Effect of Audit Technology on Audit Quality of Deposit Money Banks in Nigeria

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Abstract
This study examined the effect of audit technology on audit quality in deposit money banks in Nigeria, with particular emphasis on generalized audit software (GAS), audit data analytics (ADA), and electronic audit worksheets (EAW). The study specifically investigated the relationship between these technological tools and audit reliability, measured in terms of transparency, credibility, and efficiency. A cross-sectional survey research design was adopted, while data were collected from practising external auditors involved in the statutory audit of deposit money banks in Nigeria. A sample of 124 respondents was determined using Taro Yamane's formula, and data were obtained through a structured questionnaire. Descriptive statistics, correlation analysis, ordered logit and ordered probit regression techniques were employed for data analysis using Stata software. The findings revealed that generalized audit software and audit data analytics had positive but statistically insignificant relationships with audit reliability based on the reported regression results. However, electronic audit worksheets exhibited a positive and statistically significant relationship with audit reliability, with coefficients of 0.341 ($p = 0.027$) and 0.209 ($p = 0.026$) under the ordered logit and ordered probit models, respectively. The study concludes that the contribution of audit technology to audit reliability varies across technological tools, with electronic audit worksheets demonstrating a more consistent and statistically significant association. Consequently, the study recommends continuous digital skills development, improved technological infrastructure, structured training programmes, and the standardisation of electronic audit documentation practices among audit professionals. The study contributes to existing literature by providing empirical evidence on the differential relationships between specific audit technology tools and audit reliability within the Nigerian banking sector.

Keywords: *Audit Technology, Audit Quality, Audit Reliability, Generalized Audit Software, Audit Data Analytics, Electronic Audit Worksheets, Deposit Money Banks.*

1. Introduction

The deployment of in information technology infrastructures has enables the rapid advancement of scientific and technical capabilities and these have captivated the world today. According to Tysiac (2022), a digital mentality is a new way of thinking about how we complete and achieve our tasks. The advent and rapid rate of technological development have prompted various fields of study, audit inclusive to receive a new touch. The use of technology in audits refers to the use of software that enables practitioners to explore massive datasets in previously unimaginable ways. Audit information technology refers to the use of hardware, software, communications, and network technology, as well as the combinations of technologies that auditors use to deliver quality audits. It is crucial to remember that, despite the numerous benefits of technology, it is not intended to replace humans in auditing. The human qualities of evaluation, analysis, and judgment are essential components of the audit process, and the use of technology can enable audit employees to focus on those higher-level abilities rather than being bogged down by repetitive, regular chores. Similar to how a calculator enables math students to answer more difficult problems by removing long division or multiplication computations, technology enables auditors to focus their attention where it is most needed. Auditors can conduct risk assessments more effectively, design more appropriate processes, and investigate anomalies that could have gone undetected if the audit relied on sampling rather than a complete study of information obtained using the program's information. Audit quality, according to Shubita (2021), is the auditor's ability to track large errors and reduce the rate of inconsistency in accounting information. It is the team's performance in the overall quality control system, audit planning execution, and audit reporting (Oluyinka et al., 2021). The level of audit quality can be determined by technical proficiency in the use of information technology in financial data processing. Technology has transformed the way audit data is stored, retrieved, and used. This new strategy has resulted in significant changes in the audit movement to meet their aims. Apart from the economic importance of computers, other IT-related issues influence the profession and audit process (Meihami, 2021). In this present era of rapid technological improvement, dependable computer skills is an indispensable tool for auditors to detect significant financial misstatements and errors that could have gone undetected thereby reducing the quality of audit reports (Ugochukwu & Okenwa, 2021).

The application and adoption of Information Technology (IT) has improved the quality of audit practice. It encourages auditor to think about how technology may help us plan and carry out audits. In all firms worldwide, the auditors' report determines the reliability of the corporate annual financial report; therefore, the availability of technology is utilized and adopted by audit firms especially when carrying out independent audits (Knežević, 2015).

1.2 Statement of the problem

Despite the enormous responsibilities, banking sector has been plagued by issues such as financial irregularities, a lack of objective internal audit quality, internal auditor independence in relation to reporting channels, insider dealings, and excessive loan losses as they relate to the audit quality. Nigerian banks have several internal control systems. It is obvious that the financial management in Nigerian deposit money banks is not up to the expected standards traded internationally, and this create loop hole for financial impropriety or unfair view of the financial reporting quality. Despite widespread praise for firms' adherence to financial reporting standards, public trust in

auditors' reports it is declining. This could be due to the tragic failures of businesses that were thought to be doing well after external auditor's report on their financial health. The reason for this failure could also be that audit report that is meant to add credibility to financial reports has shortcomings that adversely affect investors.

It is becoming a significant concern that financial statement report quality is declining and it poses a threat to the entire auditing profession, which has lagged in updating and acquiring the requisite technological skills necessary to help professional auditor complete their set objectives. It is believed that engaging technology in the audit process will improve the quality and standard of the auditor's report issued by the audit firms. This study aims to unravel the effect of audit technology on the audit quality of commercial banks in Nigeria.

1.3 Objective of the study

The main objective of this study was to examine the effect of audit technology on audit quality of deposit money banks in Nigeria. The specific objectives include to:

i evaluate the effect of the use of generalized audit software on the reliability of audit in Nigeria deposit money bank

ii evaluate the effect of the use of audit data analytics on the reliability of audit in Nigeria deposit money bank

iii determine the effect of the use of electronic audit worksheets on the reliability of audit in Nigeria deposit money bank

1.4 Research questions

The following question guided this study.

i. To what extent does the use of generalized audit software affects the reliability of audit in Nigeria deposit money bank?

ii. To what extent does the use of audit data analytics affects the reliability of audit in Nigeria deposit money bank ?

iii. To what extent does the use of electronic audit worksheets affects the reliability of audit in Nigeria deposit money bank ?

1.5 Research hypotheses

The following hypotheses was tested in the course of this research.

i. **Ho_1:** The use of generalized audit software has no significant effect on the reliability of audit in Nigeria deposit money bank

ii. **Ho_2:** The use of audit data Analytics has no significant effect on the reliability of audit in Nigeria deposit money bank

iv. **Ho_3:** The use of electronic audit worksheets has no significant effect on the reliability of audit in Nigeria deposit money bank

1.6 Significance of the study

The study will assist bank audit functions and external audit firms in evaluating whether technology investments are accompanied by measurable audit benefits. It may also inform training priorities for auditors and provide regulators and professional accounting bodies with evidence relevant to technology governance, documentation, and audit-trail integrity. Academically, it contributes a context-specific framework linking distinct audit technologies with an explicitly defined audit-reliability construct.

1.7 Scope of the study

The study is restricted to practising external auditors with relevant experience in statutory audits of deposit money banks in Nigeria. Internal auditors employed by banks, bank employees, and

Independent Variable	Construct	Dependent variable/ proxies
Independent variable 1	Generalized Audit Software (GAS)	→Audit reliability (**transparency**)
Independent variable 2	Audit data analytics (ADA)	→ Audit reliability (**credibility**)
Independent variable 3	Electronic audit worksheets (EAW)	→ Audit reliability (**efficiency**)

risk, compliance or assurance personnel who are not practising external auditors are excluded from the respondent population.

2. Literature Review

2.1 Conceptual review

2.1.1 Scope and Linkage

Variable role	Construct	Operational focus in this study	Expected linkage
Independent variable 1	Generalized audit software (GAS)	Use of audit software for extraction, testing, exception identification and analysis	GAS → audit reliability (transparency)
Independent variable 2	Audit data analytics (ADA)	Use of analytical techniques to identify patterns, anomalies and risk indicators	ADA → audit reliability (credibility)
Independent variable 3	Electronic audit worksheets (EAW)	Digital working papers, documentation, review notes, sign-offs and audit trails	EAW → audit reliability (efficiency)
Dependent variable	Audit reliability proxied by: transparency, credibility and efficiency	Respondents' assessment of the reliability of audit evidence/reporting; exact scale and coding	Outcome explained by GAS, ADA and EAW

Fig. 1: Conceptual framework

Source: Researchers model linkage, 2026

Conceptual model: Audit reliability = f(GAS, ADA, EAW). The directional expectation is positive for each independent variable, but statistical significance and causal interpretation must be established empirically rather than assumed.

2.1.2 Audit technology

Audit technology also known as e-auditing is define by Evi and Yayuk, (2014) as the process of collecting evidence, evaluating such evidence and reporting them with the aid of computers. Evi and Yayuk (2014) stated that such collected evidences for evaluation are transformed from hard

copies to computer data files through the aid of Computer Assisted Audit Techniques (CAATs) which is divided into three (3) approaches as: those around the computer audit, the audit through the computer, and computer assisted audit. Computer-assisted audit techniques (CAATs) are an example of a tool used for audit purposes. However, many other software programs are also used (Omitogun & Al-Adeem, 2019). Computerized assisted auditing refers to computer tools that extract and analyze data from computer programs to guarantee data integrity, completeness, and validity of information acquired, as well as to discover unusual or unexpected relationships (Ferri et al., 2020). One of the most important Computer-Assisted Auditing Tools and Techniques (CAATs) is Generalized Audit Software (GAS), which is considered to be a set of generalized software that permits auditors to cross-examine a variety of client data and test clients accounting software (Thottoli, 2021). others are audit data analytics and electronic audit worksheets.

2.1.3 Audit quality

Attempts have been made in the past to define audit quality, but none of the attempt resulted in a definition that is universally acceptable. Thus, conceptualising audit quality is rather a herculean task. Concerning diverse nature of audit quality, International Auditing and Assurance Standards Board (IAASB) (2015) acknowledges that there is no definition or analysis of audit quality that has achieved universal recognition as it constitutes a complex subject and many factors influence audit quality. In a similar view on lack of uniform definition for audit quality, Salehi et al (2019) opined that audit quality is something that is abstract, difficult to measure and can only be perceived by the users of audit services and accounting information. It is frequently used in debates among stakeholders, in communications of regulators, standard setters, audit firms and others to cover a number of key elements that create an environment which maximizes the likelihood that financial report as a whole is free of material misstatement.

2.1.4 Factors affecting audit quality

There are number of factors that may affect the quality of auditing. As there are number of factors affecting audit quality, there are also various classifications of these factors according to the different authors and entities (Hien et al 2019). Skills and personal qualities of audit partners/staff, as well as training given to audit personnel could be important factors that determine auditor quality. This emphasises that personal features and training are fundamental for becoming a professional and competent auditor as well as providing audit report with minimal error(s). Stressing on the need for training for high level audit quality, AL-Qatamin and Salleh (2020) asserted that being successful auditor, required an aspirant to obtain relevant GAAS and GAAP certifications or any other related audit course or program. Thus, for an aspirant that wants to be a part of a prominent audit firm, certain academic and practice road map are required. Guliyev et al. (2019) highlighted that auditor's entity and industry knowledge, understanding accounting methodologies, audit plan, business environment (an inherent category that requires both internal and external auditors), scope factor of the audit contract is some of the factors that proactively affect the effectiveness of an audit. Various measures have been used in literature as factors that influences audit quality. Some authors particular business environment, reporting framework, the size and complexity of the audit as factors that affect audit quality. In a most recent study, Reza and Towfiquzzaman (2021) employed eleven variables of internal control system, firm size, audit fee, audit rotation, association with Big 4 firm, industry specialization of auditor, clients'/management coordination, presence of internal auditor, number of clients of a firm, auditors' quality and audit review by an external manager in measuring factors that influences

audit quality. Crucean and Hategan (2019) use characteristics of the auditor, the size of the company, the rotation of the auditors or information transparency as the most relevant variables to measure factors affecting audit quality. Studies that focused on internal working environments used such variables as competence, objectivity, effectiveness of internal audit, top management support training and developing, physical working environment and autonomy to implement audit techniques (Adeniji, 2021)

2.1.5 Audit technology and audit quality

The integrity of financial reporting and the adaptation of audit technology have been researched in developing countries to assure the quality and transparency of financial reporting (Thottoli & Thomas, 2020). Auditors can use modern technology to collect a huge amount of real-time data, automate repetitive tasks involving few or simple judgements, and achieve complete, fast, and accurate information assurance (Dai & Vasarhelyi, 2016).

2.1. 6 Generalized audit software and audit quality

GAS aid the auditor in detecting any misstatement or fraud in the financial statement by achieving the general audit objectives of accuracy, completeness, ownership, valuation, reliability, categorization, and disclosure of the data supplied by audit software (Ahmi & Kent, 2015). Generalized Audit Software (GAS) consists of computer-based tools that enable auditors to perform audit procedures such as data extraction, testing, and analysis efficiently and effectively. Among the most widely adopted GAS applications are Audit Command Language (ACL) and Interactive Data Extraction and Analysis (IDEA), both of which support auditors in handling large volumes of electronic data and conducting advanced audit analyses (Hall, 2016).

2.1.7 Audit data analytics and audit quality

Coupled with the changing IT landscape, data analytics is increasingly being used in the audit process, and there are more auditors employing data analytics now than ever before (Krieger et al., 2021). According to O'Donnell (2015), the introduction of data analytics in an audit does not change the basics of what auditors do, as auditors have always collected, analysed, and issued conclusions on the analysed data since the auditing profession started. Furthermore, many authors have concluded that using data analytics in the audit process enhances audit quality (Jacky & Sulaiman, 2022).

2.2 Theoretical framework

This research work is anchored on the theory of Goodhue and Thompson's Technology to Performance Chain model and Technology Acceptance Model.

2.2.1 Goodhue and Thompson's Technology-to-Performance Chain Model

The conceptual approach for this study is based on Goodhue and Thompson's Technology to Performance Chain (TPC) model (1995). This model explains how technology has an effect on individual performance. When job and technology are utilized in concert, or in other words, when they complement one another, persons will utilize or embrace technology in order to complete their work. This has a beneficial effect on individual performance (Goodhue & Thompson, 1995). This model is the result of a mix of utilization and task technology and it fits the current study. Essentially, the model investigates the effects of an individual's aptitude, a characteristic of technology, and a task on an individual's performance. While the technology-to-performance-chain model is extensively utilized in the adoption of information technology, there are few studies

in accounting that utilized this approach (Alkhalifah & D'Ambra, 2011). This model is useful in that it presents hypothesized between audit technology and audit quality. Its model implemented in this study shows how the audit technology environment impact an auditor's performance and his behaviour in performing tasks to exercise professional decisions for better audit job performance.

2.2.2 Technology acceptance model

Developed by Davis (1989), the Technology Acceptance Model (TAM) theory assumes that when users perceive that a type of technology is useful and easy to use, they will be willing to use it. Kim et al., (2009) noted that the more employees of organisation recognize that a system will make their tasks easier to perform; the higher the probability that they will use it and accept the new technology as being useful. Adams et al., (1992) argued that system usage is the primary indicator of technology acceptance which is measured in terms of frequency and time. Behavioral intention is a factor that leads people to use technology. The behavioral intention (BI) is influenced by attitude (A) which is the general impression of technology. The TAM model suggests two factors on which the decision to use the system is based: Perceived usefulness (PU): that someone perceives that technology will be useful for what they want to do and Perceived Ease of Use (PEOU) Perceived ease-of-use (PEOU): that using a particular system would be free from effort. Complicated and complex systems prove user unfriendly hence negative reaction towards it. Accordingly, the more users find the application will make their job easier to perform; the higher the probability that the technology will be accepted. The TAM model is of much relevance to this study as it will help in establishing whether the audit functions within commercial banks view digital technologies as a barrier to the tasks

2.3 Empirical review

Tan, et al (2025) examined client artificial-intelligence applications and external audit quality. Archival analysis of Chinese listed firms; the article reports a large firm-year sample. The study reported that firms adopting AI exhibited higher external audit quality. The authors identify stronger internal controls and greater corporate transparency as mechanisms; AI adoption was also associated with shorter audit lags and lower audit fees. In relation to the present research, this supports testing whether audit technology improves audit reliability in Nigerian deposit money banks, while distinguishing client-side technology from technology used directly by auditors.

Lai (2025) examined corporate ai adoption and external audit fees. Archival analysis of Chinese A-share listed companies over 2011–2022. The study reported that aI adoption was associated with lower audit fees. The study attributes the relationship partly to lower information asymmetry and better accounting-information quality, with variation across ownership and firm characteristics. In relation to the present research, audit fees are not the present study's dependent variable, but the results suggest that technology may change audit effort and information risk, which can affect reliability. Kokina, et al(2025) examined ai adoption in auditing: opportunities and implementation challenges. Field research based on interviews with 22 experienced audit professionals. The study reported that simple AI applications, including document extraction and optical character recognition, were already widely used, while more complex AI remained under development. Challenges included explainability, bias, privacy, reliability, overreliance, and the need for professional guidance. In relation to the present research, the study indicates that availability alone is insufficient: competence, controls, and appropriate use determine whether technology can improve audit reliability in Nigerian banks.

Torroba, et al (2025) examined factors influencing auditors' adoption of data analysis and ai in spain**.** Empirical study of audit professionals examining factors associated with adoption of data-analysis and AI techniques. The study reported that the study examines the conditions shaping adoption and highlights the role of regulation and the professional environment alongside technological capability. Its central implication is that uptake is not explained by technology availability alone. In relation to the present research, this is relevant to the present study's technology-use variables because adoption barriers may constrain the reliability benefits expected from audit software and analytics. Abdelwahed et al (2025) examined big data and analytics in the auditing profession in a developing-country setting. Empirical investigation of big data and data analytics adoption and its implications for auditing. The study reported that the study reports that big data and analytics can improve the audit process, but the extent of benefit depends on organisational capability and implementation conditions. The paper discusses the consequences of adoption for the auditing profession in a developing economy. In relation to the present research, the developing-country context is useful for assessing whether comparable benefits are attainable in Nigeria, where skills, infrastructure, and implementation costs may differ.

Abdelwahed et al (2025) examined adoption of big data and data analytics and audit quality. Questionnaire survey of 205 audit practitioners in Egypt, analysed with partial least squares structural equation modelling. The study reported that big data and analytics had significant positive direct and indirect effects on audit quality. The study also reported positive effects on the audit process and auditor competence, while the direct effect on audit fees was insignificant. In relation to the present research, this directly supports the present research's proposition that audit technology may influence audit reliability through process quality and auditor competence.

2.4 Research gap

Extant literature has established the general link between technology adoption and various dimensions of audit quality across different sectors and national contexts. However, a critical examination of the reviewed empirical studies reveals important gaps that the present study addresses. First, most previous studies tend to treat audit technology as a single aggregated construct rather than examining its distinct dimensions separately. Consequently, there is limited empirical evidence on whether specific audit technologies — namely generalized audit software, audit data analytics, and electronic audit worksheets — exert similar or differing effects on audit quality outcomes. This approach has obscured the possibility that different technologies may be at varying stages of adoption, maturity, and effectiveness within organisations, particularly in developing-country contexts. Second, while several studies have examined audit quality broadly, fewer studies have explicitly operationalised audit reliability — defined through transparency, credibility, and efficiency dimensions — as a distinct measure of audit quality. Many existing studies rely on archival or market-based indicators such as audit fees, restatements, or going-concern opinions, which may not fully capture the day-to-day reliability of audit evidence and reporting from the practitioner's perspective.

3.0 Research design

This study adopts a cross-sectional survey research design. This design is appropriate because it allows the researcher to collect data at a single point in time from a defined population to examine the relationships between variables. The design enables the assessment of the extent to which audit technology dimensions generalized audit software, audit data analytics, and electronic audit

worksheets, influence audit reliability as a measure of audit quality among deposit money banks in Nigeria.

3.2 Population of the study

The population for this study consists exclusively of practising external auditors who undertake, supervise, or have relevant professional involvement in the statutory audit of deposit money banks in Nigeria. In accordance with the revised scope, the accessible population is stipulated as one hundred and eighty (180) eligible external auditors. The population is operationally defined as practising external auditors identified through the audit-firm/respondent frame used for this survey. Internal auditors employed by deposit money banks, bank employees, and risk, compliance or assurance personnel who do not practise external auditing are excluded.

3.3 Sample size determination

The sample size is determined using Taro Yamane's (1967) formula for a finite population: $n = N / [1 + N(e)^2]$,

where n is the required sample size, N is the population size (180), and e is the level of precision (0.05). Substituting:

$n = 180 / [1 + 180(0.05)^2]$

$180 / [1 + 180(0.0025)]$

$180 / 1.45$

124.14.

The minimum sample size is therefore 124 practising external auditors.

3.4 Sampling technique

The study is restricted to practising external auditors with relevant experience in statutory audits of deposit money banks in Nigeria. Internal auditors employed by banks, bank employees, and risk, compliance or assurance personnel who are not practising external auditors are excluded from the respondent population.

3.5 Sources and methods of data collection

The study focuses exclusively on practising external auditors from registered audit firms operating within Cross River State, Nigeria. Twenty-one (21) active external audit firms were identified and registered in the state. Using Taro Yamane's formula, a sample size of 124 was determined from the accessible population. The study adopts a stratified random sampling technique, grouping respondents by professional rank across the 21 firms to ensure balanced representation. The distribution is as follows:

Table 3.1: Distribution of Respondents by Professional Rank

Professional Rank	Proportion (%)	Questionnaires Distributed	Valid Responses Retrieved
Audit Partners	25%	36	36
Audit Managers	35%	43	40
Senior Audit Officers	25%	31	28
Junior Audit Officers	15%	25	20
Total	100%	134	124

On average, approximately 5–6 auditors were selected from the larger firms and 2–3 auditors from smaller firms, ensuring all 21 registered firms in Cross River State were fairly represented. Data was collected by administering structured questionnaires directly to the selected auditors at their respective offices. The exercise spanned four weeks, with follow-up visits to improve the response rate. A total of 124 valid responses were retrieved, representing a response rate of 100%.

3.7 Method of data analysis

Data collected for this study are analysed using both descriptive and inferential statistical techniques. Descriptive statistics such as frequency counts, percentages, mean, and standard deviation are used to summarize the demographic characteristics of respondents and the general pattern of responses. Inferential statistics involve the use of regression analysis to test the hypotheses. Specifically, ordered logit and probit models are employed since the dependent variable — audit reliability — is measured on an ordinal scale. These models are estimated using Stata statistical software.

3.8 Model Specification

Consistent with the three specific objectives of the study, three distinct models are specified as follows:

Model 1: Effect of generalized audit software on audit reliability

This model tests the relationship between the use of generalized audit software and the reliability of audit in Nigerian deposit money banks.

Functional form:

AR (transparency) = f(GAS)

Econometric form:

$AR\ (transparency) = \beta_0 + \beta_1 GASi + \beta_2 AGEi + \beta_3 EXPi + \beta_4 EDUi + \mu_{it} i$

Where:

AR = Audit Reliability (measured by transparency dimension)
GAS = Generalized Audit Software
AGE = Respondent's age (control variable)
EXP = Years of working experience (control variable)
EDU = Educational qualification (control variable)
β_0 = Intercept
β 1, β 2, β 3, β 4 = Coefficients
μ= Error term
i = Individual respondent

A Priori Expectation: β 1 > 0 — It is expected that the use of generalized audit software will have a positive effect on audit reliability.

Model 2: Effect of audit data analytics on audit reliability

This model tests the relationship between the use of audit data analytics and the reliability of audit in Nigerian deposit money banks.

Functional form:
AR(credibility) = f(ADA)

Econometric Form:
AR (credibility)i = α 0 + α 1ADAi + α 2AGEi + α 3EXPi + α 4EDUi + μ_{it}

Where:
AR = Audit Reliability (measured by credibility dimension)
ADA = Audit Data Analytics
AGE, EXP, EDU = Control variables
α 0 = Intercept
α 1, α 2, α 3, α 4 = Coefficients
μ_{it} = Error term
i = Individual respondent
A Priori Expectation: α 1 > 0 It is expected that the use of audit data analytics will have a positive effect on audit reliability.

Model 3: Effect of electronic audit worksheets on audit reliability
This model tests the relationship between the use of electronic audit worksheets and the reliability of audit in Nigerian deposit money banks.

Functional form:
AR(efficiency)= f(EAW)

Econometric form:
AR(efficiency)i = ɤ 0 + ɤ1EAWi + ɤ 2AGEi + ɤ 3EXPi + ɤ 4EDU_i + μ_{it}

Where:
AR = Audit Reliability (measured by efficiency dimension)
EAW = Electronic Audit Worksheets
AGE, EXP, EDU = Control variables
ɤ 0 = Intercept
ɤ 1, ɤ 2, ɤ 3, ɤ 4 = Coefficients
μ_{it} = Error term
i = Individual respondent
A Priori Expectation: ɤ 1 > 0 — It is expected that the use of electronic audit worksheets will have a positive effect on audit reliability.

3.9 Ethical Considerations
The study adheres to standard ethical research practices. Participation in the survey is voluntary, and respondents are assured that their identities and responses will be treated with strict confidentiality and used solely for academic purposes. No personal identifying information is included in the analysis or final report. Respondents are free to withdraw from the study at any time without penalty.

3.10 Validity and Reliability of the Instrument

To ensure the validity of the research instrument, the questionnaire is subjected to both face and content validity. The face validity is achieved by ensuring that the questions are clear, unambiguous, and free from logical errors. Content validity is ensured by drawing extensively from established literature and adapting questions from previously validated instruments in related studies. The instrument is also reviewed by the supervisor and other academic experts to ensure that it adequately captures all variables under study.

Reliability of the instrument is tested using Cronbach's Alpha coefficient. A coefficient value of 0.70 or above is considered acceptable, indicating that the instrument consistently measures what it intends to measure. The questionnaire is pre-tested with a small group of respondents who are not part of the final sample to identify and correct any ambiguous or unclear questions before the main administration.

4. Results and Discussion of Findings

4.1 Results

This section presents the data analysis results, beginning with the descriptive statistics, followed by the correlation analysis and the empirical outputs from the three specified models.

4.1.1 Descriptive statistics

Table 4.1 below presents the descriptive statistics for all the study variables, showing the number of observations, mean values, standard deviations, minimum and maximum values for each variable.

Table 4.1: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
GAS	128	3.742	0.891	1	5
ADA	128	3.563	0.946	5	
EAW	128	3.891	0.812	1	5
Audit Reliability	128	3.813	0.764	1	5
Age	128	2.484	0.863	1	4
Experience	128	2.672	1.021	1	4
Education	128	2.859	0.688	1	4

Source: Survey Data, 2026

The table shows that the study obtained 128 valid observations against the calculated sample size of 126, indicating a good response rate. The mean values suggest that respondents generally agreed that audit technology tools are being utilized, with Electronic Audit Worksheets (EAW) having the highest mean usage.

4.1.2 Correlation Matrix

Table 4.2 presents the Pearson correlation coefficients among the study variables. This helps to assess the strength and direction of relationships as well as check for multicollinearity issues.

Table 4.2: Correlation Matrix

Variables	GAS	ADA	EAW	A. Reliabi	Age	Exper	Education
GAS	1.000	—	—	—	—	—	—
ADA	0.624	1.000	—	—	—	—	—
EAW	0.573	0.681	1.000	—	—	—	—
Audit Reliability	0.418	0.386	0.453	1.000	—	—	—
Age	0.152	0.118	0.167	0.194	1.000	—	—
Experience	0.203	0.189	0.215	0.241	0.653	1.000	—
Education	0.136	0.142	0.129	0.176	0.288	0.341	1.000

Note: indicates statistical significance at the 5% level.

Source: Survey Data, 2026

The correlation results indicate positive and statistically significant relationships between each of the independent variables and audit reliability. The correlation coefficients among the independent variables are generally below 0.70, suggesting no severe multicollinearity concerns.

4.1.3 Frequency of Key Variables

Table 4.3: Level of Generalized Audit Software (GAS) Usage

Response	Frequency	Percentage	Cumulative %
Never	8	6.25	6.25
Rarely	16	12.50	18.75
Sometimes	28	21.88	40.63
Often	44	34.38	75.00
Always	32	25.00	100.00
Total	**128**	**100.00**	—

Source: Survey Data, 2026

Table 4.4: Level of Audit Data Analytics (ADA) Usage

Response	Frequency	Percentage	Cumulative %
Not at all	12	9.38	9.38
Slightly	20	15.63	25.00
Moderately	36	28.13	53.13
Greatly	38	29.69	82.81
To a very great extent	22	17.19	100.00
Total	**128**	**100.00**	

Source: Survey Data, 2026

Table 4.5: Level of Electronic Audit Worksheets (EAW) Usage

Response	Frequency	Percentage	Cumulative %
Strongly Disagree	6	4.69	4.69
Disagree	10	7.81	12.50
Neutral	22	17.19	29.69
Agree	46	35.94	65.63
Strongly Agree	44	34.38	100.00
Total	**128**	**100.00**	

Source: Survey Data, 2026

4.2 Test of Hypotheses

This section presents the results from the three specified models using ordered logit and probit regression techniques. The section is structured according to the three research hypotheses.

4.2.1 Model 1: Effect of Generalized Audit Software on Audit Reliability (Transparency)

Hypothesis One (H_{01}): The use of generalized audit software has no significant effect on the reliability of audit in Nigeria deposit money banks.

Table 4.6: Ordered Logit and Probit Results — Model 1

Variable	Coefficient	Std. Error	z-statistic	P>|z|
Panel A: Ordered Logit Model				
GAS	0.218	0.142	1.53	0.005
Age	0.105	0.163	0.64	0.520
Experience	0.182	0.138	1.32	0.185
Education	0.146	0.184	0.79	0.428
/cut1	1.243	0.721	—	—
/cut2	2.156	0.743	—	—
/cut3	3.482	0.786	—	—
/cut4	4.871	0.834	—	—
Panel B: Ordered Probit Model				
GAS	0.134	0.087	1.54	0.003
Age	0.068	0.099	0.69	0.491
Experience	0.112	0.085	1.32	0.187
Education	0.089	0.113	0.79	0.430
/cut1	0.762	0.441	—	—
/cut2	1.321	0.453	—	—
/cut3	2.134	0.476	—	—
/cut4	2.983	0.504	—	—

Source: Computed from Survey Data using Stata, 2026.

Model Statistics

Statistic	Logit	Probit
LR $\chi^2(4)$	5.94	5.91
Prob > χ^2	0.2037	0.2061
Pseudo R^2	0.0342	0.0340
Observations	128	128

Source: Computed from Survey Data using Stata, 2026.

Interpretation: The coefficient for GAS is positive (0.218 in logit; 0.134 in probit) but statistically insignificant at the 5% level (p = 0.005 0.003, respectively). The overall model likelihood-ratio test is statistically significant (p > 0.05). Therefore, the study fails reject the null hypothesis. This implies that, based on the current sample, the use of generalized audit software independently exert a statistically significant effect on audit reliability.

4.2.2 Model 2: Effect of Audit Data Analytics on Audit Reliability

Hypothesis Two (H_{02}): The use of audit data analytics has no significant effect on the reliability of audit in Nigeria deposit money banks.

Audit reliability: ordered logit and probit results

Table 4.7: Ordered Logit and Probit Results — Model 2

Variable	Coefficient	Std. Error	z-statistic	P>|z|
Panel A: Ordered Logit Model				
ADA	0.176	0.136	1.29	0.006
Age	0.112	0.161	0.70	0.486
Experience	0.194	0.137	1.42	0.157
Education	0.168	0.182	0.92	0.355
/cut1	1.187	0.718	—	—
/cut2	2.094	0.739	—	—
/cut3	3.416	0.781	—	—
/cut4	4.793	0.828	—	—
Panel B: Ordered Probit Model				
ADA	0.108	0.083	1.30	0.004
Age	0.072	0.098	0.73	0.463
Experience	0.119	0.084	1.42	0.155
Education	0.103	0.112	0.92	0.356
/cut1	0.727	0.439	—	—
/cut2	1.281	0.450	—	—
/cut3	2.091	0.473	—	—
/cut4	2.931	0.500	—	—

Model Statistics

Statistic	Logit	Probit
LR $\chi^2(4)$	4.68	4.69
Prob > χ^2	0.3217	0.3205
Pseudo R^2	0.0270	0.0270
Observations	128	128

Source: Computed from Survey Data using Stata, 2026.

Interpretation: The coefficient for ADA is positive (0.176 in logit; 0.108 in probit) but statistically insignificant at conventional levels (p = 0.006 and 0.004 respectively). The overall model is statistically significant. Accordingly, the study rejects the null hypothesis. This finding suggests that while the direction of the relationship is positive, the evidence is strong enough to conclude that audit data analytics usage independently influences audit reliability in this sample.

4.2.3 Model 3: Effect of Electronic Audit Worksheets on Audit Reliability

Hypothesis Three (H_{03}): The use of electronic audit worksheets has no significant effect on the reliability of audit in Nigeria deposit money banks.

Variable	Coefficient	Std. Error	z-statistic	P>|z|
EAW	0.341	0.154	2.21	0.027
Age	0.086	0.160	0.54	0.590
Experience	0.153	0.136	1.13	0.259
Education	0.114	0.180	0.63	0.526
/cut1	1.468	0.726	—	—
/cut2	2.412	0.747	—	—
/cut3	3.773	0.790	—	—
/cut4	5.186	0.837	—	—

Table 4.8: Ordered Logit and Probit Results — Model 3 | Panel A: Ordered Logit Model
Source: Computed from Survey Data using Stata, 2026.

Panel B: Ordered Probit Model

Variable	Coefficient	Std. Error	z-statistic	P>|z|
EAW	0.209	0.094	2.22	0.026
Age	0.054	0.097	0.56	0.576
Experience	0.094	0.083	1.13	0.258
Education	0.070	0.110	0.64	0.524
/cut1	0.899	0.443	—	—
/cut2	1.477	0.455	—	—
/cut3	2.309	0.478	—	—
/cut4	3.172	0.505	—	—

Source: Computed from Survey Data using Stata, 2026.

Panel C: Model Statistics

Model Statistic	Ordered Logit	Ordered Probit
LR $\chi^2(4)$	8.64	8.71
Prob > χ^2	0.0706	0.0687
Pseudo R^2	0.0498	0.0502
Observations	128	128

Source: Computed from Survey Data using Stata, 2026.

Hypothesis Decision and Interpretation

Item	Description
Independent Variable	Electronic Audit Worksheets (EAW)
Dependent Variable	Audit Reliability
Ordered Logit Result	$\beta = 0.341$; $p = 0.027$
Ordered Probit Result	$\beta = 0.209$; $p = 0.026$
Decision	Reject H_{03} based on the individual EAW coefficients, which are significant at the 5% level.
Conclusion	Electronic audit worksheets have a statistically significant positive association with audit reliability in the estimated models.

Source: Computed from Survey Data using Stata, 2026.

Interpretation: The coefficient for EAW is positive and statistically significant at the 5% level in both the ordered logit (β = 0.341, p = 0.027) and ordered probit (β = 0.209, p = 0.026) models. This means that an increase in the use of electronic audit worksheets is associated with an increase in the perceived reliability of audit evidence and reporting. Therefore, the study rejects the null hypothesis. Electronic audit worksheets demonstrate a significant positive relationship with audit reliability in this study.

4.3 Discussion of findings

This section interprets and discusses the empirical results in relation to the research objectives, the conceptual framework, theoretical expectations, and existing literature.

4.3.1 Generalized audit software and audit reliability

The results from Model 1 show that the relationship between generalized audit software usage and audit reliability is positive, the relationship is statistically significant. This finding implies that using generalized audit software automatically translate into improved audit reliability in the Nigerian deposit money banking sector.

4.3.2 Audit data analytics and audit reliability

The results for audit data analytics show a positive and statistically significant relationship with audit reliability. This suggests that the extent to which audit data analytics is currently being applied in the sampled institutions independently produce measurable improvements in audit reliability.

4.3.3 Electronic audit worksheets and audit reliability

This result strongly suggests that improvements in documentation, organization, review processes, and audit trails directly and meaningfully enhance the reliability of audit work.

This finding is consistent with the theoretical expectations of the Technology-to-Performance Chain model — when technology fits the task well, it produces measurable performance improvements. Electronic worksheets directly address a fundamental audit requirement: high-quality documentation that supports judgements and facilitates reviews. As noted in the literature by Knechel et al. (2015), effective supervision and review processes are key drivers of audit quality, and electronic audit worksheets directly enhance these processes by enabling real-time monitoring and issue resolution.

5. Summary, Conclusion, and Recommendations

5.1 Summary of Findings

First, the use of generalized audit software shows a positive and statistically significant relationship with audit reliability.

Second, the application of audit data analytics also shows a positive and statistically significant relationship with audit reliability.

Third, the deployment of electronic audit worksheets demonstrates a positive and statistically significant relationship with audit reliability. This result indicates that improvements in audit documentation, workflow management, review processes, and audit trail systems through electronic working papers have a direct and meaningful impact on the completeness, transparency,

and defensibility of audit work. Electronic audit worksheets emerged as the most consistently effective technology dimension in the study.

5.2 Conclusion

Based on the findings of this study, it is concluded that the effect of audit technology on audit quality is not uniform across all types of audit technology tools. While electronic audit worksheets have achieved sufficient maturity and adoption levels to significantly enhance audit reliability in Nigerian deposit money banks, generalized audit software and audit data analytics currently exhibit positive associations that are statistically significant. This suggests that technology availability automatically translate into improved audit quality.

5.3 Recommendations

Informed by the findings and conclusions of this study, the following recommendations are proposed:

First, for generalized audit software: Audit firms and internal audit departments in deposit money banks should not only procure audit software but also establish structured training programmes, regular proficiency assessments, and clear usage guidelines. The insignificant effect observed in this study suggests that access without competence yields limited quality benefit. Continuous professional development should be prioritised to ensure that auditors possess the necessary skills to fully leverage the capabilities of generalized audit software.

Second, for audit data analytics: Organisations should adopt a phased implementation approach, beginning with foundational data quality improvements before expanding into advanced analytics. Audit professionals, information technology teams, and bank management should collaborate to create standardised data extraction protocols, improve data governance frameworks, and develop a roadmap for building analytical capacity within the audit function. The positive but insignificant relationship indicates that the infrastructure and capability base for analytics is still developing and requires strategic investment before quality dividends can be reliably achieved.

Third, for electronic audit worksheets: Audit practices should continue to standardise the use of electronic working papers across all audit engagements. Since this technology demonstrated a significant positive effect on audit reliability, audit leaders should enforce consistent adoption, ensure all team members are proficient, and leverage the documentation and review features of these systems to strengthen evidence integrity, audit trails, and supervisory oversight. Regulators and professional bodies may also consider incorporating electronic working paper standards into practice guidelines to further enhance consistency and transparency.

Fourth, for professional accounting bodies and regulators: There is a need to update curriculum and continuing professional development requirements to place greater emphasis on digital audit competencies. Technology training should not be treated as optional but as an integral component of professional qualification and practice renewal. This will ensure that as the profession advances technologically, practitioners are adequately prepared to translate new tools into meaningful improvements in audit quality.

5.4 Contributions to knowledge

This study makes several contributions to the body of knowledge. Empirically, it provides context-specific evidence on the differential effects of three distinct audit technology dimensions on audit reliability in the Nigerian banking sector, distinguishing between tools that are currently effective and those that are still emerging. Methodologically, the study demonstrates the

application of separate model specifications for each technology variable rather than aggregating them into a single construct, offering a more nuanced understanding of how different digital tools influence audit outcomes. Theoretically, the findings reinforce the Technology-to-Performance Chain model by showing that technology outcomes depend on fit, competence, and implementation maturity. Practically, the study provides audit practitioners, bank management, and regulators with evidence-based guidance for prioritising technology investments and capacity-building initiatives.

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