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IMPACT OF DIGITAL AUDIT TECHNOLOGY EMERGENCE ON AUDIT QUALITY AND TRANSPARENCY IN THE NIGERIAN PUBLIC SECTOR

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Abstract
The study examined the effect of emerging digital audit technologies on audit quality and transparency in the public sector of Nigeria particularly in Ekiti State Audit Service Commission. The study examined the effects of Big Data and Analytics (BDA), Blockchain, Artificial Intelligence (AI), on audit quality and transparency. This descriptive survey research design was used for collecting quantitative data from a well-defined population to describe the conditions and to explore relationships between the variables. The study population comprised all the internal and external auditors, internal and external IT personnel of Ekiti State Audit Service Commission (ESSC) involved in deployment and management of the digital audit technologies. The Ekiti State Auditor-General's Annual Report (2024) shows that the Commission has 287 staff in 7 departments and 4 units. Using Yamane's (1967) formula, a sample size of 167 respondents was determined. The data obtained were analyzed using descriptive statistics to describe the demographic characteristics of the respondents, inferential statistics (Pearson correlation analysis and simple linear regression) to test the hypotheses of the study and to see the relationship between digital audit technologies and audit quality and transparency. The results showed that Big Data and Analytics have a significant impact on the quality and transparency of an audit ($p = 0.000 < 0.05$) and the regression coefficient was 0.373. Similarly, Blockchain technology demonstrated a positive and statistically significant effect, with a coefficient of 0.259 ($p = 0.000 < 0.05$). In contrast, AI exhibited a positive but statistically insignificant impact, with a coefficient of 0.501 ($p = 0.072 > 0.05$), The study concludes that emerging digital audit technologies collectively contribute to enhancing accountability, accuracy, and transparency in public sector auditing, offering empirical support for their transformative potential in government audit practices.

Keywords: Digital Audit Technologies, Big Data and Analytics, Blockchain, Artificial Intelligence

1.0 Introduction
Openness in the government is the core of ensuring accountability, good governance, and trust in the government. It involves the easy accessibility and comprehensibility of information on government activities, decisions and expenditure to its stakeholders, especially to citizens and the oversight organs (World Bank, 2022). Transparency International (2023) highlights the low score of Nigeria (145 out of 180 in the Corruption Perception Index) showing that the issue of transparency in the country has always been a challenge (Bello and Salami, 2024). Such lack of transparency renders the audit practice even more important in measuring compliance and financial integrity. Therefore, it appears that focus has

been shifted towards the development of auditing practices in the Nigerians public sector to accommodate these issues.

Public sector audit practice is one of the key mechanisms that can be used to protect the public resources, enhance legal compliance, and enhance the decision-making process. Public sector auditing assists in finding anomalies, fraud, and inefficiencies in the use of the public funds through compliance, financial, and performance audits (INTOSAI, 2020; Olatunji and Ajayi, 2021). In Nigeria, a number of government audit reports reported on slow submission, unfinished documentation and absence of real-time data analysis (Office of the Auditor-General of the Federation (OAuGF, 2022). These restrictions tend to undermine the confidence of the people, and they doubt the usefulness of audits as transparency tools. Therefore, audit quality concept will play its role in improving the effectiveness of audits in the institutions of the Nigerian public sector.

The advent of digital audit technologies including artificial intelligence (AI), data analytics, block-chain technology and computer-assisted audit tools (CAATs) has completely changed the audit environment in all parts of the world. Nevertheless, when applied in the environment of the Nigerians public sector, the process of these technologies integration appears to be still rather problematic, which makes one question the effect that they have on the quality of audits and transparency. Although the developed economies have recorded quantifiable increases in the effectiveness of audit processes by digital transformation (PwC, 2021), the available facts imply that the use of the innovations in the best manner possible has not been realized in the Nigerian public institutions. Okezie and Afolabi (2020) assert that the use of digital audit systems in Nigeria has been uneven, majorly because of infrastructural shortage, lack of technical skills and regulatory bottlenecks. This lack of standardisation in its practice generates inequalities in the audits of ministries, departments, and agencies, which compromises consistency in financial accountability of the populace.

Akintola (2023) argues that audit quality, which is a key measure of accountability in the sector, is low in Nigeria. Cases of misappropriation, undocumented transactions, and poor documentation in various government agencies have been raised severally in the Office of the Auditor-General for the Federation (OAGF Annual Report, 2022). An example of this is the 2022 audit report which showed unsubstantiated spending of more than N49 billion on 215 MDAs, which shows that there were major weaknesses in the audit trail which can be curbed by having strong digital audit systems. According to Afolabi et al., (2021), the use of manual audit procedures undermines the accuracy and timeliness of audit report, both of which contributes to the mistrust people associate with audit institutions. In Ekiti State, where the proposed geographical area of interest is located, there have been recent studies that show that despite the introduction of digital tools, including audit management software and computerized accounting systems, the rate of utilization by audit staff is less than 40% (Adegbite and Ajayi, 2023), which implies a lack of connectivity between availability and effective utilization.

There are several empirical studies in the area using digital audit technologies, but there are still certain gaps in the literature. The current research has focussed mainly on the use of technologies like Big Data Analytics (BDA), Blockchain and Artificial Intelligence (AI) individually and limited work has been done to study their impact together at the audit quality and transparency level. The little studies conducted in Nigeria have concentrated primarily on the banking and manufacturing sectors leaving little attention to the public sector institutions like the Ekiti State Audit Service Commission. The distinct regulatory and accountability needs for public sector auditing are therefore yet relatively under-researched. In addition, previous studies have yielded mixed results, with some showing that digital technologies have a positive impact on audit quality, transparency, and audit reporting accuracy, while others have shown a less strong or insignificant effect on audit effectiveness and fraud detection. These inconsistencies and the fact that the current studies lack sectoral and geographical coverage highlight the need for a more detailed investigation. In view of the above, the objective of this study is to investigate the impact of digital audit technology emergence on audit quality and transparency in the Nigerian public sector.

2.0 Literature Review and Theoretical Framework

Digital audit technology has emerged to improve the audit process. Digital audit technology has emerged as a focal point of the modern audit practice, with dramatic changes in the way the audit is conceptualized, performed, and assessed. The concept has been defined by different scholars within

recent years, with each having its distinct aspect to the technological integration. According to Otia and Bracci (2024), digital audit technology involves the use of big data analytics and process mining instruments by Supreme Audit Institutions to change audits out of sampling methods and move to full-population data assessments. Shin et al., (2023) go further and examine the incorporation of artificial intelligence (AI), robotic process automation (RPA) and continuous auditing to allow the IT-informed, risk-based auditing. The Information Systems Audit and Control Association Journal (2023) puts it in the context of Audit 4.0 paradigm that includes AI, machine learning, and real-time data analytics to provide continuous assurance. Ferry et al., (2022) point out the importance of automation and analytics tools in improving auditor judgment, and that a hybrid approach where human control is maintained should be used. Gotthardt et al., (2020) recognize digital audit technology in the perspective of analytics platforms and expert systems that allow detecting anomalies and monitoring controls.

These descriptions show that the digital audit technology is not a singular concept but a barrier of innovations that can overall transform the audit processes. Whereas, certain researchers are focused on the narrow range of such tools as AI or block-chain, others combine the broader approaches to continuous auditing and data-driven assurance. The only thing left in common is that automation and data analytics will lead to the transformation of audit practices, no longer as reactive periodical assessments, but as proactive real-time engagements. The shift in the use of manual document-intensive auditing to systems that can support large volumes of organized and unorganized data enables auditors to make better decisions, lower the degree of subjectivity, and deliver timely information (Licht, 2019). This development is essential to the present-day audit context where speed, accuracy, and relevance are the most valued elements, and the environment where such factors are of concern is the industry, in which data flows are fast, and the transactions are complicated.

There is transparency in the audit quality and issue as well. The concepts that are interdependent in effective public financial management and institutional accountability are audit quality and transparency. Audit quality has been defined in a number of ways depending on the context but there is agreement in its underpinning position in promoting confidence in the public institution. Knechel and Salterio (2021) define the audit quality as the degree to which an audit is conducted through the standards that apply and have a high degree of assurance of financial statements that are not misstated materially. In this definition, a focus is laid on technical compliance and assurance delivery. But it is not only about compliance, but about making the audit fulfill its premise purpose, corporate accountability. Bakar and Saidin (2022) extend this perspective and say that audit quality refers to the ability of auditors to uncover and report irregularities without affect or undue influence, which protects the integrity of the reporting of the public sector. They are oriented towards independence and ethical rigor variables that are regularly questioned in politically sensitive audit settings. Digital audit technologies also encourage standardization, documentation and reproducibility of the audit procedures that are critical to ensuring quality audits. Gotthardt et al., (2020) claim that with the use of machine learning and automated workflow tools, it is possible to maintain uniformity in the utilization of audit standards even in decentralized audit setting. This aids in alleviating the inconsistency that may be caused by the differences in the skills of auditors or local practice. Such standardization is essential to maintain the audit expectations and standards unchanged in case continuity of personnel is weak in the public sector audit and institutional memory is also poor. Another advantage of these tools is that documentation and logging of audit action are easily done in a transparent manner, which enhances internal accountability and external audit.

The study is underpinned with Technology Acceptance Model (TAM). The applicability of TAM to the study is in the fact that it shows how the behavioral responses to digital innovation in an institutional context can be explained, especially in the context in which the technological adoption can be limited by infrastructural, organizational, or user factors. As an example, when auditors can see that digital audit tools are helpful to enhance effectiveness, transparency, and precision of data, and when the latter seems easy to use, the risk of adoption and regular use grows. Conversely, auditors might develop resistance in case they consider these technologies to be too cumbersome or they might not see them as very valuable, despite the effectiveness of the tools. Besides, TAM provides a useful understanding of human-technology interaction that is critical to designing, training, and implementing strategies in the space of the public auditing. It emphasizes the need to align technological innovations with the skills, expectations as well as work processes of the users. This theoretical approach is particularly applicable to the developing nations like Nigeria due to the fact that the utilization of the tool is not the only thing

that makes the digital transformation of public sector auditing possible, but the adoption of the tool by the users as well as the readiness of the institutions to embrace the transformation. The research has a strong foundation based on the TAM to evaluate the role of perceived ease and usefulness on the adoption of the digital audit innovation of big data analytics, artificial intelligence, blockchain, and robotic process automation. The model makes it possible to formulate testable hypotheses on adoption behavior and thus empowers the establishment of empirical avenues into the study of how digital audit technologies lead to better audit quality and transparency in the Ekiti State public sector.

3.0 Methodology

This study used the descriptive survey research design, which is suitable in getting measurable data of a given population to explain the prevailing conditions or correlation between variables. The population of the study covered all the whole personnel of Ekiti State Audit Service Commission, specifically the internal audit unit, external auditors and IT team that is involved in the deployment and management of audit technologies. Ekiti State Auditor-General Annual Report (2024) documents that Ekiti State Audit Service Commission has 287 employees who are divided into 7 departments and 4 units. According to Yamane (1967) model, the sample size for this study is 167 respondents. The Yamane model (1967) formula is given as:

$$n = \frac{N}{1+N(e)^2}$$

Where:
n = sample size, N = the population size, e = level of significance,
For the population of 287, the sample size based on the formula is:

$$n = \frac{287}{1+287\,(0.05)^2} = 167$$

A stratified random sampling technique was adopted to ensure fair and proportionate representation of the diverse professional categories within the Ekiti State Audit Service Commission. In this context, the stratification is necessary because of the manner of the organization of the Commission, which consists of seven departments and four key operational units, namely: Internal Audit, External Audit, Information Technology (IT) Support, and Administrative Oversight. A well-formatted, close-ended questionnaire was the main data collection tool used and it had two sections. The Instrument was administered through a self-reported questionnaire by the researcher. This instrument was administered by the researcher himself through the assistance of trained assistants to make it clear and give a high response rate. The respondents were promised confidentiality and anonymity to make them tell the truth. The study adapts the digital audit technology framework to examine the extent to which emerging digital audit technologies influence audit quality and transparency in the Nigerian public sector. The model assumes that improvements in digital audit technologies enhance the effectiveness, reliability, timeliness, and transparency of public sector audit processes. Therefore, Audit Quality and Transparency (AQT) is specified as a function of Cybersecurity and Data Privacy (CDP), Robotic Process Automation (RPA), Artificial Intelligence (AI), Blockchain Technology (BLT), and Big Data Analytics (BDA).
The functional form of the model is expressed as:

$$AQT = f(CDP, RPA, AI, BLT, BDA) \quad \text{.....3.1}$$

Where:

AQT = Audit Quality and Transparency, CDP = Cybersecurity and Data Privacy, RPA = Robotic Process Automation, AI = Artificial Intelligence, BLT = Blockchain Technology, BDA = Big Data Analytics

The econometric form of the model is specified as:

$$AQT_i = \beta_0 + \beta_1 CDP_i + \beta_2 RPA_i + \beta_3 AI_i + \beta_4 BLT_i + \beta_5 BDA_i + \varepsilon_i \quad \text{.....3.2}$$

Where:

β_0 = Constant term, $\beta_1 - \beta_5$ = Regression coefficients measuring the effect of each digital audit technology variable on audit quality and transparency, ε_i = Error term capturing other factors not included in the model, i = Individual public sector audit observations/respondents

The collected data was analyzed with the help of the descriptive and inferential statistical tools. The data were summarized using descriptive statistics like mean, standard deviation and frequency distribution. To do the inferential analysis, Pearson Correlation Analysis was purchased to identify the nature and strength of the relationships between digital audit technologies and audit quality. Multi-collinearity will be measured by Variance Inflation Factor (VIF), and simple linear regression analysis was used to find out what effect digital technologies have on audit quality and transparency.

4.0 Result and Discussions

4.1 Analysis of the Administered Questionnaires

Table 4.1: Analysis of the Administered Questionnaires

Questionnaires	Responses	Percentage (%)	Cumulative Percentage
Number of filled	167	100	100%
Number of Unfilled	-	-	
Total	167	100%	

Source: Field Survey, (2026)

The result in Table 4.1 shows that a total of 167 questionnaires, representing 100% of the distributed instrument, were fully completed and returned by the respondents. There were no unfilled or unreturned questionnaires, indicating a complete response rate. This implies that the subsequent analyses and interpretations in this study are based entirely on the 167 valid responses obtained from the field survey. A comprehensive answer will make the results reliable and will make the dataset analyzed more credible.

4.2: Analysis of the Background Information of the Respondents

Table 4.2: Background Information of the Respondents

Gender	Frequency	Percentage	Cumulative Percentage
Male	106	63.5	63.5
Female	61	36.5	100.0
Male	106	63.5	
Age			
18-25	67	40.1	40.1
25-35	57	34.1	74.3
36-45	20	12.0	86.2
46-55 years	23	13.8	100.0
Total	167	100.0	
Marital Status			
Single	40	24.0	24.0
Married	116	69.5	93.4
Divorced	11	6.6	100.0
Total	167	100.0	
Highest Education			
OND/NCE	32	19.2	19.2
HND	14	8.4	27.5
BSc/B.A/B.Ed	67	40.1	67.7
MA/MSc/MBA	33	19.8	87.4
Phd	21	12.6	100.0
Total	167	100.0	

Source: Field Survey, (2026).

Table 4.2 shows the demographic characteristics of the 167 respondents who participated in the study, which provides useful insights into the makeup of a public-sector workforce whose experiences are the basis for this assessment of the use of digital audit technology and its impact on audit quality and transparency. It is noted that the sex distribution of the respondents revealed that 106 (63.5%) were males and 61 (36.5%) were females, which means that the audits related units in the Nigerian public sector are male dominated. This implies that an audit quality appraisement might be influenced by the experiences of people who have traditionally carried out more technical, investigative and audit specific roles in public institutions. The age profile shows that the majority of the respondents are young and middle aged professionals. The largest group was found to be those aged 18-25 (67 respondents, 40.1%) followed by the respondents aged between 25-35 (57 respondents, 34.1%). The other respondents are in the age group of 36-45 years (12.0%) and 46-55 years (13.8%). The dominance of younger

professionals suggests a workforce that is more adaptable, technologically savvy and willing to embrace the digital audit innovations necessary to enhance audit transparency and modernise public-sector accountability systems.

In terms of marital status, 116 respondents (69.5%) were married, 40 (24.0%) were single, and 11 (6.6%) were divorced. It is indicative of a responsive workforce of a level of maturity and stability, typically associated with consistent career engagement, which contributes to the need to be more reliable in their answers to questions about audit practices, digital transformation and institutional transparency. Educational qualification shows that the workforce was very highly educated, 67 respondents (40.1%) had completed their Bachelor's degree, 33 respondents (19.8%) had completed their Master's degree, 21 respondents (12.6%) had PhD while 19.2% and 8.4% of the respondents had completed their OND/NCE and HND respectively. The high level of academic background suggests that respondents have a level of knowledge to grasp concepts, audit quality indicators and transparency mechanisms in the public sector.

4.3 Pearson Correlation Analysis

Table 4.3: Result of Pearson Correlation Matrix

Var.	AQT	CDP	RPA	AI	BLT	BDA	VIF
AQT	1.000						
CDP	.644***	1.000					1.42
RPA	.617***	.775***	1.000				1.75
AI	.686***	.891***	.754***	1.000			2.73
BLT	.372***	.593***	.469***	.740**	1.000		3.84
BDA	.571***	.654***	.603***	.763***	.512***	1.000	2.65

Source: *Author's Computation (2026)*.

The Pearson correlation coefficients for all the study variables (Audit Quality and Transparency (AQT), Cybersecurity and Data Privacy (CDP), Robotic Process Automation (RPA), Artificial Intelligence (AI), Blockchain Technology (BLT), and Big Data and Analytics (BDA)) are shown in Table 4.3. The findings indicate positive and significant relationships between all the variables which indicates that if any of the digital audit technologies improves, the other will follow suit and result to the improvement of audit quality and transparency in the Nigeria's public sector. Specifically, there is a strong positive correlation between Cybersecurity and Data Privacy (CDP) and Audit Quality and Transparency (AQT) ($r = 0.644$, $p < 0.01$), suggesting that effective cybersecurity practices have a significant positive link to better audit results with respect to audit quality and transparency. The correlation between RPA and AQT is positive ($r = 0.617$, $p < 0.01$) which indicates that RPA can benefit audit efficiency, eliminate errors and facilitate timely audit reporting when repetitive audit tasks are automated. Likewise, Artificial Intelligence (AI) shows a strong positive correlation with AQT ($r = 0.686$, $p<0.01$) – meaning that the use of AI for analytical tools enhances the identification of anomalies and decision making for audits. Blockchain Technology (BLT) correlates moderately positively with AQT ($r = 0.372$, $p < 0.01$), bringing greater trust in the public audits as a result of the use of immovable and transparent ledger systems. The correlation between Big Data and Analytics (BDA) and AQT ($r = 0.571$, $p<0.01$) further reinforces the notion that advanced analytics improves the nature, quality and content of audit examinations.

Independent variables are also significantly and positively interrelated. For example, CDP has a strong correlation with AI ($r = 0.891$, $p < 0.01$) and RPA ($r = 0.775$, $p < 0.01$), indicating that companies that are cybersecurity-conscious are also more likely to be effective at using AI and automation technologies. Technological innovations in both data analytics (BDA) and distributed ledger technology (BLT) are positively related to AI ($r = 0.763$, $p < 0.01$) and ($r = 0.740$, $p < 0.01$), respectively, suggesting that businesses tend to adopt both at the same time to improve audit quality. Concerning multicollinearity, all the Variance Inflation Factor (VIF) values are below the critical value of 10, with the lowest being for CDP (1.42) and the highest being for BLT (3.84). This is because the results indicate that there is no multicollinearity in the predictor variables and they can therefore be confidently used in the subsequent regression to test their impact on audit quality and transparency.

4.4 Linear Regression Analysis

Hypothesis I: Big data and analytics have no significant effect on audit quality and transparency in the Nigerian public sector.

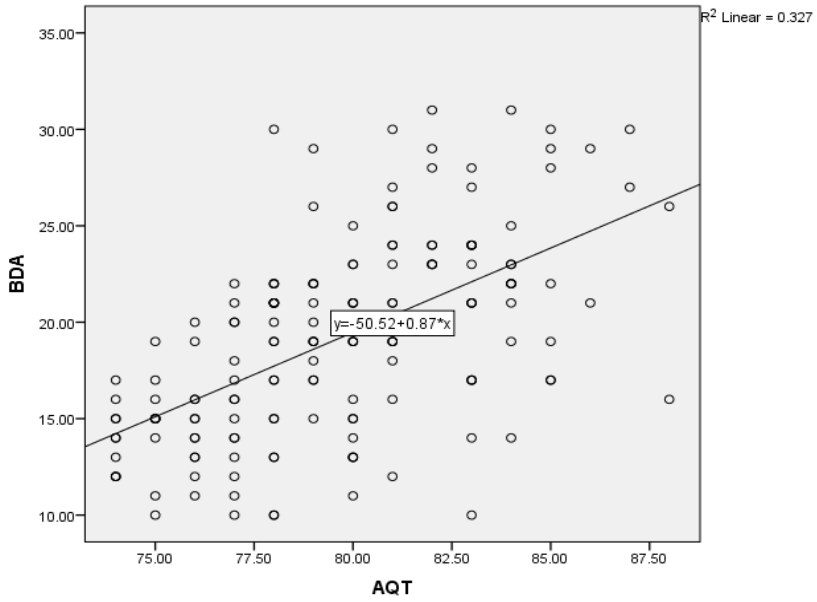
Table 4.4: Normality Test Results

Shapiro-Wilk Stat	Probability
0.549	0.075

Source: *Author's Computation (2026)*

Since the p-value is greater than the 0.05 significance level, there is insufficient evidence to reject the null hypothesis that the residuals are normally distributed.

Linearity Test



Source: *Author's Design* (2026)

Figure 4.1: Linearity Test for Model I

Table 4.5: Simple Linear Regression result of the effect of big data and analytics on audit quality and transparency

Var.	Coe.	St. E.	T-test	Prob
C	72.474	.826	87.733	.000
BDA	.373	.042	8.944	.000

Source: Author's Computation (2026). *R-0.571, R-square-0.327, F-Stat- 79.997, Prob-0.000*

The regression coefficient for BDA is 0.373 (p = 0.000), which is positive and statistically significant at the 5% level. This suggests that a unit increase in the adoption or utilization of Big Data and Analytics results in a 0.373-unit increase in audit quality and transparency in the public sector. Based on these results, the null hypothesis (H_0) that Big Data and Analytics has no significant effect on audit quality and transparency is rejected, while the alternative hypothesis (H_1) is accepted. This finding indicates that the systematic application of Big Data and Analytics, through enhanced data collection, analysis of complex datasets, and real-time monitoring, significantly improves the accuracy, reliability, and transparency of audit processes in Nigerian public-sector institutions.

Hypothesis II: Blockchain has no significant impact on audit quality and transparency in the Nigerian public sector.

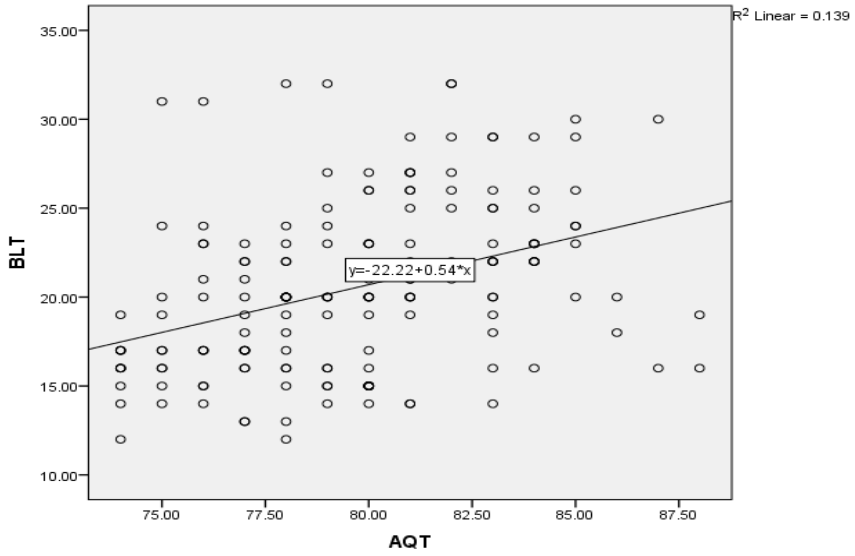
Table 4.6: Normality Test Results

Shapiro-Wilk Stat	Probability
0.836	0.126

Source: Author's Computation (2026)

The test statistic is 0.836 with a corresponding p-value of 0.126. Since the p-value is greater than the 0.05 significance level, there is insufficient evidence to reject the null hypothesis that the residuals are normally distributed.

Linearity Test



***Source: Author's Design* (2026)**

Figure 4.2: Linearity Test for Model II

Table 4.7: Simple Linear Regression result of the impact of accounting ratios on fraud control

Var.	Coe.	St. E.	T-test	Prob
C	74.318	1.055	70.430	.000
BLT	.259	.050	5.155	.000

***Source: Author's Computation (2026)** R-0.599, R-square-0.359, F-Stat- 117.626, Prob-0.000*

The regression coefficient for BLT is 0.259 (p = 0.000), which is positive and statistically significant at the 5% level. This implies that a unit increase in the adoption or implementation of blockchain technology leads to a 0.259-unit increase in the effectiveness of fraud control in public-sector audits. The constant term (C = 74.318, p = 0.000) represents the baseline level of fraud control when blockchain technology is not applied. Based on these results, the null hypothesis (H_0) that blockchain technology has no significant effect on fraud control is rejected, while the alternative hypothesis (H_1) is accepted.

Hypothesis III: Artificial intelligence has no significant influence on audit quality and transparency in the Nigerian public sector.

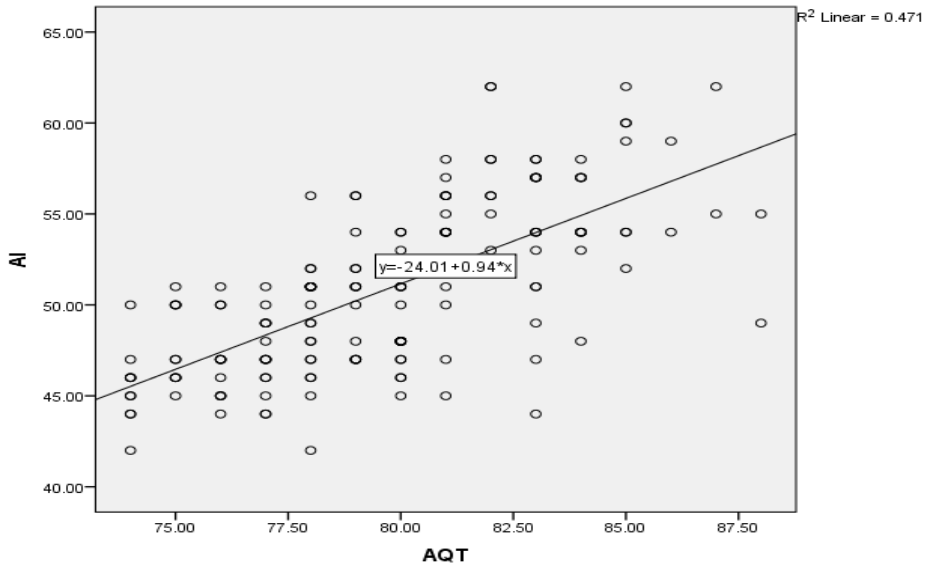
Table 4.8: Normality Test Results

Shapiro-Wilk Stat	Probability
0.653	1.263

Source: Author's Computation (2026)

The test statistic is 0.653 with a corresponding p-value of 1.263. Since the p-value exceeds the 0.05 significance level, there is insufficient evidence to reject the null hypothesis that the residuals are normally distributed.

Linearity Test



***Source: Source: Author's Design* (2026)**
Figure 4.3: Linearity Test for Model III

Table 4.9: Simple Linear Regression result of the effect of Artificial intelligence on audit quality and transparency in the Nigerian public sector.

Var.	Coe.	St. E.	T-test	Prob
C	54.153	2.109	25.674	.000
AI	.501	.251	.623	.072

Source: Author's Computation (2026). *R - 0.686, R-square - 0.471, F-Stat – 146.898, Prob - 0.000*

The regression coefficient for AI (0.501, p = 0.072) is positive but not statistically significant at the 5% level. This suggests that while AI adoption is associated with improvements in audit quality and transparency, its effect is not strong enough to be considered statistically meaningful in the sampled public sector offices. The constant term (C = 54.153, p = 0.000) is statistically significant, representing the baseline level of audit quality and transparency when AI is not applied. The results led to the acceptance of the null hypothesis (H_0), which states that AI does not significantly impact the audit's quality and transparency, and the rejection of the alternative hypothesis (H_1). The result suggests that while the use of AI has the potential to improve the efficiency of the audit process and predictive outcomes, its use in the Nigerian public sector could be limited, inconsistent, or hindered by a lack of infrastructure or skills, and therefore have a minimal impact on the outcomes of the audit process.

4.8 Discussion of Findings

The regression model has shown the presence of a positive and statistically significant impact of big data and analytics on the audit quality and transparency and the coefficient indicates this impact to be 0.373 (p = 0.000 less than 0.05). It means that the increase in the use of big data and analytics by one percent and the implementation of such technologies is associated with an increase in the quality and transparency of audits by 37 percent. This potent effect implies that with the help of advanced analytical tools, big data, as well as with real-time information-processing systems, auditors will possess more accurate chances to reveal anomalies, reinforce evidence-based judgments and generate more credible audit reports. The analysis of big data improves the capability of the auditors to spot trends, monitor warning signs of fraud and assess risks better compared to the manual system. Such enhanced ability is added to enhanced financial statements reporting of the sector and accountability at the institutions of the state. Nwadialor and Obi (2020) made that the volume and frequency of Big Data improve the quality of audit reports in a significant way. In addition, Wang and Li (2022) came up with the premise that Big Data is effective in enhancing the quality of audits, detecting fraud, and monitoring compliance during audits. Nevertheless, Haryanto and Setiawan (2024) discovered that Big Data minimizes the audit time with no significant direct effect on audit quality of fintech companies.

It was also determined that blockchain technology has a positive and statistically significant effect on the quality of the audit and transparency, and its coefficient is 0.259 ($p = 0.000 < 0.05$). The implication of this result is that the implementation of blockchain in the procedures of audit in the public sector increases their traceability, the impossibility of rewriting the records and their immediate check of the transactions. As blockchain leaves audit trails that are hard to alter, it minimizes any chances of data manipulation, enhances the consistency of financial data, and increases the trust of the stakeholders on the public financial reporting. The major impact highlights the fact that blockchain gives auditors access to more secure, transparent and verifiable data that eventually leads to better audit judgments. This result is consistent with the conclusion by Basheer et al., (2023) that blockchain is strongly associated with the betterment of the information quality and transparency among Iraqi companies.

Moreover, it was found that artificial intelligence (AI) significantly but not significantly affects quality and transparency of audits, and its coefficient is 0.501 ($p = 0.072 > 0.05$). Despite the positive coefficient indicating the possibility of improvement of audit processes through the use of AI, the insignificance of the coefficient means that this potential is not yet implemented in practice. This might be explained by the fact that the use of AI is not massive, technical skills of public sector auditors are insufficient, financial resources allocated towards intelligent audit technologies are not substantial, and the organization is unwilling to implement AI-driven instruments into its business process. The AI is at an initial or testing phase in most government organizations, including anomaly detection, automated verification, and predictive risk evaluation, resulting in insignificant visible impacts on the audit results. Consequently, AI is currently not an eminent area of the Nigerian population in the field of the public sector to produce a statistically significant effect on the quality of the audit and transparency. This finding confirms the finding of Hasan (2021) that concluded that AI increases the accuracy and productivity of audits.

5.0 Conclusion and Recommendations

Based on the findings of the analyses in this study, the study concludes that the newly developed digital audit technologies significantly and positively affects audit quality and transparency in the public sector of Nigeria, and empirically demonstrates their transformative effect on improving the accountability, accuracy and transparency in government auditing practices. Therefore the following is recommended:

i. Building effective data analytics capabilities, such as the ability to process large volumes of data and financial information, is a key priority for organizations. In addition, these tools should be specifically identified by auditors and provide training to enable effective use of them in analyzing financial records, identifying anomalies and evidence-based decision making.
ii. These are just a few potential benefits of blockchain technology in public sector auditing, which can help improve the security, traceability, and reliability of financial records. The immutability and decentralized ledger system of blockchain ensures that transactions are securely recorded and can be easily verified, mitigating the risk of tampering and misreporting.
iii. Predictive Analytics, Anomaly Detection, and automated task execution are a few of the significant potential benefits of AI in audit processes. To realize these benefits to their fullest, auditors need to be equipped with specialized training programs to enhance their understanding and capabilities regarding the use of AI in auditing.

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