Data Analytics and Audit Technology in the Nigerian Commercial Banks

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ABSTRACT

This study examined the effect of data analytics on audit technology effectiveness in Nigeria's commercial banking sector, with particular focus on the FUGAZ banks: First Bank of Nigeria Plc, United Bank for Africa Plc, Guaranty Trust Holding Company Plc, Access Holdings Plc, and Zenith Bank Plc. The study specifically investigated the influence of Data Analytics Quality (DAQ), Data Analytics Timeliness (DAT), Data Analytics Accuracy (DAA), Data Analytics Reliability (DAR), and Data Analytics Integrity (DAI) on Audit Technology (AT). A descriptive cross-sectional survey research design was adopted. The population comprised 2,259 staff drawn from the Internal Control & Audit and Information Technology departments of the selected banks. Using Taro Yamane's formula, a sample size of 374 respondents was determined, out of which 372 valid questionnaires were retrieved and analyzed. Data were analyzed using descriptive statistics, correlation analysis, Variance Inflation Factor (VIF), and multiple regression techniques with the aid of STATA. The findings revealed that Data Analytics Quality, Accuracy, and Integrity have significant positive effects on Audit Technology, while Data Analytics Timeliness and Reliability exert significant negative effects. The overall regression model was statistically significant, indicating that data analytics dimensions jointly explain variations in audit technology effectiveness. The study concludes that robust data analytics capabilities are essential for enhancing audit technology effectiveness, audit quality, transparency, and risk management within Nigeria's banking sector.

Keywords: Data Analytics, Audit Technology, Audit Quality, Digital Auditing, FUGAZ Banks, Commercial Banks, Nigeria.

INTRODUCTION

The rapid digital transformation of the global economy has significantly altered the operational landscape of commercial banks, particularly in the area of auditing and assurance services. Traditional audit approaches that relied heavily on manual reviews, periodic inspections, and sampling techniques are increasingly being supplemented by advanced technological solutions. Among these innovations, data analytics and audit technology have emerged as critical tools for enhancing audit effectiveness, improving efficiency, and strengthening risk detection capabilities. In banking institutions where vast volumes of financial and transactional data are generated daily, the application of data analytics enables auditors to perform comprehensive examinations of entire datasets, identify anomalies, and provide deeper insights into organizational performance and regulatory compliance (Yoon, Hoogduin, & Zhang, 2021). Consequently, the role of auditing is evolving from a retrospective verification process to a more proactive and continuous assurance function.

Data analytics has become an essential component of modern auditing because it enables auditors to analyze large and complex datasets using automated tools, algorithms, and predictive techniques. Unlike conventional audit methods that depend on sample testing, data analytics facilitates full-population testing, thereby increasing the likelihood of detecting fraud, material misstatements, and operational inefficiencies. According to Appelbaum, Kogan, and Vasarhelyi (2021), data analytics not only enhances audit efficiency but also supports risk-based auditing by identifying high-risk areas through statistical analysis and predictive modeling. This capability is particularly important in the banking sector, where transactions are highly complex, regulatory requirements are stringent, and stakeholders demand greater transparency and accountability in financial reporting.

The emergence of advanced audit technologies such as artificial intelligence (AI), machine learning, robotic process automation (RPA), blockchain, and continuous auditing systems has further transformed auditing

practices. These technologies enable auditors to process structured and unstructured data, monitor transactions in real time, automate repetitive audit procedures, and generate more accurate and timely audit reports. Richins et al. (2022) noted that AI-powered audit systems can analyze financial documents, perform natural language processing, and evaluate internal controls with greater precision than traditional methods. As a result, auditors are increasingly expected to provide strategic insights beyond compliance verification, including real-time risk assessment, anomaly detection, and value-added recommendations. This technological shift aligns with growing regulatory and stakeholder expectations for enhanced audit quality, transparency, and reliability in financial institutions.

Despite the recognized benefits of data analytics and audit technology, their adoption within the Nigerian banking sector remains uneven due to challenges such as inadequate technological infrastructure, shortage of skilled personnel, high implementation costs, and regulatory uncertainties (Al-Hiyari, Lai, & Lin, 2022; Olaleye, Adebayo, & Okoye, 2023). Although regulatory and professional bodies such as the Financial Reporting Council (FRC), the Association of National Accountants of Nigeria (ANAN), and the Institute of Chartered Accountants of Nigeria (ICAN) continue to encourage technology-driven auditing practices, empirical evidence on the effectiveness and practical application of these technologies in Nigerian commercial banks remains limited. Existing studies have largely emphasized their theoretical benefits, with relatively few investigations examining their impact on audit quality, fraud detection, regulatory compliance, and overall audit effectiveness within emerging economies (Adejuwon & Akinola, 2023; Akindewo et al., 2024). Therefore, this study seeks to examine the effect of data analytics dimensions quality, timeliness, accuracy, reliability, and integrity on audit technology and audit effectiveness in the Nigerian financial services sector.

Research Hypotheses

Given the above specific objectives and the research questions earlier posed, the following null hypotheses were formulated and tested at a 5 per cent (0.05) level of significance:

HO1: Data analytics has no significant effect on audit technology among commercial banks in Nigeria.

LITERATURE REVIEW

Data Analytics

Data analytics has become a fundamental component of modern auditing, particularly within the commercial banking sector where large volumes of financial and transactional data are generated daily. It involves the systematic use of advanced analytical tools, statistical techniques, machine learning algorithms, and visualization technologies to extract meaningful insights from complex datasets and support informed decision-making (Adejuwon & Akinola, 2023). Unlike traditional audit methods that rely heavily on sampling and manual reviews, data analytics enables full-population testing, real-time monitoring, and predictive analysis, thereby enhancing audit effectiveness, fraud detection, regulatory compliance, and risk management. The adoption of data analytics has transformed auditing from a retrospective exercise into a continuous and proactive process that improves the reliability, transparency, and quality of financial reporting (Eguando, 2023; Owonifari, Igbekoyi, Awotomilusi & Dagunduro, 2023).

The effectiveness of data analytics in audit technology is largely determined by its quality, timeliness, and accuracy. Data analytics quality reflects the ability of analytical processes to generate reliable, complete, consistent, and relevant outputs that support sound audit judgments and decision-making (Dagunduro, Falana, Adewara & Busayo, 2023). Timeliness, on the other hand, ensures that data is processed and analyzed quickly enough to support real-time or near-real-time audit decisions, thereby enabling auditors to respond promptly to emerging risks, fraud indicators, and compliance issues (Odjaremu & Jeroh, 2019; Eze & Nkak, 2020). Accuracy relates to the extent to which analytical outputs correctly represent underlying financial transactions and events, reducing the likelihood of false conclusions and improving the credibility of audit findings (Breger, Edmonds & Ortegren, 2020). Together, these dimensions enhance audit quality by providing auditors with dependable and actionable insights.

Furthermore, reliability and integrity are critical dimensions that determine the trustworthiness of data analytics within audit technology. Reliability refers to the consistency and dependability of analytical processes and

outcomes over time, ensuring that audit tools produce stable and replicable results under similar conditions (Gyun & Vasarhelyi, 2017; Harb, 2020). Integrity focuses on the authenticity, completeness, security, and trustworthiness of data used in analytics, ensuring that information remains free from unauthorized alterations and accurately reflects financial realities (Jiang, Messier & Wood, 2019). Strong data integrity is supported through effective governance mechanisms such as access controls, audit trails, encryption, and emerging technologies like blockchain (Kahyaoglu & Caliyurt, 2018; Lankton, Price & Karim, 2021). As commercial banks continue to embrace digital transformation, the combined influence of data analytics quality, timeliness, accuracy, reliability, and integrity has become essential for enhancing audit technology, strengthening regulatory compliance, improving audit effectiveness, and sustaining stakeholder confidence in financial reporting.

Audit Technology

Audit technology refers to the application of advanced digital tools and systems such as artificial intelligence (AI), machine learning, robotic process automation (RPA), blockchain, cloud computing, and data analytics to improve the efficiency, accuracy, and effectiveness of auditing processes. These technologies have transformed traditional audit practices by enabling automated data extraction, continuous monitoring, full-population testing, and real-time risk assessment, thereby enhancing audit quality and stakeholder confidence (Marshall, 2020). In the Nigerian commercial banking sector, audit technology has contributed significantly to improving fraud detection, strengthening internal controls, enhancing regulatory compliance, and providing more reliable audit evidence. Studies by Adejuwon and Akinola (2023), Eguando (2023), and Akinadewo et al. (2024) reveal that the adoption of data analytics, forensic auditing tools, AI, and machine learning has improved audit effectiveness by enabling auditors to process large volumes of financial data, identify irregularities, and generate more informed audit judgments.

Despite its numerous benefits, the adoption of audit technology in Nigeria's commercial banking sector remains constrained by several challenges, including high implementation costs, inadequate technological infrastructure, cybersecurity concerns, limited regulatory guidance, and a shortage of skilled professionals capable of utilizing advanced audit tools effectively (Wilkin & Chenhall, 2020; Dagunduro et al., 2023). Furthermore, weak internet connectivity, inconsistent power supply, and insufficient management support have slowed the widespread integration of technology-driven audit practices (Oladeinde et al., 2024). Nevertheless, growing support from regulatory and professional bodies, coupled with advancements in cloud computing, AI, and big data analytics, presents significant opportunities for enhancing audit quality and transparency in Nigeria. Empirical evidence suggests that data analytics and audit technologies are becoming indispensable tools for improving audit evidence quality, fraud detection, operational efficiency, and financial reporting reliability, making them critical components of modern auditing within the Nigerian commercial banking sector (Igbekoyi et al., 2023; Osanyinbola, 2024).

Conceptual Model

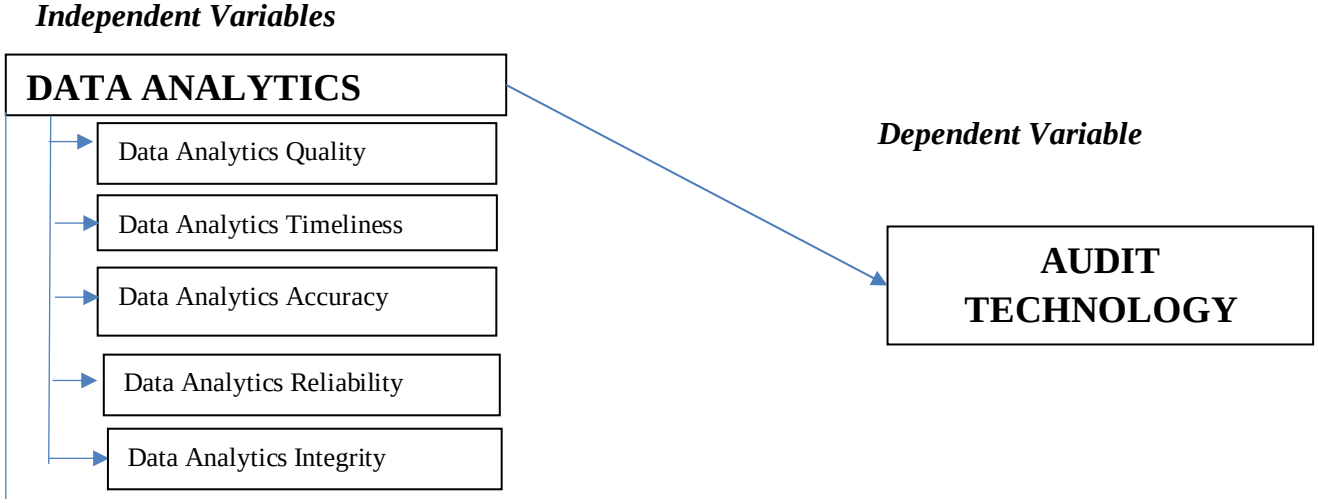

Figure 2.1

Source: Researcher's Conceptualisation

Theoretical Review

Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM), explains technology adoption through two primary determinants: perceived usefulness and perceived ease of use, which influence users' intentions and actual usage of technology. The model is particularly relevant to this study because it provides a framework for understanding the adoption of audit technologies such as artificial intelligence, robotic process automation, and data analytics tools within Nigeria's commercial banking sector. Studies have shown that auditors are more likely to embrace technologies they perceive as capable of improving audit quality, fraud detection, efficiency, and decision-making, while ease of use and adequate training further enhance adoption (Dagunduro et al., 2023; Otuya, 2024). However, factors such as inadequate infrastructure, high implementation costs, and limited technical expertise negatively affect technology acceptance by reducing perceived usefulness and ease of use (Ogundeji et al., 2014). Consequently, TAM suggests that increased investment in user training, technological infrastructure, regulatory support, and incentives for innovation can promote the successful adoption of audit technology and data analytics within the Nigerian financial services sector (Adebayo & Adebiyi, 2016).

Empirical Review

Empirical evidence indicates that data analytics and audit technologies have become important drivers of organizational effectiveness, risk management, and audit quality across different sectors. Studies by Betgeri and Parameshwari (2025) and Iqbal and Nawaz (2025) demonstrate that predictive analytics, artificial intelligence, machine learning, and real-time data processing enhance decision-making, improve risk identification, and strengthen the detection of anomalies and threats. Similarly, research by Daoud (2025) and Putri, Ardini, and Kurnia (2025) found that the use of accounting technology significantly improves auditor effectiveness and audit quality, while competence, independence, and information technology positively influence audit outcomes. These findings suggest that technology-enabled analytics provides organizations with more accurate, timely, and reliable information for operational and strategic decision-making.

Furthermore, studies focusing specifically on auditing reveal that audit technology enhances audit efficiency, fraud detection, and internal control effectiveness. Marwanto and Soepriyanto (2025) reported that information technology, audit quality, management support, and guideline implementation significantly improve the effectiveness of internal audits in preventing and detecting fraud. Likewise, Alsaif, Phan, Kend, and Alharbi (2025) observed that audit data analytics improves audit processes but may also create challenges when auditors become overly dependent on technology without adequate understanding of analytical tools. Additionally, Wijaya and Haninun (2025) found that organizational characteristics such as firm age and size influence audit outcomes, particularly audit timeliness. Overall, the reviewed studies provide strong evidence that data analytics and audit technology contribute significantly to audit quality, effectiveness, fraud detection, and decision-making, although challenges relating to skills, technological competence, and implementation remain critical concerns.

METHODOLOGY

This study adopted a cross-sectional survey research design, which is appropriate for examining the relationship between data analytics dimensions and audit technology within Nigeria's commercial banking sector. The design enables the collection of primary data from respondents at a single point in time without manipulating the study variables. The study employed a quantitative research approach using structured questionnaires administered to staff of the Internal Control & Audit and Information Technology departments of the five Tier-1 (FUGAZ) banks in Nigeria, namely First Bank of Nigeria Holdings Plc, United Bank for Africa Plc, Guaranty Trust Holding Company Plc, Access Holdings Plc, and Zenith Bank Plc. These institutions were selected because of their leadership in technological innovation, extensive branch networks, and advanced audit and internal control systems. The total population of the study comprised 2,259 staff members drawn from the selected departments. Using the modified Taro Yamane sampling formula, a sample size of 374 respondents was determined and proportionately distributed across the two strata through stratified random sampling. Data were collected through a structured questionnaire based on a 5-point Likert scale and analyzed using descriptive statistics, correlation analysis, and multiple regression techniques. Reliability of the instrument was established using Cronbach's

Alpha, while diagnostic tests such as Variance Inflation Factor (VIF) and normality tests were conducted to ensure the validity and robustness of the data. Statistical analyses were performed using STATA software, and findings were interpreted based on coefficient estimates, p-values, and explanatory power of the regression models.

Following the objectives of the study, audit technology (AT) was measured as the dependent variable, while data analytics quality (DAQ), data analytics timeliness (DAT), data analytics accuracy (DAA), data analytics reliability (DAR), and data analytics integrity (DAI) served as the independent variables. The study utilized a multiple regression model to examine the influence of each data analytics dimension on audit technology effectiveness within Nigeria's commercial banking sector. The functional and econometric models are specified as follows:

Model I

$AT = (DAQ, DAT, DAA, DAR, DAI)$ *eq3.1*

$$AT_{it} = a_0 + a_1 DAQ_{it} + a_2 DAT_{it} + a_3 DAA_{it} + a_4 DAR_{it} + a_5 DAI_{it} + \mu_t \quad \textit{eq.3.2}$$

Where:

AT = Audit Technology

DAQ = Data Analytics Quality

DAT = Data Analytics Timeliness

DAA = Data Analytics Accuracy

DAR = Data Analytics Reliability

DAI = Data Analytics Integrity

a_0 = Constant term

$a_1 - a_5$ = Regression coefficients

μ_t = Error term

The model was estimated using Ordinary Least Squares (OLS) regression to determine the magnitude and significance of the influence of data analytics dimensions on audit technology effectiveness among Nigeria's Tier-1 commercial banks.

Measurement of Variables

Variable	Code in Model	Construct Definition	Example Indicators (Item Codes)	Scale & Coding	Aggregation to Construct Score	Expected Sign
Audit Technology adoption & effectiveness *(Dependent)*	**AT**	Extent and quality of adoption/use of audit technologies (e.g., CAATs, AI/ML, RPA, dashboards) to support planning,	AT1: "Our audit function uses automated tools for data extraction and testing." AT2: "Continuous auditing/monitoring tools are deployed for key processes." AT3: "Use of analytics has improved audit quality and	5-point Likert (1=Strongly Disagree … 5=Strongly Agree). Reverse-code any negatively worded items.	Mean (or weighted average) of AT1–AT5 after reverse coding. Compute reliability (Cronbach's α ≥ 0.70).	

		fieldwork, reporting, and continuous auditing.	timeliness." AT4: "Dashboarding/visual analytics support risk assessment." AT5: "We integrate analytics outputs into audit reporting."			
Data Analytics Quality	**DAQ**	Perceived usefulness, relevance, and completeness of analytics outputs for audit decisions.	DAQ1: "Analytics outputs are relevant to audit objectives." DAQ2: "Results are sufficiently detailed and understandable." DAQ3: "Analytics cover all material risk areas."	5-point Likert (1–5)	Mean of DAQ1–DAQ3	+ve
Data Analytics Timeliness	**DAT**	Speed with which analytics are produced and updated to inform audit tasks.	DAT1: "Analytics are available when needed during planning." DAT2: "Near real-time analytics support ongoing testing." DAT3: "Updates are delivered quickly after data changes."	5-point Likert (1–5)	Mean of DAT1–DAT3	+ve
Data Analytics Accuracy	**DAA**	Degree to which analytics results correctly reflect underlying data and tests.	DAA1: "Analytics results reconcile with source systems." DAA2: "Error rates in analytics outputs are minimal." DAA3: "Validation checks are performed before use."	5-point Likert (1–5)	Mean of DAA1–DAA3	-ve
Data Analytics Reliability	**DAR**	Consistency and reproducibility of analytics processes and outputs over time.	DAR1: "Analytics produce consistent results across runs." DAR2: "Procedures are docum ented and repeatable." DAR3: "Version control and change logs are maintained."	5-point Likert (1–5)	Mean of DAR1–DAR3	+ve
Data Analytics Integrity	**DAI**	Protection of data and analytics from unauthorized alteration; adherence to governance rules.	DAI1: "Access controls protect audit data/analytics." DAI2: "Data lineage and audit trails are maintained." DAI3: "Only approved datasets are used for analytics."	5-point Likert (1–5)	Mean of DAI1–DAI3	+ve

Source: Researchers Compilation

Data Presentation

Descriptive Statistics

Out of the 374 questionnaires distributed to staff of the selected FUGAZ banks, 372 were successfully completed and returned, representing a high response rate of 99.5%. The data were analyzed using mean and standard

deviation for research questions, while the hypotheses were tested using simple linear regression with the aid of STATA.

SEX	**MEAN**	**FREQUENCY**	**PERCENTAGE**
Male	1	215	58%
Female	2	157	42%
Total		372	100%
QUALIFICATION			
O, Level	1	74	20%
Bachelor's Degree	2	219	59%
Master's Degree	3	79	21%
Total		372	100%
WORKING EXPERIENCE			
0-1year	1	55	15%
2-5years	2	123	33%
5-10years	3	127	34%
10years and above	4	67	18%
Total		372	100%
ROLE			
Internal Auditor	1	117	32%
IT/Audit Technology Staff	2	93	25%
Data Analytics Personnel	3	90	24%
Compliance Officer	4	72	19%
Total		372	100%

The demographic profile shows that 58% of respondents were male and 42% were female. Most respondents were highly educated, with 59% holding Bachelor's degrees and 21% possessing Master's degrees. In terms of work experience, the majority (67%) had between 2 and 10 years of professional experience. Regarding job roles, 32% were Internal Auditors, 25% were IT/Audit Technology staff, 24% were Data Analytics personnel, and 19% were Compliance Officers. Overall, the respondents were professionally qualified and experienced, making them suitable for providing reliable information on data analytics and audit technology within Nigeria's commercial banking sector.

Summary of Mean and Standard Deviation Responses on Study Variables

Variable	**Mean Range**	**Std. Dev. Range**	**Decision**
Audit Technology (AT)	4.48 – 4.65	0.52 – 0.54	Agreed
Data Analytics Quality (DAQ)	4.45 – 4.61	0.50 – 0.57	Agreed
Data Analytics Timeliness (DAT)	3.88 – 4.60	0.54 – 0.88	Agreed
Data Analytics Accuracy (DAA)	4.50 – 4.65	0.51 – 0.54	Agreed
Data Analytics Reliability (DAR)	4.49 – 4.54	0.54 – 0.55	Agreed
Data Analytics Integrity (DAI)	4.51 – 4.64	0.52 – 0.54	Agreed

Source: Fieldwork, 2025.

The table shows that all the study variables recorded mean scores well above the benchmark value of 3.00, indicating strong agreement among respondents. Data Analytics Accuracy and Audit Technology recorded the highest mean values (4.65), while Data Analytics Timeliness had the lowest mean value (3.88), though it still exceeded the acceptance threshold. The relatively low standard deviations across all variables indicate consistency in respondents' opinions, suggesting that audit technology and data analytics practices are well established within the selected FUGAZ banks.

Correlation Analysis

	AT	DAQ	DAT	DAA	DAR	DAI
AT	1.0000					
DAQ	0.2373	1.0000				
DAT	-0.1820	0.0205	1.0000			
DAA	0.1878	-0.0060	0.1413	1.0000		
DAR	-0.1892	0.0743	0.0276	-0.0704	1.0000	
DAI	0.2510	0.0085	-0.1144	0.0884	-0.0780	1.0000

Fieldwork, 2025

The correlation analysis examined the relationships between Audit Technology (AT) and the dimensions of data analytics: Quality (DAQ), Timeliness (DAT), Accuracy (DAA), Reliability (DAR), and Integrity (DAI). The results revealed generally weak correlations, indicating low linear associations among the variables. Audit Technology showed weak positive relationships with Data Analytics Quality (r = 0.2373), Accuracy (r = 0.1878), and Integrity (r = 0.2510), suggesting that improvements in these dimensions are associated with slight increases in audit technology effectiveness. Conversely, weak negative relationships were observed between Audit Technology and Data Analytics Timeliness (r = -0.1820) and Reliability (r = -0.1892). Among all dimensions, Data Analytics Integrity exhibited the strongest positive association with Audit Technology. Furthermore, the very low correlations among the independent variables indicate the absence of serious multicollinearity, supporting the suitability of the variables for regression analysis.

Variance Inflation Factor Test

Variance Inflation Factor (VIF) Result

Variables	VIF	1/VIF
DAI	1.03	0.970978
DAT	1.04	0.964503
DAA	1.04	0.964503
DAR	1.02	0.983560
DAQ	1.01	0.993848
Mean VIF	1.03	

Fieldwork, 2025

The VIF results indicate that **multicollinearity is not a problem** in the regression model. All independent variables recorded VIF values ranging from **1.01 to 1.04**, with a **mean VIF of 1.03**, which is far below the acceptable threshold of 5. The corresponding tolerance values (1/VIF) were also very high, ranging from **0.9645 to 0.9938**, confirming that each predictor contributes unique information to the model. Therefore, Data Analytics Quality, Timeliness, Accuracy, Reliability, and Integrity can be included in the regression analysis without concerns of redundancy or instability in the coefficient estimates.

Summary of Hypotheses Testing Results

Hypothesis	Variable	Coefficient (β)	t-value	p-value	Decision
H01	Data Analytics Quality (DAQ)	0.2778	5.45	0.000	Reject H01
H02	Data Analytics Timeliness (DAT)	-0.3547	-3.93	0.000	Reject H02
H03	Data Analytics Accuracy (DAA)	0.1952	3.93	0.000	Reject H03
H04	Data Analytics Reliability (DAR)	-0.1604	-3.73	0.000	Reject H04
H05	Data Analytics Integrity (DAI)	0.2031	4.19	0.000	Reject H05

Model Summary: $R^2 = 0.2115$; Adjusted $R^2 = 0.2008$; $F(5,366) = 19.64$; Prob > F = 0.0000; N = 372.

Decision Rule: Reject the null hypothesis if p-value < 0.05; otherwise, do not reject.

The regression results show that the overall model is statistically significant (**F = 19.64, p < 0.05**), indicating that the data analytics dimensions jointly influence Audit Technology among the selected FUGAZ banks. The model explains approximately **21.15%** of the variation in Audit Technology ($R^2 = 0.2115$).

Specifically, **Data Analytics Quality (β = 0.2778, p = 0.000)**, **Data Analytics Accuracy (β = 0.1952, p = 0.000)**, and **Data Analytics Integrity (β = 0.2031, p = 0.000)** have significant positive effects on Audit Technology, implying that improvements in these dimensions enhance audit technology effectiveness. Conversely, **Data Analytics Timeliness (β = -0.3547, p = 0.000)** and **Data Analytics Reliability (β = -0.1604, p = 0.000)** exhibit significant negative effects on Audit Technology. Since all p-values are below 0.05, the five null hypotheses are rejected, confirming that each data analytics dimension significantly influences Audit Technology in Nigeria's commercial banking sector.

DISCUSSION OF FINDINGS

The findings revealed that data analytics significantly influences audit technology effectiveness in FUGAZ banks. Specifically, Data Analytics Quality, Accuracy, and Integrity have significant positive effects on audit technology, indicating that high-quality, accurate, and secure data enhance the performance of technology-driven audit processes. Conversely, Data Analytics Timeliness and Reliability showed significant negative effects, suggesting that delays and inconsistencies in analytics outputs can adversely affect audit technology performance. Overall, the results confirm that strong data analytics capabilities are essential for improving audit technology effectiveness in Nigeria's leading commercial banks.

SUMMARY

This study examined the effect of Data Analytics Quality (DAQ), Timeliness (DAT), Accuracy (DAA), Reliability (DAR), and Integrity (DAI) on Audit Technology (AT) among FUGAZ banks in Nigeria. Using data collected from 372 respondents and analyzed through multiple regression, the study found that all five dimensions of data analytics significantly affect audit technology. While Quality, Accuracy, and Integrity positively influence audit technology effectiveness, Timeliness and Reliability exert significant negative effects. The overall model was statistically significant, confirming that data analytics dimensions jointly explain variations in audit technology effectiveness.

CONCLUSION

The study concludes that data analytics is a critical driver of audit technology effectiveness in Nigeria's FUGAZ banks. Effective audit technology depends not only on the availability of advanced digital tools but also on the quality, accuracy, reliability, timeliness, and integrity of the underlying analytics systems. Strengthening data analytics frameworks will therefore improve audit quality, risk detection, transparency, and regulatory compliance within the banking sector.

RECOMMENDATIONS

i. FUGAZ banks should strengthen data quality management practices through automated validation, data cleansing, and standardization procedures.

ii. Banks should invest in real-time data processing systems and integrated analytics platforms to improve the timeliness of audit information.

iii. Management should establish robust analytics governance frameworks, including regular system testing and documentation, to enhance reliability.

iv. Stronger data integrity controls such as encryption, access restrictions, audit trails, and data lineage tracking should be implemented.

v. Continuous training should be provided to auditors, IT personnel, and data analysts to improve their competence in advanced analytics and audit technologies.

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