



EFFECT OF ACCOUNTING INFORMATION SYSTEMS APPLICATION ON AUDIT EFFICIENCY OF LISTED DEPOSIT MONEY BANKS IN NIGERIA

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ABSTRACT: *This study examines the effect of Accounting Information Systems (AIS) application on audit efficiency in listed Deposit Money Banks in Nigeria. Adopting a quantitative cross-sectional research design, the study utilizes data derived from the banking sector, focusing on key AIS components, including system integration capability, real-time data accessibility, internal control features, audit trail completeness, and error detection and correction mechanisms. Analytical techniques such as descriptive statistics and inferential methods are employed to evaluate the relationships between AIS application and audit efficiency. The findings reveal that AIS components significantly influence audit efficiency by enhancing the timeliness, accuracy, and reliability of audit processes. Specifically, system integration and real-time data accessibility improve information availability, while internal controls and audit trails strengthen transparency and accountability. Error detection mechanisms further contribute to reducing audit risks and improving overall audit outcomes. The study concludes that effective deployment of AIS is critical to improving audit efficiency in Nigeria's banking sector. It recommends increased investment in AIS infrastructure, continuous staff training, and strengthened regulatory support to optimize audit performance and ensure alignment with global best practices.*

KEYWORDS: Accounting Information Systems, Audit Efficiency, Internal Controls, Audit Trail, Nigerian Banks, Financial Technology.



BACKGROUND TO THE STUDY

The increasing digitalization of financial systems has transformed accounting and auditing practices globally. Accounting Information Systems (AIS) serve as critical tools for collecting, processing, storing, and disseminating financial information, thereby enhancing organizational efficiency (World Bank, 2023). In auditing, AIS improves audit efficiency through automation, real-time processing, and strengthened internal controls. Audit efficiency, defined as the ability to conduct audits timely, accurately, and cost-effectively has become a key performance indicator for financial institutions in regulated environments (Okoye & Oghoghomeh, 2023). Globally, financial institutions have adopted advanced AIS to streamline audit processes and ensure compliance with standards such as IFRS. AIS integration enhances data consolidation, transparency through audit trails, and detection of financial anomalies (Deloitte, 2023). Empirical evidence indicates that AIS adoption in developed economies reduces audit completion time and improves audit quality (International Federation of Accountants [IFAC], 2022). These benefits highlight key AIS features, including system integration capability, real-time data accessibility, internal controls, audit trail completeness, and error detection mechanisms. In Sub-Saharan Africa, AIS adoption is growing, particularly in countries like South Africa and Kenya, improving financial reporting and audit performance (GSMA, 2023). However, challenges such as inadequate infrastructure, high costs, and limited expertise constrain effective utilization (World Bank, 2021), creating disparities in audit efficiency across institutions. In Nigeria, banking sector reforms and policies by the Central Bank of Nigeria have accelerated AIS adoption in Deposit Money Banks (CBN, 2022). Major banks have implemented sophisticated AIS platforms, enabling real-time data access and improved audit accuracy (Ojo & Adebayo, 2022). Despite these advancements, issues such as power supply, cybersecurity risks, high costs, and varying digital literacy persist (Adewale & Oyewole, 2021; World Bank, 2023). This study examines five AIS component system integration capabilities, real-time data accessibility, internal controls, audit trail completeness, and error detection and their effect on audit efficiency in listed Nigerian banks.

Statement of the Problem

Despite the widespread adoption of Accounting Information Systems in Nigeria's banking sector, significant variations remain in the level of audit efficiency among Deposit Money Banks. While some banks have successfully leveraged advanced AIS features to enhance audit processes, others continue to experience inefficiencies due to limited system capabilities and infrastructural constraints (CBN, 2021). This disparity raises concerns regarding the effectiveness of AIS in improving audit outcomes across the sector. Existing studies have largely focused on the role of AIS in financial reporting and organizational performance, with limited attention given to its direct impact on audit efficiency. For instance, prior research has examined internal control systems and financial reporting quality without adequately integrating key AIS features such as real-time data accessibility and audit trail completeness into a comprehensive analytical framework (Adeyemi & Okoye, 2020; Olanrewaju & Adebayo, 2019). Similarly, studies that explore audit processes often fail to consider the technological dimensions that influence audit efficiency in contemporary banking environments. Moreover, the rapid growth in electronic financial transactions in Nigeria has increased the complexity of audit processes, thereby necessitating more efficient and technologically driven audit mechanisms (CBN, 2023). However, challenges such as poor system integration, inadequate error detection mechanisms, and incomplete audit trails continue to hinder effective auditing in some banks. The absence of a holistic empirical



investigation into how these AIS components collectively influence audit efficiency creates a significant research gap. Therefore, this study seeks to address this gap by examining the effect of AIS applications on audit efficiency in listed Deposit Money Banks in Nigeria. By analyzing the combined impact of system integration capability, real-time data accessibility, internal control features, audit trail completeness, and error detection mechanisms, the study aims to provide empirical evidence that will inform policy decisions, enhance audit practices, and improve financial transparency within the banking sector.

Objectives of the Study

The main objective of this study is to examine the effect of Accounting Information Systems (AIS) applications on audit efficiency in listed Deposit Money Banks in Nigeria. Specifically, the study seeks to:

1. Evaluate the effect of system integration capability on audit efficiency in listed Deposit Money Banks in Nigeria.
2. Examine the effect of real-time data accessibility on audit efficiency in listed Deposit Money Banks in Nigeria.
3. Assess the effect of internal control features on audit efficiency in listed Deposit Money Banks in Nigeria.
4. Determine the effect of audit trail completeness on audit efficiency in listed Deposit Money Banks in Nigeria.
5. Investigate the effect of error detection and correction mechanisms on audit efficiency in listed Deposit Money Banks in Nigeria.

Statement of Hypotheses

The following null hypotheses are formulated to guide the study:

H₀₁: System integration capability has no significant effect on audit efficiency in listed Deposit Money Banks in Nigeria.

H₀₂: Real-time data accessibility has no significant effect on audit efficiency in listed Deposit Money Banks in Nigeria.

H₀₃: Internal control features have no significant effect on audit efficiency in listed Deposit Money Banks in Nigeria.

H₀₄: Audit trail completeness has no significant effect on audit efficiency in listed Deposit Money Banks in Nigeria.

H₀₅: Error detection and correction mechanisms have no significant effect on audit efficiency in listed Deposit Money Banks in Nigeria.



LITERATURE REVIEW

The application of Accounting Information Systems (AIS) has significantly transformed auditing practices within the banking sector by enhancing data processing, financial reporting accuracy, and operational efficiency. AIS integrates financial and operational data to support decision-making and ensure compliance with regulatory frameworks (World Bank, 2023). In the context of listed Deposit Money Banks (DMBs) in Nigeria, AIS plays a crucial role in improving audit efficiency through features such as system integration, real-time data access, internal control mechanisms, audit trail functionality, and automated error detection (Deloitte, 2023). Audit efficiency, defined as the ability to conduct audits in a timely, accurate, and cost-effective manner, has become increasingly dependent on technological systems. The adoption of AIS reduces manual audit procedures, enhances transparency, and improves the reliability of financial information (Okoye & Oghoghomeh, 2023).

Globally, studies indicate that advanced AIS adoption reduces audit completion time and improves audit quality, particularly in developed economies with robust technological infrastructure (IFAC, 2022). In Nigeria, regulatory bodies such as the Central Bank of Nigeria (CBN) and the Financial Reporting Council of Nigeria (FRCN) have encouraged the adoption of AIS to strengthen financial reporting and audit practices (CBN, 2022). Despite these advancements, disparities exist among banks due to differences in technological capacity, cost of implementation, and staff expertise (Adewale & Oyewole, 2021). These challenges necessitate a structured evaluation of AIS components and their influence on audit efficiency.

Conceptual Framework: The constructs examined in this study include System Integration Capability, Real-Time Data Accessibility, Internal Control Features, Audit Trail Completeness, Error Detection and Correction Mechanisms, and Audit Efficiency. These variables collectively capture the multidimensional relationship between AIS application and audit performance in Nigeria's banking sector (World Bank, 2023).

Variable Clarification and Conceptual Constructs

System Integration Capability (SIC) and Audit Efficiency: System Integration Capability refers to the ability of AIS to seamlessly connect internal and external data systems, enabling comprehensive audit coverage and efficient data flow (PwC, 2023). Adeyemi and Okoye (2020) describe it as a critical feature that reduces data silos and enhances audit accuracy. However, this definition is limited by its focus on technical integration without considering user competence and infrastructural challenges. In Nigeria, effective system integration improves audit efficiency by facilitating data consolidation and minimizing manual intervention, thereby reducing audit time and errors.

Real-Time Data Accessibility (RTDA) and Audit Efficiency: Real-Time Data Accessibility is defined as the ability of AIS to provide instant access to financial and operational data required for audit procedures (IFAC, 2022). Ojeka et al. (2021) emphasize its role in enabling continuous auditing and timely identification of discrepancies. However, existing definitions often overlook infrastructural constraints such as poor network systems and power supply issues prevalent in developing economies. In Nigeria, real-time data accessibility enhances audit efficiency by improving timeliness and responsiveness in audit processes.

Internal Control Features (ICF) and Audit Efficiency: Internal Control Features encompass embedded security, authorization, and validation mechanisms within AIS that ensure data



integrity and regulatory compliance (World Bank, 2023). Eyenubo et al. (2023) define these features as essential for minimizing audit risks and ensuring reliable financial reporting. Nonetheless, these definitions tend to assume uniform implementation across firms, ignoring variations in control effectiveness. In the Nigerian banking sector, robust internal controls significantly improve audit efficiency by reducing fraud risk and ensuring compliance with regulatory standards.

Audit Trail Completeness (ATC) and Audit Efficiency: Audit Trail Completeness refers to the extent to which AIS maintains detailed and tamper-proof records of all transactions and system activities (NDIC, 2023). Adegboye et al. (2022) highlight its importance in enhancing transparency and traceability in audit processes. However, the concept is often narrowly defined without considering system quality and maintenance challenges. In Nigeria, comprehensive audit trails enhance audit efficiency by enabling easy verification of transactions and reducing audit delays.

Error Detection and Correction Mechanisms (EDCM) and Audit Efficiency: Error Detection and Correction Mechanisms are automated processes within AIS that identify and rectify anomalies in financial records (Deloitte, 2023). Ofoeda (2021) defines them as essential tools for improving audit accuracy and reducing rework. Despite their importance, existing definitions often ignore the role of user training and system updates. In Nigeria, effective error detection mechanisms improve audit efficiency by minimizing inaccuracies and enhancing the reliability of audit outcomes.

Accounting Information Systems Application and Audit Efficiency: AIS application significantly influences audit efficiency through its core features. System Integration Capability enhances data consolidation, reducing audit complexity and improving accuracy (Adeyemi & Okoye, 2020). Real-Time Data Accessibility enables timely audits by providing instant access to financial data, thereby reducing delays (Ojeka et al., 2021). Internal Control Features ensure data security and compliance, reducing audit risks and improving reliability (Eyenubo et al., 2023). Audit Trail Completeness enhances traceability and transparency, enabling auditors to verify transactions efficiently (Adegboye et al., 2022). Error Detection and Correction Mechanisms reduce audit errors and rework, improving cost-effectiveness and overall audit performance (Ofoeda, 2021).

Empirical Review

System Integration Capability and Audit Efficiency: Empirical studies show mixed results regarding the relationship between system integration and audit efficiency. Adeyemi and Okoye (2020) found a significant positive relationship, indicating that integrated systems reduce audit completion time and improve accuracy. Similarly, Ojeka et al. (2021) reported that system integration enhances audit coverage by eliminating data silos. However, Egbide and Enofe (2014) found no significant relationship, attributing this to poor system interoperability and technical limitations in smaller banks. These findings suggest that the effectiveness of system integration depends on implementation quality and organizational capacity.

Real-Time Data Accessibility and Audit Efficiency: Studies consistently show that real-time data accessibility improves audit efficiency. Uwuigbe and Jafaru (2013) found that real-time systems significantly reduce audit completion time, while Aminu (2016) reported



improvements in audit accuracy. Conversely, Enofe et al. (2013) found no significant relationship due to underutilization of real-time systems. These mixed findings highlight the importance of user competence and infrastructural support in maximizing the benefits of real-time data access.

Internal Control Features and Audit Efficiency: Empirical evidence suggests a strong positive relationship between internal control features and audit efficiency. Uadiale (2011) and Oke (2015) found that robust controls enhance audit accuracy and reduce risks. However, Egbide and Enofe (2012) reported insignificant results due to weak control implementation. This indicates that the effectiveness of internal controls depends on enforcement and system quality.

Audit Trail Completeness and Audit Efficiency: Research shows that audit trail completeness significantly improves audit efficiency by enhancing transparency and traceability. Uwuigbe and Uwuigbe (2011) found that complete audit trails reduce audit time, while Okafor and Ezeoha (2018) highlighted their role in improving compliance. However, studies such as Egbide and Enofe (2014) found insignificant effects due to poor system maintenance. These findings emphasize the importance of system reliability in achieving audit efficiency.

Error Detection and Correction Mechanisms and Audit Efficiency: Empirical studies indicate that error detection mechanisms significantly enhance audit efficiency. Uadiale (2011) and Aminu and Aminu (2019) found that automated systems reduce errors and improve audits. accuracy. However, Okoye and Odoemeka (2016) reported insignificant results due to inadequate system utilization. This suggests that training and system updates are critical for maximizing the effectiveness of error detection mechanisms.

Theoretical Review

The theoretical foundation of this study is anchored primarily on Agency Theory, complemented by insights from the Technology Acceptance Model (TAM). These theories provide a robust explanation of how Accounting Information Systems (AIS) influence audit efficiency in listed Deposit Money Banks (DMBs) in Nigeria. Agency Theory, developed by Jensen and Meckling (1976), explains the relationship between principals (shareholders) and agents (management), particularly in situations characterized by information asymmetry and conflicting interests. In the banking sector, where ownership is separated from control, managers may possess superior information about financial operations, creating the potential for opportunistic behavior. This necessitates effective monitoring mechanisms to ensure accountability and transparency. Accounting Information Systems (AIS) serve as such mechanisms by enhancing the reliability, accessibility, and integrity of financial information used in audit processes. Within the context of this study, Agency Theory explains how AIS features System Integration Capability, Real-Time Data Accessibility, Internal Control Features, Audit Trail Completeness, and Error Detection and Correction Mechanisms reduce information asymmetry and agency costs. For instance, robust internal control features embedded in AIS improve data integrity and reduce the likelihood of fraud or misstatement, thereby enhancing audit accuracy and reliability (Eyenubo et al., 2023). Similarly, audit trail completeness ensures transparency by providing verifiable records of financial transactions, enabling auditors to trace and validate activities effectively (Okafor & Ezeoha, 2018). System Integration Capability aligns with Agency Theory by facilitating seamless data flow across



multiple systems, thereby improving the completeness and consistency of financial information available for audit purposes (Adeyemi & Okoye, 2020). This reduces fragmentation and enhances audit coverage. Real-Time Data Accessibility further strengthens monitoring by enabling auditors to access up-to-date financial data promptly, minimizing delays and reducing the risk of manipulation (Ojeka et al., 2021). In Nigeria's banking environment, where transaction volumes are high, real-time access significantly improves audit timeliness and effectiveness (Central Bank of Nigeria [CBN], 2023). Error Detection and Correction Mechanisms also play a crucial role in minimizing agency problems by identifying inconsistencies and anomalies in financial records. Automated detection reduces reliance on manual processes and limits the potential for managerial misrepresentation (Aminu & Aminu, 2019). Collectively, these AIS features enhance audit efficiency by improving timeliness, accuracy, and cost-effectiveness. In addition to Agency Theory, the Technology Acceptance Model (TAM), proposed by Davis (1989), provides insight into how users (auditors and financial staff) adopt and utilize AIS. TAM posits that technology adoption is driven by perceived usefulness and perceived ease of use. In the context of this study, AIS features that are user-friendly and capable of improving audit performance are more likely to be adopted and effectively utilized by auditors. For example, Real-Time Data Accessibility is perceived as highly useful because it facilitates faster data retrieval, while System Integration Capability enhances ease of use by consolidating data into a unified platform. Internal Control Features and Error Detection Mechanisms also increase perceived usefulness by improving audit reliability and reducing errors (Aminu, 2016). When auditors perceive AIS as both useful and easy to use, their acceptance increases, leading to improved audit efficiency. Between the two theories, Agency Theory is considered more appropriate for this study because it directly addresses governance, accountability, and information asymmetry issues prevalent in Nigeria's banking sector. While TAM explains user adoption behavior, Agency Theory provides a broader framework for understanding how AIS contributes to improved audit outcomes through enhanced monitoring and control mechanisms. Therefore, this study adopts Agency Theory as its primary theoretical underpinning, with TAM serving as a supporting framework.

METHODOLOGY

Research Design

This study adopts a quantitative cross-sectional survey design to examine the effect of Accounting Information Systems (AIS) applications on audit efficiency in listed Deposit Money Banks (DMBs) in Nigeria. The cross-sectional design is appropriate because it allows data to be collected from respondents at a single point in time, facilitating the analysis of relationships between AIS features and audit efficiency without manipulating the study environment (Creswell & Creswell, 2018; Nworgu, 2015). The design is particularly suitable for studies involving perceptions and practices related to technology use and audit processes. It enables the researcher to capture current insights from relevant professionals, including internal auditors, IT personnel, and finance staff within the banking sector. A structured questionnaire with Likert-scale items is employed to ensure consistency, comparability, and reliability of responses.

Population of the Study: The population of the study comprises approximately 12,600 employees across selected listed Deposit Money Banks (DMBs) in Nigeria, including Access



Bank Plc, First Bank of Nigeria Plc, Guaranty Trust Holding Company Plc, United Bank for Africa Plc, Zenith Bank Plc, Union Bank of Nigeria Plc, and Wema Bank Plc. These banks are selected due to their significant adoption of AIS and compliance with regulatory standards.

Sample Size Determination

The sample size is determined using **Yamane's (1967) formula** for finite populations:

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

Where:

$$N = 12,600, e = 0.05$$

$$n = \frac{12,600}{1 + 12,600(0.0025)} = \frac{12,600}{32.5} \approx 388$$

To account for non-response, **400 questionnaires** are distributed, with **388 valid responses** retained for analysis.

Sampling Technique: A purposive sampling technique is employed to select respondents with relevant expertise in AIS and audit processes. Participants are drawn from departments such as Internal Audit, Information Technology, Risk Management, and Finance. This ensures that the data collected is both relevant and reliable for addressing the study objectives (Saunders et al., 2019). Data Analysis Techniques, Data is analyzed using SPSS version 25 through the following procedures: Descriptive statistics, Normality, Correlation analysis, Multiple regression analysis

Model Specification: To examine the effect of AIS features on audit efficiency, the study adopts a multiple regression model:

$$AE = \beta_0 + \beta_1 SIC + \beta_2 RTDA + \beta_3 ICF + \beta_4 ATC + \beta_5 EDCM + \varepsilon$$

Where:

AE= Audit Efficiency, SIC= System Integration Capability, RTDA= Real-Time Data Accessibility, ICF= Internal Control Features, ATC= Audit Trail Completeness, EDCM= Error Detection and Correction Mechanisms, β_0 = Intercept, β_1 - β_5 = Regression coefficients, ε = Error term

A Priori Expectations: All independent variables are expected to have positive and significant relationships with audit efficiency: $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5 > 0$ This expectation is based on theoretical and empirical evidence suggesting that effective AIS features improve audit timeliness, accuracy, and cost-effectiveness.

Validity and Reliability of Instrument: Face and content validity are established through expert review by academics in accounting and information systems. A pilot study is conducted, and Cronbach's Alpha coefficients for all constructs exceed 0.70, indicating acceptable reliability (Obi & Yakubu, 2021). Ethical Considerations, Ethical standards are maintained through voluntary participation, confidentiality of responses, and adherence to research ethics



guidelines. Respondents are informed of the purpose of the study, and data is used strictly for academic purposes.

RESULTS AND DISCUSSIONS

Data Analyses

Table 4.1.1: Descriptive Statistics

Demographic Characteristics of Respondents (N = 388)

Variable	Category	Frequency	Percentage (%)
Gender	Male	214	55.2
	Female	174	44.8
Department	Internal Audit	96	24.7
	IT	82	21.1
	Finance	104	26.8
	Risk/Control	106	27.3
Bank Category	Tier-1 Banks	228	58.8
	Tier-2 Banks	160	41.2
Experience (Years)	1–5	122	31.4
	6–10	148	38.1
	11–15	78	20.1
	16 and above	40	10.3

Using: SPSS, Version 25

Table 4.1.2: Descriptive Statistics and Normality Test Results

Variable	M	SD	Skewness	Kurtosis	Shapiro–Wilk p
System Integration Capability (SIC)	3.74	0.81	-0.28	-0.32	.072
Real-Time Data Accessibility (RTDA)	3.69	0.85	-0.21	-0.29	.081
Internal Control Features (ICF)	3.83	0.78	-0.26	-0.34	.069
Audit Trail Completeness (ATC)	3.71	0.82	-0.24	-0.31	.075
Error Detection & Correction Mechanisms (EDCM)	3.66	0.87	-0.19	-0.27	.084
Audit Efficiency (AE)	3.79	0.80	-0.23	-0.30	.077

Using: SPSS, Version 25

Note: M = Mean; SD = Standard Deviation. Shapiro–Wilk $p > .05$ indicates normal distribution.

**Table 4.1.3: Pearson Product–Moment Correlation Matrix**

Variable	SIC	RTDA	ICF	ATC	EDCM	AE
SIC	1	.52**	.49**	.51**	.47**	.58**
RTDA	.52**	1	.46**	.48**	.45**	.55**
ICF	.49**	.46**	1	.53**	.50**	.60**
ATC	.51**	.48**	.53**	1	.52**	.57**
EDCM	.47**	.45**	.50**	.52**	1	.56**
AE	.58**	.55**	.60**	.57**	.56**	1

Using: SPSS, Version 25

*Note: $p < .01$ **Table 4.1.4: Model 1 – Multiple Linear Regression Predicting Audit Efficiency (AE)**

Predictor Variable	B	SE B	β	t	p
Constant	0.984	0.241	–	4.08	.000
SIC	0.214	0.051	0.238	4.20	.000
RTDA	0.198	0.048	0.219	4.13	.000
ICF	0.236	0.054	0.247	4.37	.000
ATC	0.209	0.052	0.228	4.02	.000
EDCM	0.192	0.049	0.210	3.92	.000

Using: SPSS, Version 25

Model**Summary:**

$R = .742$, $R^2 = .551$, Adjusted $R^2 = .544$, $F(5, 382) = 93.67$, $p < .001$

DISCUSSION OF FINDINGS:

The results provide robust statistical evidence that Accounting Information Systems (AIS) significantly improve audit efficiency among listed Deposit Money Banks (DMBs) in Nigeria. All five AIS dimensions recorded positive coefficients and high statistical significance at the 1% level ($p < .001$), indicating strong reliability of the model estimates. System Integration Capability ($\beta = 0.238$) contributed substantially, suggesting that integrated platforms reduce data fragmentation and enhance audit accuracy. Real-Time Data Accessibility ($\beta = 0.219$) also showed a strong effect, implying faster audit cycles and reduced lag in financial verification processes. Internal Control Features emerged as the most influential predictor ($\beta = 0.247$), confirming that embedded control mechanisms play a critical role in minimizing audit risk and improving reliability. Audit Trail Completeness ($\beta = 0.228$) further reinforced transparency by enabling effective transaction tracking, while Error Detection and Correction Mechanisms ($\beta = 0.210$) reduced audit rework through automated anomaly identification. Overall, the model's explanatory power is high ($R^2 = 0.551$), indicating that over 55% of variations in audit efficiency are explained by AIS variables. The F-statistic significance ($p < .001$) confirms



model fitness, validating theoretical expectations and emphasizing AIS as a key driver of audit performance in Nigerian banking institutions.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The study concludes that Accounting Information Systems (AIS) application significantly enhances audit efficiency in listed Deposit Money Banks in Nigeria. Specifically, System Integration Capability, Real-Time Data Accessibility, Internal Control Features, Audit Trail Completeness, and Error Detection and Correction Mechanisms all contribute positively to improving audit timeliness, accuracy, and cost-effectiveness. The findings emphasize that effective AIS implementation is critical for strengthening audit processes, enhancing financial transparency, and ensuring regulatory compliance in Nigeria's banking sector.

Recommendations

For System Integration Capability, Deposit Money Banks (DMBs) should prioritize full-scale integration of their AIS with core banking applications, regulatory reporting platforms, and external audit interfaces to eliminate data silos and improve audit coverage. Implementation should involve phased system upgrades and interoperability standards enforced by the Central Bank of Nigeria in collaboration with the Nigeria Inter-Bank Settlement System. Banks' IT departments will be responsible for deployment, while external consultants and software vendors (e.g., Finacle/Flexcube providers) should ensure compatibility and system optimization. A national integration framework should also be developed to guide uniform adoption across large and small banks.

With respect to Real-Time Data Accessibility, banks should invest in cloud-enabled and real-time processing infrastructures that allow auditors continuous access to financial data. This will reduce audit delays and improve responsiveness to discrepancies. Implementation should be driven internally by bank management and IT units, while regulatory oversight should be provided by the Central Bank of Nigeria and the Financial Reporting Council of Nigeria to ensure compliance with reporting timelines. Capacity-building programs should also be introduced by professional bodies such as the Institute of Chartered Accountants of Nigeria to train auditors on real-time auditing techniques.

Regarding Internal Control Features, banks should strengthen embedded AIS controls through automated authorization systems, encryption protocols, and continuous monitoring tools to enhance data integrity and regulatory compliance. Implementation should involve internal audit units and risk management departments, with periodic evaluation by regulators such as the Nigeria Deposit Insurance Corporation and the Central Bank. Furthermore, mandatory internal control audits and compliance certifications should be enforced annually, ensuring that AIS control mechanisms remain robust and up to date.

For Audit Trail Completeness, it is recommended that banks adopt standardized logging frameworks that ensure all financial transactions and user activities are fully traceable, tamper-proof, and easily retrievable. Implementation should be handled by system administrators and internal auditors, while the Financial Reporting Council of Nigeria should establish minimum



audit trail requirements aligned with international standards such as IFRS. In addition, regulators should mandate periodic audit trail reviews and impose penalties for incomplete or compromised logs to strengthen accountability.

Finally, for Error Detection and Correction Mechanisms, banks should deploy advanced analytics, artificial intelligence, and automated validation tools within AIS to detect anomalies and correct errors in real time, thereby reducing audit rework and improving accuracy. Implementation should be led by IT and data analytics units within banks, supported by fintech partners and system developers. Oversight should be provided by the Central Bank of Nigeria and the Nigeria Deposit Insurance Corporation through routine system audits and compliance checks. Additionally, continuous training programs should be organized to enhance staff competence in using automated error detection tools.

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