making, which can improve the overall reliability and usefulness of financial information. Wirtz et al. (2019) also highlighted the role of AI in supporting more informed and transparent administrative processes. Taken together, the reviewed evidence suggests that greater adoption of AI is associated with improved financial reporting quality through increased accuracy, reduced processing errors, faster reporting cycles, and enhanced reliability of financial information.

Major Finding: Artificial intelligence adoption positively influences financial reporting quality by improving accuracy, reliability, timeliness, and completeness of financial information.

4.2 Discussion of Findings

The findings of this study demonstrate that artificial intelligence is increasingly being applied in public sector accounting to improve financial reporting, auditing, fraud detection, and accountability, and this pattern can largely be attributed to the growing need for governments to manage large volumes of financial data more accurately and efficiently. The finding that AI is widely utilized in accounting and financial management aligns with the studies of Wirtz et al. (2019), Hasan (2022), Kokina et al. (2021), and Moll and Yigitbasioglu (2019), all of whom reported that intelligent technologies enhance data processing, automate routine accounting functions, and improve decision making. The finding that Nigeria remains at an emerging stage of AI adoption despite considerable progress in digital financial reforms is understandable because existing systems such as TSA, GIFMIS, and IPPIS were primarily designed for transaction processing rather than predictive analytics. This result is consistent with the observations of Dwivedi et al. (2021), Janssen et al. (2020), Wirtz et al. (2019), and Mergel et al. (2019), who found that technological readiness, institutional capacity, and digital infrastructure significantly influence the adoption of advanced technologies. The finding further suggests that the benefits associated with AI adoption are more likely to be realized in environments where supporting technological and organizational structures already exist.

The finding that artificial intelligence can improve transparency and accountability in public sector accounting is not surprising because AI systems are capable of monitoring financial transactions continuously, identifying anomalies, and generating timely financial information. This finding supports the works of Hasan (2022), Wirtz and Müller (2019), Dwivedi et al. (2021), and Kokina et al. (2021), who found that AI strengthens internal control systems, enhances monitoring capabilities, and supports fraud detection. Similarly, the finding that inadequate infrastructure, weak institutional readiness, and limited technical expertise constitute major barriers to AI adoption reflects the realities of many developing economies where digital transformation initiatives often face resource and capacity constraints. This outcome agrees with the findings of Dwivedi et al. (2021), Mergel et al. (2019), Janssen et al. (2020), and Wirtz et al. (2019), who reported that technological implementation is frequently constrained by insufficient infrastructure, skills shortages, governance challenges, and data management limitations. The finding also indicates that technological innovations alone may not guarantee improved performance unless accompanied by adequate institutional support and human resource development.

Furthermore, the finding that artificial intelligence positively influences financial reporting quality can be explained by the ability of intelligent technologies to process large volumes of financial information with greater speed, consistency, and accuracy than traditional methods. This finding corroborates the studies of Hasan (2022), Kokina et al. (2021), Moll and Yigitbasioglu (2019), and Dwivedi et al. (2021), which reported that AI enhances data quality,

reduces errors, improves reporting efficiency, and supports more informed decision making. The finding is also consistent with Wirtz et al. (2019), who argued that intelligent technologies contribute to more transparent administrative processes and better information management. Across the reviewed studies, there was broad agreement regarding the positive contribution of AI to accounting and public financial management outcomes, with little evidence contradicting its potential benefits. However, the studies collectively emphasized that the magnitude of these benefits depends on the availability of supporting infrastructure, appropriate governance frameworks, and adequately trained personnel. Therefore, the overall findings suggest that while artificial intelligence possesses substantial potential to transform public sector accounting performance in Nigeria, its effectiveness will largely depend on the country's ability to address existing institutional, technological, and human capital challenges.

5.0 Conclusion and Recommendation

The findings of this study underscore the growing significance of artificial intelligence as a strategic tool for strengthening public sector accounting and public financial management. The evidence suggests that accounting performance is increasingly influenced by the ability of public institutions to adopt intelligent technologies that support timely reporting, continuous monitoring, and effective control of public resources. The observed relationship between AI adoption and improved financial reporting quality, audit efficiency, fraud detection, and accountability indicate that technological advancement is becoming an important determinant of financial governance outcomes. The findings also reveal that the effectiveness of digital reforms extends beyond the introduction of computerized systems and depends on the capacity of institutions to utilize advanced technologies for analytical and decision-making purposes. Furthermore, the persistence of infrastructure deficiencies, capacity limitations, and regulatory challenges highlights the uneven nature of digital transformation across public sector environments. This situation suggests that countries with stronger technological capabilities are likely to derive greater value from AI enabled financial management systems than those with limited digital readiness. The study also reinforces the growing relevance of technology-based approaches in addressing long-standing public-sector accounting challenges and demonstrates that the future of financial accountability may increasingly depend on the integration of intelligent systems within government financial management frameworks.

Based on the five major findings, the following recommendations are proposed:

1. The Federal Government of Nigeria and the Office of the Accountant General of the Federation should integrate artificial intelligence applications into existing public financial management systems such as GIFMIS, TSA, and IPPIS to improve financial reporting processes, audit functions, and accountability across government institutions.
2. The Federal Ministry of Finance, Budget and National Planning should accelerate the development and deployment of AI enabled public financial management frameworks by incorporating intelligent data analytics and automated monitoring tools into existing digital financial systems to strengthen operational efficiency.
3. Public sector accounting officers, auditors, and financial managers should adopt AI driven monitoring and analytical tools in their daily operations to improve transparency, strengthen accountability mechanisms, and enhance the early detection of financial irregularities and fraudulent activities.
4. The Federal Ministry of Communications, Innovation and Digital Economy, in collaboration with relevant government agencies, should invest in digital infrastructure and continuous technical training programmes to address the technological and human capacity constraints that limit the effective adoption of artificial intelligence in public sector accounting.
5. Government ministries, departments, and agencies should incorporate artificial intelligence

supported accounting and reporting systems into their financial management operations to improve the accuracy, reliability, timeliness, and overall quality of financial reports produced for decision making and public accountability purposes.

5.1 Contribution to Knowledge

This study contributes to the growing literature on artificial intelligence and public sector accounting by providing a comprehensive examination of how artificial intelligence can enhance financial reporting quality, audit efficiency, fraud detection, and budget implementation within the Nigerian public sector. Unlike previous studies that focused mainly on accounting automation, digital transformation, or public administration in developed economies, the study brings together key dimensions of public sector accounting performance within a single analytical framework. The study also extends existing knowledge by examining artificial intelligence from a Nigerian perspective while drawing evidence from global experiences. In addition, it highlights the institutional, technological, and human capacity factors that shape the application of artificial intelligence in public financial management, thereby providing a broader understanding of its role in strengthening accountability and financial governance in the public sector.

5.2 Limitations of the Study and Suggestion for Further Studies

This study was limited by its reliance on secondary data obtained from published journal articles, policy documents, government reports, and reports from international organizations. As a result, the study depended on available evidence and was unable to obtain direct opinions from public sector accountants, auditors, and financial managers regarding the use of artificial intelligence in their organizations. The study was also constrained by the limited availability of empirical research specifically addressing artificial intelligence in Nigerian public sector accounting. In addition, differences in administrative structures and technological development across countries made it difficult to compare experiences uniformly within all public financial management environments. Future studies should adopt primary data collection methods such as surveys, interviews, and case studies to obtain direct evidence from public sector accounting professionals on the use of artificial intelligence in government institutions. Researchers should also investigate individual dimensions of public sector accounting performance, including financial reporting quality, audit efficiency, fraud prevention, and budget implementation, using empirical data from specific ministries, departments, and agencies. Further studies may examine the influence of factors such as organizational culture, digital competence, technological readiness, and regulatory support on artificial intelligence adoption. Comparative studies involving multiple developing countries would also provide broader evidence on public sector applications of artificial intelligence.

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