An Assessment of the Paradigm Shifts of Nigerian Audit Firms' Audit Procedure through the Adoption of Artificial Intelligence

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Abstract

The auditing field has experienced a major alter with the integration of AI-driven tools and techniques. However, to maintain professional ethics remain crucial, guiding auditors to preserve integrity, objectivity and independence. This study explores into the intersection of AI (Artificial Intelligence) and professional ethics in audit procedures among Nigerian audit firms, evaluating their combined impact and implications. Using a survey research design, data was collected through structured questionnaire from professionals in the accounting field including accountants, auditors, and tax practitioners particularly those familiar with artificial intelligence usage in accounting firms based in Lagos, Nigeria's commercial center. The research incorporated all 56 registered accounting firms in Lagos State, utilizing a census sampling method to ensure representation of the entire population. This resulted in a sample size equivalent to 100% of the population, comprising 280 participants. Both descriptive and inferential statistical analyses were utilized to assess the proficiency levels of the respondents. The findings of the regression analysis findings revealed a significant positive effect between the

adoption of artificial intelligence and on audit procedures within Nigerian audit firms. This suggests that both AI-driven technologies and a commitment to ethical principles contribute synergistically to the effectiveness and efficiency of audit procedures within these firms. The findings underscore the significance of incorporating ethical factors into the development and deployment of AI technologies in auditing practices. It is therefore, recommended that Nigerian audit firms should establish clear policies and guidelines for the effective use of AI in auditing, emphasizing ethical considerations.

Keywords: *Artificial Intelligence; Audit Procedures; Data Analytics.*
JEL Classification Codes: M49, M42, H3

1. Introduction

In recent times, the fusion of Artificial Intelligence (AI) technologies into various sectors has brought about transformative changes, revolutionizing traditional processes and workflows. The field of auditing has witnessed a significant paradigm shift with the adoption of AI-driven tools and techniques. The impact of AI is not only contemplated on real time but the ability to compete with human intelligence (Akinadewo, 2021). Furthermore, technological progress has spurred fierce yet constructive competition among professional organizations in Nigeria, particularly within the accounting sphere (Akinadewo et al., 2023). The auditing sector in Nigeria exhibits a diverse composition comprising prominent international audit firms, intermediate-tier entities, and smaller local establishments. Leading the market are the "Big Four" audit firms - Deloitte, PricewaterhouseCoopers (PwC), Ernst & Young (EY), and KPMG - which predominantly serve major corporations, financial institutions, and public sector bodies. Meanwhile, mid-tier firms like Grant Thornton, BDO, Pedabo and others cater to a broad spectrum of clients, including small and medium-sized enterprises (SMEs), while local firms specialize in niche markets and regional clienteles (Dagunduro et al., 2023; Owonifari et al., 2023).

Audit procedures within Nigerian audit firms encompass a spectrum of tasks aimed at gathering adequate and relevant audit evidence to substantiate the auditor's opinion on financial statements. These procedures entail risk assessment, strategic planning, substantive testing, analytical reviews, and the assessment of internal controls (Mpofu, 2023). Notably, there has been a notable surge in the adoption of technology-driven audit methodologies, including data analytics, artificial intelligence, and Robotic Process Automation (RPA), to optimize audit efficiency and efficacy in recent years. Nigeria, as a rapidly developing economy with a burgeoning auditing sector, provides a compelling backdrop for studying the integration of AI technologies and professional ethics in auditing practices (Noordin et al., 2022). Against the backdrop of increasing regulatory scrutiny and the demand for greater transparency and accountability, audit firms in Nigeria are navigating a complex landscape characterized by evolving technological advancements and ethical considerations. Arguing similarly, Akinadewo (2021) was of the opinion that the emergence of AI has changes the transactional and functional activities of the contemporary accounting globally.

The incorporation of AI-driven tools such as data analytics, machine learning algorithms, and robotic process automation (RPA) has offered auditors new capabilities for analyzing vast

datasets, identifying patterns, and detecting anomalies with greater precision and efficiency. These technologies have the potential to streamline audit procedures, enhance risk assessment processes, and improve audit quality by providing auditors with valuable insights and predictive analytics (Rodrigues et al., 2023). However, alongside the opportunities presented by AI, audit firms must also grapple with ethical considerations inherent in the use of these technologies. Apparently, intelligent machines (AI) only required the receipt of inputs from human source, with intelligent coding, and the output becomes real time (Akinadewo, 2021). Questions surrounding data privacy, confidentiality, bias in algorithmic decision-making, and the ethical implications of human-AI interactions pose significant challenges for auditors as they navigate the ethical dimensions of AI-driven audit procedures (Oluwagbade et al., 2024).

Therefore, this study explores into the relationship between AI and audit procedures among Nigerian audit firms, aiming to evaluate their combined impact and implications. Through empirical research, including surveys and case studies, this study aims to provide insights into the dynamic interplay between AI and audit procedures within Nigerian audit firms. By critically evaluating the opportunities and challenges posed by AI integration and ethical considerations, this research endeavors to inform best practices, regulatory frameworks, and professional development initiatives aimed at promoting integrity, transparency, and accountability in the Nigerian auditing profession.

2 Literature Review and Hypotheses Development

2.1 Conceptual Review

2.1.1 Artificial Intelligence (AI)

Artificial intelligence (AI) encompasses computer systems simulating various human intelligence processes, including learning, reasoning, problem-solving, perception, and language comprehension (Akinadewo et al., 2024). AI technologies empower machines to execute tasks traditionally associated with human intelligence, such as identifying data patterns, decision-making, comprehending natural language, and interacting with the environment (Ajayi & Akinrinola, 2023), which has developed into machines used for diverse organizational operations (Akinadewo, 2021). AI systems have the capability to function independently or in conjunction with humans across diverse sectors, spanning healthcare, finance, transportation, manufacturing, and beyond. The realm of AI encompasses an extensive array of methodologies and strategies, comprising machine learning, deep learning, natural language processing, computer vision, robotics, and expert systems, among others.

2.1.2 Data Analytics

Data analytics involves examining raw data to discover valuable insights, patterns, and trends, which can guide decision-making and influence business results. It is a process of applying statistical, mathematical, and computational techniques to large volumes of structured and unstructured data from various sources, such as databases, spreadsheets, sensors, social media, and more (Falana et al., 2023). Similarly, Igbekoyi et al. (2023) stated that data analytics encompasses a variety of methodologies, including descriptive analytics (which involves summarizing and visualizing data to understand past trends), diagnostic analytics (which focuses on identifying the causes of past events), predictive analytics (which entails forecasting future outcomes based on historical data), and prescriptive analytics (which offers recommendations for optimal actions). Through the utilization of data analytics, organizations can acquire valuable

insights into customer behavior, market trends, operational efficiency, risk management, and other critical aspects of their business. This empowers them to make informed decisions and drive enhancements in performance (Falana et al., 2023; Igbekoyi et al., 2023).

2.1.3 Machine Learning Algorithms

Machine learning algorithms, at their core, represent a revolutionary approach to computing, enabling computers to learn from vast datasets and autonomously improve their performance over time without the need for explicit programming. These algorithms leverage a diverse array of statistical models and mathematical techniques to deduce valuable insights from data, empowering machines to discern intricate patterns and relationships that may elude human observation (Busayo et al., 2023). By discerning these underlying structures within data, machine learning algorithms can generate predictions or decisions with remarkable precision, even when faced with previously unseen information. Across a myriad of domains, machine learning algorithms have emerged as indispensable tools, reshaped the landscape of technological innovation and drove transformative advancements in fields ranging from healthcare to finance (Dada et al., 2023).

2.1.4 Robotic Process Automation

Robotic Process Automation (RPA) involves employing software robots or "bots" to automate routine, rule-based tasks and workflows in business processes. RPA technology facilitates operational streamlining, improved efficiency, and decreased human error by automating manual tasks that would otherwise necessitate human involvement (Busayo et al., 2023). These software robots are programmed to emulate the actions carried out by human operators when interacting with digital systems, such as entering data into forms, copying and pasting information between applications, extracting data from documents, and executing predefined tasks within software applications. RPA solutions typically involve the creation of software "bots" that can be deployed to perform specific tasks or entire end-to-end processes autonomously, with minimal human supervision. These bots can be trained using drag-and-drop interfaces or scripting languages to automate tasks across various applications and systems, including enterprise resource planning (ERP) systems, customer relationship management (CRM) platforms, web applications, and more (Mohamed et al., 2024Robotic Process Automation provides numerous advantages to enterprises, such as heightened productivity, cost savings, enhanced accuracy and consistency, faster process execution times, and scalability. By automating routine and repetitive tasks, RPA allows human workers to dedicate their time to more valuable tasks that demand creativity, critical thinking, and decision-making abilities (Oluwagbade et al., 2024).

2.1.5 Audit Procedures

Audit procedures serve as the cornerstone of the auditing process, encompassing a comprehensive framework of steps, methodologies, and techniques meticulously executed by auditors to ascertain the veracity and credibility of financial information within an organization. These procedures are meticulously designed to systematically scrutinize an entity's financial records, transactions, internal controls, and pertinent documentation, facilitating the formation of a well-founded opinion on the accuracy and fairness of its financial statements (IFAC, 2021). At the heart of audit procedures lies the imperative to obtain reliable evidence, which serves as the bedrock for auditors' assessments and conclusions. Audit procedures play a pivotal function in enhancing transparency, accountability, and trustworthiness in financial reporting. By subjecting

an organization's financial records and processes to rigorous scrutiny, auditors not only detect and rectify inaccuracies and irregularities but also instill confidence among stakeholders in the reliability and accuracy of the financial information presented. This transparency fosters greater accountability among management and reinforces the organization's commitment to ethical conduct and compliance with regulatory standards (Rodrigues et al., 2023). Moreover, audit procedures serve as a critical safeguard against fraud, mismanagement, and financial misstatements, thereby fortifying the integrity and credibility of financial reporting. Through meticulous analysis and testing, auditors can identify red flags, anomalies, and potential areas of concern, enabling timely intervention and corrective action to mitigate risks and safeguard the interests of stakeholders. In essence, audit procedures constitute a rigorous and systematic approach to validating the accuracy, completeness, and reliability of financial information, thereby fulfilling the essential mandate of auditors to provide assurance to stakeholders regarding the integrity of an organization's financial statements (Noordin et al., 2022).

2.2 Theoretical Underpinning

This study was grounded in the Theory of Planned Behavior (TPB), which was introduced by Icek Ajzen in 1985. TPB posits that behavioral intentions are influenced by three main factors: attitudes toward the behavior, subjective norms, and perceived behavioral control (Ajzen, 1988). In the context of this research, TPB was utilized to examine auditors' intentions and actions concerning the implementation of artificial intelligence (AI) in audit procedures. Auditors' attitudes toward AI adoption, subjective norms such as organizational culture and peer influence, and perceived behavioral control factors like technical proficiency and resource availability were considered as influencers on their decisions regarding the integration of AI into audit processes. By employing the Theory of Planned Behavior, the study aimed to analyze how auditors' attitudes, subjective norms, and perceived behavioral control interacted with considerations of professional ethics, shaping their adoption of AI technologies in audit procedures. This theoretical framework provided a structured approach to understanding the behavioral aspects of AI adoption within audit firms, encompassing both technological advancements and ethical considerations in the examination.

2.3 Empirical Review

Oluwagbade et al. (2024) conducted a study to identify and analyze the challenges faced by Nigerian accounting firms in integrating artificial intelligence (AI) into their auditing procedures. They employed a survey research design, gathering data from statutory auditors in Lagos, Nigeria, utilizing a well-structured questionnaire. The study covered all 35 registered accounting firms in Lagos State, employing a census sampling method. The findings indicated that AI significantly contributes to identifying challenges and opportunities in auditing.

Akinadewo et al. (2024) explored the impact of adopting AI on the quality of audit practices in Nigeria, focusing on data mining, machine learning, and image recognition. They targeted a population of 251 accounting firms in southwest Nigeria, utilizing structured questionnaires for data collection. Results revealed a positive relationship between data mining and image recognition with the quality of audit practices, while machine learning showed an insignificant relationship.

Musa (2024) investigated the factors influencing the adoption of AI by small and medium enterprises (SMEs) and its impact on audit quality in the Kingdom of Saudi Arabia (KSA). Data were collected via an internet questionnaire from accountants and audit companies in Saudi SMEs. The study found that both accountants and external auditors in KSA believe that utilizing AI enhances audit quality.

Mohammed et al. (2024) explored the relationship between information technology usage and the enhancement of joint audit quality. Utilizing a survey method, the study collected primary data through structured questionnaires distributed to 100 participants, with 71 fully completed responses retrieved. Statistical analysis using SPSS at a 95% confidence level revealed that information technology enhances the quality of joint audits, with digital technology playing a crucial role in improving audit quality, reliability, and overall efficiency.

Mpofu (2023) delved into the significance of artificial intelligence (AI) in the external audit function, assessing the ongoing discourse surrounding AI and external auditing, and evaluating the implications of AI utilization in external audits. Employing a qualitative research approach, the study conducted a critical literature review. Findings from the review indicated a positive and significant relationship between artificial intelligence and audit quality. Ajayi and Arinola (2023) investigated the adoption of artificial intelligence within Nigerian commercial banks to enhance audit quality. Employing a survey research design, the study sought expert opinions on the subject matter and utilized purposive sampling methods. With 121 employees from selected banks participating, the study employed the sample t-test to examine formulated hypotheses. Results indicated that the application of artificial intelligence has indeed facilitated internal audits in commercial banks, with statistical significance observed at a 95% confidence level ($p < 0.05$).

Dagunduro et al. (2023) explored the effect of artificial intelligence on audit quality in Nigeria, focusing on expert systems, machine learning, and intelligent agents. They conducted a survey targeting 178 accounting firms in Nigeria utilizing AI, with a sample size of 125 selected via purposive sampling. Data collected through structured questionnaires were analyzed using descriptive statistics and OLS regression analysis. The findings revealed a significant positive relationship between expert systems, machine learning, and intelligent agents with audit quality in Nigeria.

Noordin et al. (2022) examined the perceptions of external auditors regarding the use of artificial intelligence (AI) in the United Arab Emirates (UAE). They aimed to determine whether external auditors perceive AI as contributing to audit quality and to assess potential differences in this perception between local and international auditors. Data were collected through an online survey involving 22 local and 41 international audit firms. Participants included auditing managers, audit partners, senior auditors, and other relevant personnel with experience in accounting and auditing. Hypotheses were tested using reliability and validity tests, descriptive analysis, and independent samples t-tests. Results showed no significant difference in the perceived contribution of AI to audit quality between local and international audit firms.

Mirzaei et al. (2022) conducted a study to examine the impact of artificial intelligence on audit quality in Iran and to explore reasons behind Iranian auditors' reluctance to adopt AI technology. Data were collected via questionnaires distributed to 150 auditors and managers meeting inclusion criteria. Four research hypotheses were tested using statistical methods. Results revealed that the application of artificial intelligence, particularly in data analysis related

to financial statement items and fraud detection, along with modest reductions in audit costs, positively influenced the improvement of audit quality.

Studies conducted in Nigeria have yield mixed findings. However, authors have focused on audit quality and in Nigeria and other jurisdictions. The following hypotheses are proposed.

H_{o1}: Data analytics has no significant effect on audit procedures in Nigeria audit firms

H_{o2}: Machine learning algorithms has no significant effect on audit procedures in Nigeria audit firms

H_{o3}: Robotic process automation has no significant effect on audit procedures in Nigeria audit firms

3. Methodology

This study utilized a survey research, employing a well-structure questionnaire to gather data. The targeted participants included accountants, auditors, and tax practitioners who were knowledgeable about the use of artificial intelligence within their accounting firms, particularly situated in Lagos, the bustling commercial center of Nigeria. The study population consisted of all registered accounting firms in Lagos State, totaling 56 firms. A census sampling method was adopted, encompassing the entire population, resulting in a sample size equivalent to 100% representation. Given the manageable size of the population, five respondents were selected from each accounting firm, leading to a total of 280 participants. Both descriptive and inferential statistical analyses were employed to assess the proficiency levels of the respondents.

Econometric functions were used to investigate the links between the audit procedures, professional ethics and artificial intelligence based on the theoretical underpinnings and statistical adequacy of the investigation. The model specification offers the functional justification for the model utilised in this investigation. The model states the details of this functional relationship as follows:

$$AUP = \beta_0 + \beta_1 DAA + \beta_2 MLA + \beta_3 RPA + \mu \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Where:

AUP = Audit Procedures DAA= Data Analytics

MLA = Machine Learning Algorithms RPA = Robotic Process Automation

β_0 represents the intercept, β_1, β_2, and β_3 mean coefficients of various in dependent variables, while μ represents the error term.

4. Findings and Discussion

4.1 Reliability Test

Table 1 below presented the results of the Cronbach Alpha reliability test of the data instrument and the consistency of the questionnaire employed on impact of artificial intelligence and professional ethics on audit procedures. A score of 0.60 or higher is regarded as satisfactory benchmark of internal consistency. The Cronbach Alpha for audit procedures (AUP), data analytics (DAA), machine learning algorithms (MLA), and robotic process automation (RPA) is 0.7143, 0.7090, 0.7063 and 0.7494 respectively. This suggests that the data instruments and data collection techniques under test were consistent and reliable

Table 1: Cronbach Alpha Test Results

Item	Alpha
AUP	0.7143
DAA	0.7090
MLA	0.7063
RPA	0.7494

Source: Authors' Computation (2024)

4.2 Descriptive Statistics

Table 2 below displays the descriptive information on the variables under consideration. The dependent variable, audit procedure, is represented by AUP, while the independent variables, as specified in model 1 are represented by DAA, MLA and RPA respectively. The average value of audit procedure is 2.8114, signifying the appropriateness and sufficiency of such procedure during audit. At 0.9402 standard deviation, the distribution is lowly dispersed. The data distribution for AUP is left-skewed at -1.3271, while being highly leptokurtic at 5.5408. The average value of DAA is 2.7842, with a standard deviation of 0.9013. The value of this distribution ranges from 0 to 5. In terms of shape, the distribution is left-skewed at -1.4650, while being leptokurtic at 5.8006. The mean value of MLA is 2.8536, signifying the degree of belief in the use of machine learning in audit procedure. These values are between the range of 0 and 5. While being left-skewed at -1.4270, the shape of the distribution is leptokurtic at 6.1103. Also, the average value of 2.9107, while being dispersed at 0.7807 from the mean value. Although, this is very low, the value ranges from 0 to 5. The shape of this distribution is left-skewed at -1.3234, but leptokurtic at 6.5703.

Table 2: Descriptive Statistics

Variables	AUP	DAA	MLA	RPA
Observation	280	280	280	280
Mean	2.8114	2.7843	2.8536	2.9107
Standard Deviation	0.9403	0.9013	0.8839	0.7807
Skewness	-1.3271	-1.4651	-1.4271	-1.3234
Kurtosis	5.5409	5.8006	6.1103	6.5703
Minimum	0	0	0	0
Maximum	5	5	5	5

Source: Authors' Computation (2024)

4.3 Regression Analysis on Audit Procedure and Artificial Intelligence

Post Estimation Test and Regression Diagnostics

Assumptions are the foundational basis of all inferential tests. Theoretically, these presumptions guarantee accurate and reliable estimates or parameters. In this regard, the study carried out some test to determine the statistical adequacy of the regression analysis. The study used a Variance Inflation Factor test (VIF) to assess the degree of multicollinearity present in the variables. It evaluates whether independent variables in a regression model can be predicted by another. The coefficient estimations of the model further illustrated the linear relationship of its variables. With a VIF score of 1.17, which is far below the threshold of 10. This indicates that there is no multicollinearity in the model. Once more, a Breusch-Pagan/Cook-Weisberg test for

heteroskedasticity was used in the study to assess data with respect to constant variance in error terms. This test determines if variables in a model, particularly independent variables, are significant or not. In cases when test statistics are not significant, the residual exhibits heteroskedasticity; in other cases, it displays homoskedasticity. With a chi-value of 48.44 and a p-value of 0.0000, the test in this case indicated heteroskedasticity in the data.

The presence of autocorrelation in regression model is assessed using the Durbin Watson statistic. A Durbin Watson statistic value of 2.0 indicates no autocorrelation. Values above 2.0 imply negative autocorrelation, whereas values below 2.0 indicate positive autocorrelation. As shown in Table 3 below, the Durbin-Watson d-statistic test result is 1.5557, which shows positive autocorrelation. Also, Shapiro-Wilk's test for normality was used to determine whether the residuals were normal. The distribution is considered normal when the estimated p-value exceeds the 0.05 significant level; otherwise, it is not. The p-value of 0.0009 in Table 3 below suggests that the data are not normally distributed. While data were transformed, the study used Weighted Least Squares (WLS) to account for the presence of heteroscedasticity and autocorrelation. The goodness-of-fit test is used to evaluate the linear model's suitability. The test result showed a chi-value of 115.77 and a p-value of 0.0000. This demonstrates how closely the values predicted by the model and the observed values differ from one another. In this regard, the beta coefficient of DAA is 0.1007 at a p-value of 0.0000. This implies that DAA has a significant influence on audit procedure. Also, MLA has a beta coefficient of 0.0340 and a p-value of 0.030. This implies that audit procedure's appropriateness and sufficiency will rise by 3.40% with the use of machine learning algorithm. Again, RPA has a beta coefficient of 0.0054 and an insignificant p-value of 0.6150. This denotes that RPA is not a factor on audit procedure.

Table 3: Regression Estimate on Effects of Artificial Intelligence and Audit Procedure

Variables	**OLS**			**WLS**		
	Coeff	t-value	p-value	Coeff	t-value	p-value
DAA	0.2262	3.71	0.0000	0.1007	7.0500	0.0000
MLA	0.2608	4.20	0.0000	0.0340	2.1800	0.0300
RPA	0.1356	1.99	0.0470	0.0054	0.5000	0.6150
Constant	1.0525	44.4	0.0000	1.6767	6.9300	0.0000
Goodness-of-fit test				73.55		0.0000
R-squared	0.1928					
Adj R-squared	0.1840					
F-statistic	21.98					
P-value	0.0000					
Variance inflation factor	1.17					
Shapiro-Wilk W test	3.122 (0.0009)					
Breusch-Pagan	48.44 (0.0000)					
Durbin-Watson test statistic	1.5557					

Source: Authors' Computations (2024)

4.4. Discussion of Findings

The introduction of artificial intelligence (AI) into auditing practices has ushered in a transformative era, marked by a departure from traditional methodologies towards advanced technological solutions. This shift has revolutionized how audits are conducted, streamlining processes, improving accuracy, and enhancing overall efficiency. Moreover, AI-driven tools have enabled auditors to analyze vast amounts of data with unprecedented speed and precision, thereby uncovering insights and detecting irregularities that may have otherwise gone unnoticed. Upholding these ethical standards ensures that audit processes are conducted with fairness, impartiality, and accountability, safeguarding the integrity of financial reporting, and fostering trust in the auditing profession. In line with these, this study seeks to explore the intersection of AI on audit procedures among Nigerian audit firms.

The findings of the regression analysis conducted as part of this study revealed a significant positive correlation between the adoption of artificial intelligence and audit processes within Nigerian audit firms, which is in line with Akinadewo (2021) and Musa (2024), but is at variance with the study of Noordin et al. (2022). The result of this study, therefore, suggests that AI-driven technologies contribute synergistically to the effectiveness and efficiency of audit procedures within these firms. In practical terms, this implies that leveraging AI tools leads to improved audit outcomes, including enhanced accuracy, greater detection of anomalies, and increased overall effectiveness of audit procedures. Moving forward, these findings inform the development of policies, guidelines, and training programs aimed at promoting the responsible use of AI in auditing. Furthermore, prompts Nigerian audit firms to invest in both technological infrastructure and ethical education initiatives to ensure that their audit practices remain robust, transparent, and aligned with professional standards. Ultimately, by embracing the symbiotic relationship between AI and audit procedures in Nigerian audit firms can navigate the complexities of the modern audit landscape with integrity and confidence, thereby advancing the integrity and credibility of financial reporting in the region.

5. Conclusion and Recommendations

The introduction of artificial intelligence (AI) into auditing practices has transformed traditional methodologies, enhancing efficiency, accuracy, and the ability to analyze vast amounts of data. This study explores the intersection of AI and audit procedures among Nigerian firms. Leveraging AI alongside ethical standards leads to improved audit outcomes, emphasizing the need to integrate ethical considerations into AI deployment in auditing. The study suggests developing policies, guidelines, and training programs to promote responsible AI use while prompting investment in both technological infrastructure and ethical education initiatives within Nigerian audit firms. The study demonstrates the symbiotic relationship between AI on audit practices among Nigerian firms. It underscores the importance of integrating ethical considerations into AI deployment to ensure transparency, fairness, and adherence to professional standards. By leveraging AI alongside a commitment to ethical principles, audit firms can enhance the effectiveness and efficiency of audit procedures, ultimately contributing to the credibility and integrity of financial reporting in Nigeria.

Drawing from these findings, the subsequent suggestions were suggested as follows: Nigerian audit firms should establish clear policies and guidelines for the responsible use of AI in auditing, emphasizing ethical considerations; implement training programs to educate auditors on the ethical implications of AI adoption and promote ethical decision-making in audit practices; Allocate resources to invest in AI-driven technologies and infrastructure to support

audit processes effectively; Cultivate a culture of integrity and accountability within audit firms by encouraging ethical behavior and fostering discussions on ethical dilemmas; and audit firms should work closely with regulatory bodies to ensure that AI deployment in auditing complies with legal and ethical standards, fostering trust and confidence in financial reporting.

This research adds to the current pool of knowledge by offering empirical proof of the relationship between AI adoption and audit procedures in Nigerian firms. It highlights the importance of integrating ethical considerations into AI deployment and offers practical recommendations for promoting responsible AI use in auditing practices. Additionally, the study underscores the significance of AI adoption upholds the credibility and integrity of financial reporting, particularly in the context of technological advancements in auditing.

References

Ajayi, F. A., & Akinrinola, O. (2023). Artificial intelligence & internal audit quality of commercial banks in Nigeria. *International Journal of Management and Economics Invention*, *09*(04), 2897–2906. https://doi.org/10.47191/ijmei/v9i4.05

Ajzen, I. (1988). Attitudes, personality, and behaviour. Milton Keynes: Open University Press.

Akinadewo, I. S. (2021). Artificial intelligence and accountants' approach to accounting functions. *Covenant University Journal of Politics & International Affairs*, *9*(1), 40-55.

Akinadewo I. S., Dagunduro M. E., & Osatuyi Y.A. (2023). In what way does blockchain technology tie with the efficacy of accounting practice in Nigerian accounting firms? International *Journal of Business and Management Review*, *12*(1), 96-117. https://doi.org/10.37745/ijbmr.2013/vol11n1196117

Akinadewo, I. S., Oke, O. E., Akinadewo, J. O., & Dagunduro, M. E. (2024). In what way does artificial intelligence influences audit practice? Empirical evidence from Southwest, Nigeria. *European Journal of Accounting, Auditing and Finance Research, 12*(1), 35-55. https://doi.org/10.37745/ejaafr.2013/vol12n13555

Busayo, T. O., Igbekoyi, O. E., Oluwagbade, O. I., Adewara, Y. M., Dagunduro, M. E., & Boluwaji, Y. D. (2023). Artificial intelligence and service quality of telecommunication firms in Nigeria. *Journal of Economics, Finance and Accounting Studies, 5*(3), 203-214.

Dada, S. A., Igbekoyi, O. E., & Dagunduro, M. E. (2023). Effects of forensic accounting techniques and corporate governance on financial performance of listed deposit money banks in Nigeria. *International Journal of Professional Business Review, 8*(10), 1-26. https://doi.org/10.26668/businessreview/2023.v8i10.3547

Dagunduro, M. E., Falana, G. A., Adewara, Y. M. & Busayo, T. O. (2023). Application of artificial intelligence and audit quality in Nigeria. *Humanities, Management, Arts, Education & the Social Sciences Journal*. 11(1), 39-56. https://dx.doi.org/10.22624/aims/humanities/v11n1p4

Falana, G. A., Igbekoyi, O. E., & Dagunduro, M. E. (2023). Effect of big data on accounting information quality in selected firms in Nigeria. *International Journal of Research and*

Innovation in Social Science, 7(3), 789-806. https://doi.org/10.47772/IJRISS

Igbekoyi, O. E., Oke, O. E., Awotomilusi, N. S., & Dagunduro, M. E. (2023). Assessment of big data and efficacy of accounting practice in Nigeria. *Asian Journal of Economics, Finance and Management, 5*(1), 297-312.

International Federation of Accountants (IFAC). (2021). International Standards on Auditing (ISAs). Retrieved from https://www.ifac.org/publications-resources/international-standards-auditing

Mirzaei, A., Hajizade, M., & Hajizade, H. (2022). Studying the effect of artificial intelligence on improvement of various quality criteria in relation to audit work in Iran. *International Journal of Health Sciences (IJHS)*, 12623–12635. https://doi.org/10.53730/ijhs.v6ns1.8181

Mohamed, M. M. A., Abdullah, A. S. M., & Ahmed, M. A. A. A. (2024). The impact of using information technology on enhancing the quality of joint audit an empirical study in the Egyptian business environment. *Faculty of Commerce*, 1-21.

Mpofu, F. Y. (2023). The application of Artificial Intelligence in external auditing and its implications on audit quality? A review of the ongoing debates. *International Journal of Research in Business and Social Science*, *12*(9), 496–512. https://doi.org/10.20525/ijrbs.v12i9.2737

Musa, A. (2024). The role of artificial intelligence in achieving auditing quality for small and medium enterprises in the Kingdom of Saudi Arabia. *International Journal of Data and Network Science*, *8*(2), 835-844.

Noordin, N. A., Hussainey, K., & Hayek, A. F. (2022). The Use of Artificial Intelligence and Audit Quality: An Analysis from the Perspectives of External Auditors in the UAE. *Journal of Risk and Financial Management*, *15*(8), 339. https://doi.org/10.3390/jrfm15080339

Oluwagbade, O. I., Boluwaji, O. D., Azeez, O. A., & Njengo, L. M. (2024). Challenges and opportunities of implementing artificial intelligence in auditing practices: A case study of Nigerian accounting firms. *Asian Journal of Economics, Business and Accounting*, *24*(1), 32–45. https://doi.org/10.9734/ajeba/2024/v24i11210

Owonifari, V. O., Igbekoyi, O. E., Awotomilusi, N. S., & Dagunduro, M. E. (2023). Evaluation of artificial intelligence and efficacy of audit practice in Nigeria. *Asian Journal of Economics, Business and Accounting, 23*(16), 1-14.

Rodrigues, L., Pereira, J. M., Da Silva, A. F., & Ribeiro, H. (2023). The impact of artificial intelligence on audit profession. *Journal of Information Systems Engineering and Management*, *8*(1), 19002. https://doi.org/10.55267/iadt.07.12743