



Digital Audit Evidence and Audit Independence: Evidence from the Big 4 Audit Firms in Nigeria

Jerry Danjuma Kwarbai*, Akeem Kolawole Osunsusi, Ayooluwa Olotu Ajayi-Owoeye,
Mayowa David Olalere, Biodun Abiola Ogunbiyi-Davies, Olabode Paul Aremu, Appolos Nwabuisi Nwaobia

Department of Accounting, Babcock University, Ogun, Nigeria. *Email: kwarbaij@babcock.edu.ng

Received: 10 March 2026

Accepted: 01 July 2026

DOI: <https://doi.org/10.32479/irmm.24039>

ABSTRACT

This study examines the effect of digital audit evidence on audit independence among Big Four audit firms in Nigeria, with particular emphasis on analytical, forensic, electronic, and artificial intelligence-driven audit evidence. A survey research design was adopted. Data were collected from 365 employees of Big Four audit firms using a structured questionnaire. The data were analyzed using descriptive statistics and multiple regression analysis. The results reveal that digital audit evidence had significant positive effect on audit independence. Specifically, analytical procedural audit evidence, forensic audit evidence, and digital audit evidence gathering significantly enhance audit independence, while electronic documented audit evidence and AI-based confirmation evidence show insignificant effects. The study is limited to Big Four audit firms in Nigeria and relies on perceptual data. Future research may adopt longitudinal or experimental designs. Audit firms should prioritize investment in analytical and forensic digital tools and enhance auditor training in digital competencies to strengthen audit independence. The study contributes to the audit digitalization literature by disaggregating digital audit evidence into distinct components and providing evidence from an emerging economy.

Keywords: Audit Independence, Digital Audit Evidence, Forensic Auditing, Artificial Intelligence, Audit Quality, Nigeria

JEL Classifications: M42, O33, G34

1. INTRODUCTION

Audit independence is central to the credibility of financial reporting and the effective functioning of capital markets. Yet, the auditing profession continues to face persistent concerns regarding compromised independence, driven by economic dependence on clients, the provision of non-audit services, and increasing commercial pressures (Fedyk et al., 2022; Gandia and Huguet, 2021). These challenges contribute to the enduring audit expectation gap and raise questions about the reliability of audit opinions, particularly in environments where institutional enforcement is uneven. Auditor independence defined by objectivity in fact and in appearance remains a necessary condition for sustaining stakeholder confidence and ensuring the integrity of financial disclosures (Otuya, 2024).

The problem is especially pronounced in emerging economies such as Nigeria, where structural and regulatory constraints may amplify independence threats. In such contexts, long-standing auditor-client relationships, fee pressures, and weak oversight mechanisms can create incentives that undermine professional skepticism and audit quality. Given the dominance of big four firms, Deloitte, PricewaterhouseCoopers, Ernst and Young, and KPMG in auditing large and complex entities, understanding how audit independence is maintained within these firms is of both practical and theoretical importance. While these firms possess advanced methodologies and global quality control systems, they are not immune to the commercial and relational pressures that challenge auditor objectivity.

Recent developments in auditing have increasingly focused on digitalization as a mechanism for enhancing audit quality.

Digital audit evidence enabled through data analytics, artificial intelligence, and automated audit processes offers the potential to improve the reliability, traceability, and timeliness of audit evidence. Standard-setting bodies such as the International Auditing and Assurance Standards Board have acknowledged the growing importance of digital technologies in audit practice. Extant literature generally suggests that digital tools can strengthen audit processes and reduce information asymmetry (Bhat et al., 2021; Fedyk et al., 2022). However, the extent to which digital audit evidence translates into enhanced audit independence remains underexplored.

More importantly, prior studies largely treat digital audit evidence as a monolithic construct, offering limited insight into how its distinct components, such as analytical procedures, forensic techniques, electronic documentation, and artificial intelligence differentially influence audit outcomes. This represents a critical gap, as the effectiveness of digital technologies in auditing is likely contingent not only on their adoption but also on how they are integrated into professional judgment and audit processes. Furthermore, empirical evidence from emerging economies remains sparse, despite the unique institutional dynamics that may shape the relationship between digitalization and audit independence.

This study addresses these gaps by examining the disaggregated effects of digital audit evidence on audit independence among Big four audit firms in Nigeria. Specifically, it investigates how analytical procedural audit evidence, forensic audit evidence, electronic documented evidence, artificial intelligence confirmation evidence, and digital evidence gathering influence auditors' ability to maintain independence. By moving beyond aggregate measures of digitalization, the study provides a more nuanced understanding of how different technological dimensions interact with audit practice.

The study makes three key contributions. First, it extends the audit literature by disaggregating digital audit evidence and demonstrating that not all digital tools contribute equally to audit independence. Second, it provides context-specific evidence from an emerging economy, thereby enriching the limited empirical literature outside developed markets. Third, it offers practical insights for audit firms and regulators on how to prioritize digital investments that enhance auditor objectivity rather than merely improve procedural efficiency.

The remainder of the paper is structured as follows. Section 2 reviews the relevant literature and develops the theoretical framework. Section 3 outlines the research methodology. Section 4 presents the empirical results and discussion. Section 5 concludes with implications for practice, policy, and future research.

2. LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1. Conceptual Review

2.1.1. Audit independence

Audit independence represents the auditor's ability to perform audit responsibilities objectively, free from bias, external influence,

or conflicts of interest. It encompasses both independence in fact (actual objectivity) and independence in appearance (perceived objectivity), both of which are critical for maintaining stakeholder confidence in financial reporting. While independence is often discussed alongside objectivity, the latter extends beyond structural independence to include impartial judgment grounded in verifiable evidence (Khamis, 2021; Musa et al., 2021).

However, independence is inherently constrained by institutional realities. External auditors, although formally independent, remain economically dependent on their clients, creating potential incentives that may impair objectivity. In contrast, internal auditors operate within organizational structures that limit their independence but emphasize functional objectivity (Nugrahanti and Pratiwi, 2023). This distinction highlights that audit independence is not absolute but contingent on governance mechanisms, professional standards, and audit processes. Consequently, enhancing independence requires not only regulatory safeguards but also improvements in how audit evidence is generated and evaluated.

2.1.2. Digital audit evidence

Digital audit evidence refers to electronically generated and processed information used to support audit conclusions. The increasing digitization of business processes has transformed the nature of audit evidence, shifting from manual documentation to data-intensive, technology-driven systems. Digital audit techniques such as electronic sampling, automated transaction testing, and real-time data extraction enable auditors to handle large volumes of information with greater speed and accuracy (Samuel et al., 2022).

Moreover, audit evidence is increasingly shaped by multiple stakeholders, including system designers, management, and third-party platforms, raising concerns about data authenticity and independence (Abdulbass et al., 2023). Thus, while digitalization enhances audit capability, it also necessitates stronger analytical and professional judgment.

2.1.2.1. Analytical procedural audit evidence

Analytical procedural audit evidence involves the use of data-driven techniques, such as ratio analysis, trend analysis, and predictive modelling, to evaluate financial information. These procedures are central to audit planning, execution, and final review, as emphasized in International Standards on Auditing 520.

Prior studies suggest that analytical procedures improve audit effectiveness by reducing reliance on subjective judgment and enabling auditors to identify anomalies systematically (Wang and Chi, 2022).

2.1.2.2. Forensic audit evidence

Forensic audit evidence extends beyond conventional audit procedures by incorporating investigative techniques aimed at detecting fraud and financial irregularities. Unlike traditional auditing, which focuses on overall financial statement accuracy, forensic auditing emphasizes detailed examination of transactions and underlying evidence (Oyerogba, 2021, Bassey et al., 2018).

The literature highlights that forensic approaches enhance professional skepticism and reduce information asymmetry between auditors and management (Commerford et al., 2021). By enabling auditors to interrogate complex financial data more rigorously, forensic evidence strengthens their ability to challenge management assertions. This suggests that forensic audit evidence plays a critical role in reinforcing audit independence, particularly in high-risk audit environments.

2.1.2.3. Electronic documented audit evidence

Electronic documented audit evidence refers to the use of digital records and documentation systems to support audit processes. Such systems improve audit efficiency, accessibility, and storage of audit information (Moussa, 2021). They also facilitate compliance with regulatory requirements and enhance audit trail transparency.

However, the contribution of electronic documentation to audit independence is less clear. While digital records improve operational efficiency, they do not inherently enhance auditor objectivity unless complemented by analytical and investigative procedures. This suggests that electronic documentation is a necessary but insufficient condition for strengthening audit independence.

2.1.2.4. Artificial intelligence confirmation audit evidence

Artificial intelligence (AI)-based audit evidence involves the use of advanced algorithms to automate confirmation processes, detect anomalies, and identify patterns indicative of fraud or misstatement (Zhang et al., 2020). AI technologies can enhance audit accuracy by processing large datasets and identifying irregularities that may not be easily detected through manual procedures.

Nevertheless, the effectiveness of AI in auditing depends on algorithm design, data quality, and auditor expertise. Over-reliance on automated systems may reduce professional skepticism and introduce new risks, including algorithmic bias. Consequently, AI-based evidence may not independently enhance audit independence unless integrated with human judgment and robust audit procedures.

2.1.3. Digital capacities in audit evidence gathering

Digital capacities in audit evidence gathering refer to the use of technology-enabled tools to collect, process, and analyze audit data in real time. These capacities enhance audit efficiency, accuracy, and transparency by reducing human error and enabling continuous monitoring (Hassan, 2022).

As audit environments become increasingly data-driven, the ability to leverage digital capacities is critical for maintaining audit relevance and quality. However, the benefits of digital capacities depend on auditor competence and the effective integration of technology into audit workflows. Without these, digitalization may improve efficiency without necessarily enhancing audit independence.

2.2. Theoretical Review

2.2.1. Lending credibility theory

Lending Credibility Theory posits that the primary role of auditing is to enhance the credibility of financial statements. By providing independent assurance, auditors reduce information asymmetry

and increase stakeholder confidence in reported financial information (Simunic, 1980).

However, this credibility function is contingent on auditor independence. Historical corporate failures and financial scandals have demonstrated that when independence is compromised, the value of audit assurance diminishes significantly. Critics of the theory argue that auditors' economic dependence on clients may limit their ability to provide truly independent assurance (Rajgopal et al., 2015). This highlights the need for mechanisms—such as improved audit evidence—to reinforce auditor objectivity.

2.2.2. Digital technology perspective in auditing

The digital technology perspective emphasizes the transformative impact of technological innovation on organizational processes, including auditing. Digital tools enable enhanced data processing, real-time analysis, and improved decision-making capabilities (Gepp et al., 2018).

However, the literature also highlights potential risks associated with digitalization, including over-reliance on technology, data privacy concerns, and unequal access to digital resources. In the auditing context, these challenges suggest that technology alone cannot guarantee improved audit outcomes. Instead, its effectiveness depends on how it is integrated with professional judgment and institutional frameworks.

2.3. Empirical Review

Empirical evidence on digital audit evidence and audit independence presents mixed findings. Several studies report that digitalization enhances audit quality by improving audit planning, evidence gathering, and reporting processes (Akpan et al., 2024). Similarly, research on artificial intelligence indicates that data mining and image recognition techniques can strengthen audit practices, although some components, such as machine learning, show inconsistent effects (Israel et al., 2024).

Other studies opined that automation and IT infrastructure improve audit efficiency and reliability, particularly among larger audit firms (Otuya, 2024). Evidence from Nigeria also suggests that advanced technologies, including big data analytics and AI systems, positively influence audit independence and financial reporting quality (Dagunduro et al., 2023; Falana et al., 2023; Cooper et al., 2019). However, contrasting findings indicate that not all dimensions of digital audit evidence have significant effects. Some studies report insignificant relationships, suggesting that the benefits of digitalization depend on contextual factors such as auditor expertise, regulatory environment, and technological maturity (Afsay et al., 2023; Yusuf et al., 2023).

Generally, the empirical literature suggests that while digital audit evidence has the potential to enhance audit independence, its effects are not uniform across different dimensions. This inconsistency underscores the need for a disaggregated analysis of digital audit evidence, particularly in emerging economies.

Building on agency theory and lending credibility theory, this study argues that audit independence is not only shaped by regulatory

frameworks but also by the nature and quality of audit evidence. Digital audit evidence enhances auditors' ability to reduce information asymmetry, strengthen professional skepticism, and limit reliance on client-provided information. However, its effectiveness is dimension-specific rather than uniform.

2.4. Digital Audit Evidence and Audit Independence

Digital audit evidence improves the objectivity, traceability, and reliability of audit processes. By enabling auditors to access comprehensive datasets and perform real-time analysis, digital tools reduce opportunities for managerial manipulation and enhance evidence-based judgment. Prior studies suggest a positive association between audit digitalization and audit quality; however, the impact on audit independence remains conditional on how such technologies are applied.

Hence, we hypothesized that:

H₁: Digital audit evidence has a significant positive effect on audit independence.

H_{1a}: Analytical procedural audit evidence has a positive and significant effect on audit independence.

H_{1b}: Forensic audit evidence has a positive and significant effect on audit independence.

H_{1c}: Electronic documented audit evidence has no significant effect on audit independence.

H_{1d}: Artificial intelligence confirmation audit evidence has no significant effect on audit independence.

H_{1e}: Digital capacities in audit evidence gathering have a positive and significant effect on audit independence.

3. METHODOLOGY

3.1. Research Design

This study adopts a quantitative survey research design to examine the effect of digital audit evidence on audit independence among Big Four audit firms in Nigeria. The survey approach is appropriate given the study's objective of capturing auditors' perceptions and experiences regarding the application of digital audit evidence in practice. It also enables the use of inferential statistical techniques to test the hypothesized relationships.

3.2. Population and Sample

The target population comprises 4,171 employees drawn from the Big Four audit firms, Deloitte, Ernst and Young, Price Waterhouse Coopers, and KPMG operating in Nigeria. These firms were selected due to their dominance in auditing large corporations and their advanced adoption of digital audit technologies.

A sample size of 365 respondents was determined using the Taro Yamane formula at a 5% level of significance. The sample was proportionately distributed across the firms to ensure adequate representation. Data were collected using both online and physical questionnaire administration.

3.3. Measurement of Variables

Audit independence (AIDP), the dependent variable, was measured using multi-item constructs capturing auditor objectivity, resistance to client pressure, and adherence to professional standards.

The independent variables were proxy using analytical procedural audit evidence (APAE), forensic audit evidence (FRAE), electronic documented audit evidence (EDAE), artificial intelligence confirmation evidence (AICE), and digital audit evidence gathering (DAEG). Variables were measured using Likert-scale items adapted from prior studies. All items were rated on a five-point scale ranging from strongly disagree (1) to strongly agree (5).

3.4. Validity and Reliability

Construct validity was assessed using the Kaiser-Meyer-Olkin (KMO) measure and Bartlett's Test of Sphericity. The KMO values ranged between 0.727 and 0.842, exceeding the recommended threshold of 0.70, while Bartlett's test was statistically significant ($P < 0.05$), confirming sampling adequacy.

Reliability was evaluated using Cronbach's alpha coefficients, which ranged from 0.809 to 0.931, indicating a high level of internal consistency among the measurement items.

3.5. Methodological Considerations

Given that the data were collected using a single survey instrument, the possibility of common method bias cannot be entirely ruled out. However, several procedural remedies were implemented to mitigate its potential effects. These include ensuring respondent anonymity, using clear and concise questionnaire items, and reducing ambiguity in measurement scales. Despite these measures, the use of cross-sectional self-reported data remains a limitation of the study and should be considered when interpreting the results.

3.6. Model Specification

Consistent with the study's theoretical foundation in Agency Theory, the relationship between digital audit evidence and audit independence is specified as follows:

$$AIDP_i = \beta_0 + \beta_1 APAE_i + \beta_2 FRAE_i + \beta_3 DAE_i + \beta_4 AICE_i + \beta_5 DAEG_i + \epsilon_i$$

Where:

AIDP = Audit independence

APAE = Analytical procedural audit evidence

FRAE = Forensic audit evidence

EDAE = Electronic documented audit evidence

AICE = Artificial intelligence confirmation evidence

DAEG = Digital audit evidence gathering

ϵ = Error term.

3.7. Data Analysis Technique

Data were analyzed using descriptive statistics and multiple linear regression analysis. Descriptive statistics were used to summarize respondents' characteristics and variable distributions, while regression analysis was employed to test the hypothesized relationships.

Model adequacy was evaluated using the coefficient of determination (R^2), F-statistics, and diagnostic tests, including the Durbin-Watson statistic to assess autocorrelation. All analyses were conducted using IBM SPSS.

3.8. Ethical Considerations

Ethical standards were observed throughout the study. Participation was voluntary, and respondents were assured of anonymity and confidentiality. No personally identifiable information was collected, and responses were used solely for academic purposes.

4. RESULTS AND DISCUSSION OF FINDINGS

4.1. Regression Model Diagnostic Tests

This subsection presents the diagnostic tests conducted to validate the regression model examining the effect of digital audit evidence on audit independence (AIDP) of Big Four audit firms in Nigeria. The diagnostics focus on assessing the linearity and homoscedasticity assumptions of the multiple regression model using scatterplots of standardized residuals and partial regression plots for each explanatory variable. The results are presented in Figures 1-6. The results are presented in Figures 1-6.

Figures 1-6 present the partial regression plots for analytical procedural audit evidence (APAE), forensic audit evidence (FRAE), electronic documented audit evidence (EDAE), artificial intelligence confirmations audit evidence (AICE) and digital audit evidence gathering (DAEG). Each plot shows a clear and approximately linear relationship between the respective explanatory variable and audit independence after controlling for the effects of other predictors in the model. The absence of nonlinear trends, extreme outliers, or irregular dispersion across the plots indicates that all the independent variables contribute linearly to audit independence. These results collectively support the suitability of the regression model and provide confidence in the reliability and validity of the estimated regression results.

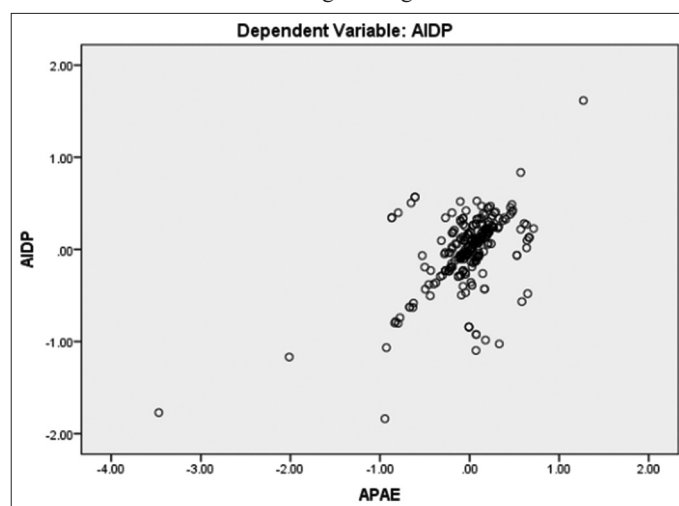
4.2. Residual Diagnostics

The residual statistics provide additional diagnostic evidence on the validity and robustness of the regression model used to

examine the effect of digital audit evidence on audit independence (AIDP) of Big Four audit firms in Nigeria. The residual diagnostics were evaluated to assess key regression assumptions, including normality of residuals, linearity, independence of errors and the presence of outliers or influential observations. The results of the residual statistics are presented in Table 1

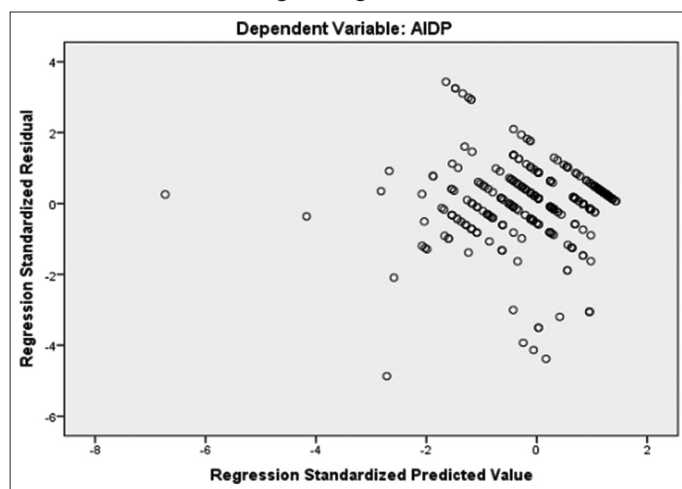
The predicted values shown in Table 1 range between 2.5301 and 4.9816, with an average of 4.5518 and a standard deviation of 0.30045, indicating that the model's predicted audit independence values fall comfortably within the observed scale of the dependent variable. This suggests that the regression model generates plausible and well-aligned predictions. The standardized predicted values have a mean of 0.000 and a standard deviation of 1.000, confirming appropriate standardization and the absence of scaling

Figure 2: Scatterplots, partial regression plots for analytical procedural audit evidence, forensic audit evidence, electronic documented audit evidence, DAEV, artificial intelligence confirmation evidence, digital audit evidence gathering and AUDE



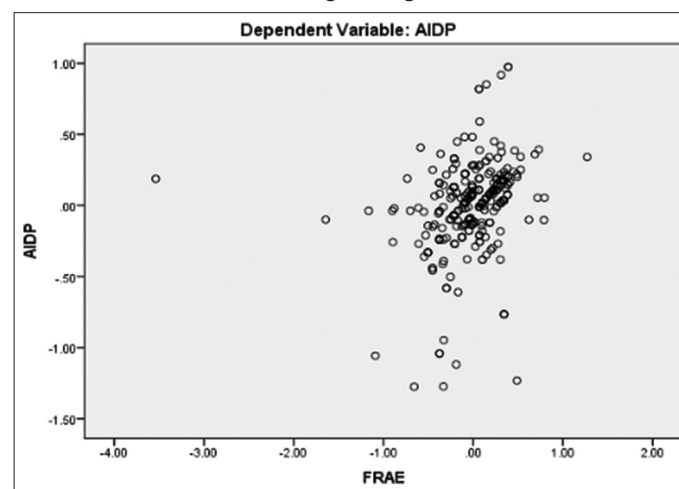
Source: Researcher's work (2026)

Figure 1: Scatterplots, partial regression plots for analytical procedural audit evidence, forensic audit evidence, electronic documented audit evidence, DAEV, artificial intelligence confirmation evidence, digital audit evidence gathering and AUDE on AIDP



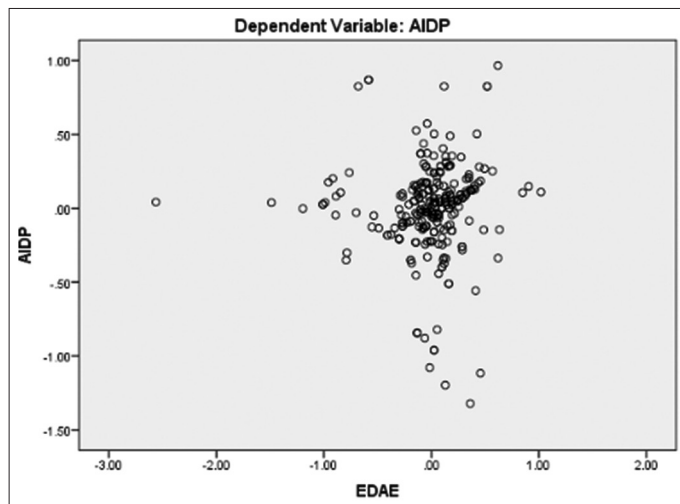
Source: Researcher's work (2026)

Figure 3: Scatterplots, partial regression plots for analytical procedural audit evidence, forensic audit evidence, electronic documented audit evidence, DAEV, artificial intelligence confirmation evidence, digital audit evidence gathering and AUDE



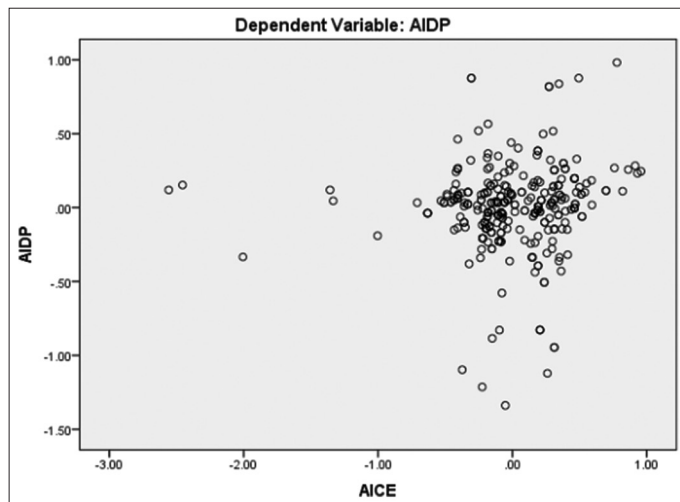
Source: Researcher's work (2026)

Figure 4: Scatterplots, partial regression plots for analytical procedural audit evidence, forensic audit evidence, electronic documented audit evidence, DAEV, artificial intelligence confirmation evidence, digital audit evidence gathering and AUDE



Source: Researcher's work (2026)

Figure 5: Scatterplots, partial regression plots for analytical procedural audit evidence, forensic audit evidence, electronic documented audit evidence, DAEV, artificial intelligence confirmation evidence, digital audit evidence gathering and AUDE

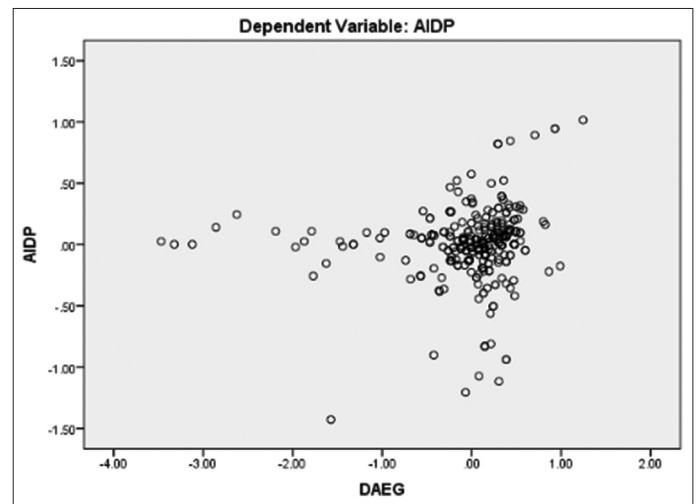


Source: Researcher's work (2026)

bias. Moreover, the close similarity between the adjusted predicted values and the original predicted values reflects a high degree of stability and consistency in the model's predictive performance, indicating that the inclusion of the explanatory variables does not introduce estimation instability.

The residual diagnostics further affirm the suitability of the regression model. The residuals have a mean value of approximately zero (0.00000), satisfying a core assumption of linear regression. The relatively low residual standard deviation (0.27241) indicates that observed audit independence values are closely clustered around the predicted values, implying a good model fit. Although the standardized residuals extend slightly beyond the conventional ± 3 range, such occurrences are common

Figure 6: Scatterplots, partial regression plots for analytical procedural audit evidence, forensic audit evidence, electronic documented audit evidence, DAEV, artificial intelligence confirmation evidence, digital audit evidence gathering and AUDE



Source: Researcher's work (2026)

in large samples and do not necessarily signal serious violations of regression assumptions. Additional diagnostics show that the Mahalanobis distance identifies some multivariate outliers; however, these do not pose a concern when considered alongside the very low mean Cook's distance (0.006) and the low centered leverage value (0.014). Collectively, these results indicate that influential observations are minimal and that the regression assumptions are adequately met. Consequently, the model used to test is stable, reliable and robust, supporting the validity of inferences regarding the effect of digital audit evidence on audit independence.

4.3. Regression Result

This subsection presents the results of the multiple regression analysis examining the effect of digital audit evidence on audit independence (AIDP) of Big Four audit firms in Nigeria. The analysis directly addresses (H_{01}), which states that digital audit evidence does not significantly affect audit independence. The regression results are reported in Table 2.

Grounded in agency theory and lending credibility theory, this study models audit independence as a function of multiple dimensions of digital audit evidence. The disaggregated specification reflects the argument that different forms of audit evidence influence auditor objectivity through distinct mechanisms. Our findings specifically revealed that Analytical procedural audit evidence had positive and significant effect on audit independence. Implying, analytical procedures enhance objectivity by relying on data-driven evaluation rather than client narratives. This result implies that the increased application of analytical audit procedures significantly enhances auditors' ability to maintain independence by strengthening evidence-based judgment and reducing reliance on client representations.

Similarly, forensic audit evidence exerts a positive and statistically significant influence on audit independence. This suggests that

Table 1: Result of residual statistics

Residual Statistics	Minimum	Maximum	Mean	Standard deviation	n
Predicted value	2.5301	4.9816	4.5518	0.30045	365
standardized predicted value	-6.729	1.431	0.000	1.000	365
Standard error of predicted value	0.015	0.156	0.031	0.017	365
Adjusted predicted value	2.4965	4.9814	4.5501	0.30338	365
Residual	-1.33581	0.94248	0.00000	0.27241	365
Standardized residual	-4.870	3.436	0.000	0.993	365
Studentized residual	-4.999	4.017	0.003	1.009	365
Deleted residual	-1.40774	1.28853	0.00170	0.28162	365
Studentized deleted residual	-5.176	4.105	0.002	1.021	365
Mahalanobis distance	0.144	117.132	4.986	10.565	365
Cook's distance	0.000	0.988	0.006	0.053	365
Centered leverage value	0.000	0.322	0.014	0.029	365

Dependent variable: AIDP

Source: Researcher's computation from the field survey (2026)

Table 2: Multiple regression analysis of digital audit evidence on audit independence

Variable	Coefficient (B)	Standard error	t-value	Significance
(Constant)	0.523	0.229	2.288	0.023
APAE	0.531	0.042	12.534	0.000
FRAE	0.213	0.040	5.396	0.000
EDAE	0.039	0.045	0.855	0.393
AICE	0.050	0.037	1.369	0.172
DAEG	0.059	0.025	2.347	0.019

R=0.741, R²=0.549, Adjusted R²=0.543, Standard error=0.274, F (5, 359)=87.342, P=0.000, Durbin-Watson=2.022. Dependent variable: AIDP: Audit independence, APAE: Analytical procedural audit evidence, FRAE: Forensic audit evidence, EDAE: Electronic documented audit evidence, AICE: Artificial intelligence confirmations evidence, DAEG: Digital audit evidence gathering. Source: Researcher's computation from field survey data (2026)

forensic techniques strengthen professional skepticism and reduce information asymmetry. Also, digital audit evidence gathering also shows a positive and statistically significant relationship with audit independence. This finding indicates that the systematic use of digital tools and technologies in collecting audit evidence contributes to improved independence by enhancing transparency, traceability and audit documentation quality.

In contrast, electronic documented audit evidence does not significant effect audit independence. Technically, it improves efficiency but may not independently enhance judgment. This further suggests that the mere availability of electronic documentation does not automatically strengthen auditor independence unless supported by rigorous analytical and forensic evaluation. Likewise, artificial intelligence confirmations evidence shows a positive but statistically insignificant relationship with audit independence. Implying that AI-based confirmation tools alone may not independently mitigate independence threats without broader procedural integration.

The model summary indicates a strong and statistically meaningful relationship between digital audit evidence and audit independence. The multiple correlation coefficient ($R = 0.741$) suggests a substantial positive association between the explanatory variables and audit independence. The coefficient of determination ($R^2 = 0.549$) shows that approximately 54.9% of the variation in audit independence is explained by the combined effects of analytical procedural audit evidence (APAE), forensic audit evidence (FRAE), electronic documented audit evidence (EDAE),

artificial intelligence confirmation evidence (AICE), and digital audit evidence gathering (DAEG). The adjusted R² (0.543) remains close to R², indicating that the model retains strong explanatory power after controlling for model complexity and is not overfitted.

The overall regression model is statistically significant ($F[5, 359] = 87.342$, $P < 0.001$), providing robust support for the joint hypothesis that digital audit evidence dimensions collectively influence audit independence. This result aligns with the theoretical expectation that enhanced audit evidence mechanisms reduce information asymmetry and strengthen auditor objectivity, consistent with Agency Theory. Furthermore, the Durbin-Watson statistic (2.022) is approximately equal to the benchmark value of 2, indicating no evidence of autocorrelation in the residuals. This supports the validity of the model estimates and suggests that the regression assumptions are adequately satisfied.

5. DISCUSSION OF FINDINGS

The results of this study provide robust empirical evidence that digital audit evidence enhances audit independence, although its effects vary across dimensions. Consistent with the joint significance of the model (H_1), the findings confirm that digital audit evidence collectively plays a critical role in strengthening auditor objectivity and reducing information asymmetry, in line with Agency Theory.

At the disaggregated level, analytical procedural audit evidence (H_{1a}) exhibits the strongest positive effect on audit independence. This finding underscores the importance of data-driven audit approaches in mitigating judgmental bias and reducing reliance on client-provided information. By grounding audit decisions in systematic analyses such as trend and ratio evaluations, auditors are better positioned to exercise independent judgment. This result supports prior empirical evidence that analytical techniques enhance audit quality and objectivity (Akpan et al., 2024; Otuya, 2024; Vukovic et al., 2023).

Similarly, forensic audit evidence (H_{1b}) demonstrates a significant positive influence on audit independence. The application of investigative and fraud-detection techniques enhances professional skepticism and enables auditors to interrogate complex transactions more rigorously. This reduces information asymmetry between

auditors and management and strengthens auditors' ability to challenge managerial assertions. The finding aligns with prior studies emphasizing the role of forensic approaches in improving audit effectiveness and credibility.

Digital audit evidence gathering (H_{1c}) also shows a significant positive relationship with audit independence. Technology-enabled processes such as automated data extraction, secure audit trails, and real-time evidence capture enhance transparency and traceability, thereby limiting opportunities for manipulation. These findings suggest that digital infrastructure plays a supportive role in reinforcing evidence integrity and auditor objectivity, consistent with existing empirical evidence (Samuel et al., 2022; Usman et al., 2022).

In contrast, electronic documented audit evidence (H_{1e}) and artificial intelligence confirmation evidence (H_{1d}) do not exhibit statistically significant effects. These results indicate that the mere digitization of audit documentation or the adoption of AI-based tools is insufficient to strengthen audit independence in the absence of deeper analytical and investigative application. This finding challenges the assumption that technological adoption alone guarantees improved audit outcomes and highlights the importance of complementary human expertise and professional judgment. Similar insignificant relationships have been reported in prior studies (Afsay et al., 2023; Adejuwon and Akinola, 2022).

Our findings reinforce the argument that the effectiveness of digital audit evidence is heterogeneous rather than uniform. While analytically intensive and investigative approaches significantly enhance audit independence, more passive forms of digitalization, such as documentation and automated confirmations have limited impact when applied in isolation. This supports the view that technology complements, rather than substitutes for, auditor judgment, consistent with Lending Credibility Theory.

The study therefore contributes to the literature by demonstrating that digital audit evidence should be understood as a multidimensional construct, with varying implications for audit independence. From a practical perspective, the findings suggest that audit firms should prioritize investments in analytical and forensic capabilities rather than relying solely on basic digital tools.

6. CONCLUSION AND RECOMMENDATIONS

This study provides robust empirical evidence on the role of digital audit evidence in enhancing audit independence. The findings indicate a consistently high perception of audit independence among respondents, supported by strong descriptive statistics and low variability, suggesting broad agreement on the effectiveness of independence practices within Big Four audit firms.

The regression results reveal a differentiated impact of digital audit evidence on audit independence. Specifically, analytical procedural audit evidence (APAE), forensic audit evidence (FRAE), and digital audit evidence gathering (DAEG) exhibit positive and

statistically significant effects. These findings underscore the importance of data-driven and investigative audit approaches in strengthening auditor objectivity, enhancing professional skepticism, and improving audit quality.

In contrast, electronic documented audit evidence (EDAE) and artificial intelligence confirmation evidence (AICE) are found to be statistically insignificant. This suggests that the mere digitization of audit processes or the adoption of AI tools, without deeper analytical integration, is insufficient to enhance audit independence. Overall, the results demonstrate that the effectiveness of digital audit evidence is heterogeneous, with greater value derived from analytically intensive and investigative techniques. This reinforces the transition from traditional audit approaches to more intelligent, technology-enabled audit practices.

6.1. Contribution to Knowledge

This study makes several important contributions to the literature on auditing and financial reporting. First, it advances existing research by disaggregating digital audit evidence into distinct components, analytical, forensic, electronic documentation, artificial intelligence, and digital evidence gathering—thereby providing a more nuanced understanding of their differential effects on audit independence.

Second, the study contributes empirically to the emerging discourse on audit digitalization by demonstrating that advanced digital audit techniques, particularly analytical and forensic approaches, significantly enhance audit independence, while more passive forms of digitalization do not yield similar benefits.

Third, the study bridges the gap between traditional auditing theory and contemporary digital audit practices by integrating technology-driven audit evidence within the broader framework of audit quality and independence, consistent with Agency Theory.

Finally, the study provides context-specific evidence from a developing economy, offering insights into how digital transformation influences audit practices in environments characterized by evolving regulatory and institutional frameworks.

6.2. Recommendations

Based on the findings, several practical and policy recommendations are proposed.

Audit firms should prioritize the adoption of advanced digital audit tools, particularly analytical and forensic technologies, as these have demonstrated the strongest impact on audit independence. Continuous professional training is essential to equip auditors with the technical competencies required to effectively utilize these tools. Firms should also move beyond basic electronic documentation toward more sophisticated, data-driven audit methodologies that enhance evidence reliability and audit judgment. In addition, the integration of artificial intelligence into audit processes should be gradual and carefully managed, with emphasis on validation, accuracy, and ethical compliance.

For investors, greater reliance should be placed on audit reports supported by robust digital audit evidence, as these provide stronger assurance regarding the credibility of financial statements. Investors are also encouraged to consider the extent of digital audit adoption as part of their investment evaluation criteria, given its potential to reduce financial reporting risk and enhance transparency.

Regulators should update auditing standards to formally recognize and promote the use of digital audit evidence, particularly analytical and forensic approaches. There is also a need to develop adaptive, risk-based digital audit frameworks capable of responding to evolving technological environments.

At the policy level, governments should incorporate audit digitalization into broader strategies aimed at enhancing financial transparency, corporate governance, and economic competitiveness. This includes strengthening digital infrastructure, improving data governance systems, and supporting capacity development within the auditing profession.

6.3. Limitations and Suggestions for Future Research

While this study provides important insights into the relationship between digital audit evidence and audit independence, several limitations should be acknowledged. The study relies on perceptual data obtained through self-reported questionnaires. Although this approach is appropriate for capturing professional judgments and experiences, it may be subject to response bias or social desirability effects. Third, the sample is restricted to Big Four audit firms Deloitte, Price water house Coopers, Ernst and Young, and KPMG operating in Nigeria. While these firms provide a relevant benchmark due to their advanced adoption of digital audit technologies, the findings may not be fully generalizable to smaller audit firms or other institutional contexts. Finally, although procedural steps were taken to minimize bias, the use of a single data source raises the possibility of common method bias, which cannot be entirely ruled out.

We suggest that further studies could extend the analysis to non-Big Four firms or compare across different jurisdictions to assess how institutional environments influence the effectiveness of digital audit evidence. Fourth, future research may explore moderating factors such as auditor expertise, regulatory strength, or firm size to better understand the conditions under which digital audit evidence enhances audit independence. Finally, given the evolving role of artificial intelligence in auditing, more in-depth investigation into the integration of AI tools and their interaction with professional judgment is warranted.

REFERENCES

- Abdulabass, A.A., Hassan, M.A., El-Toby, B.H. (2023), Activating the elements of performance audit report (economic efficiency effectiveness) in measuring the performance of external control agencies. *International Journal of Professional Business Review*, 8(5), 1-13.
- Adejuwon, J.A., Akinola, A.O. (2022), A study of audit clients' characteristics and the determination of audit fees in an automated accounting system environment. *Journal of Accounting and Management*, 12(3), 43-56.
- Afsay, A., Tahriri, A., Rezaee, Z. (2023), A meta-analysis of factors affecting acceptance of information technology in auditing. *International Journal of Accounting Information Systems*, 49, 100-110.
- Akpan, D.D.C., George, B.S., Ukpong, E.G. (2024), Digitalization and auditing processes in Nigeria. *Advance Journal of Management Accounting and Finance*, 9(4), 11-28.
- Bhat, W.A., AlZahrani, A., Wani, M.A. (2021), Can computer forensic tools be trusted in digital investigations? *Science Justice*, 61(2), 198-203.
- Commerford, B.P., Dennis, S.A., Joe, J.R., Ulla, J.W. (2021), Man versus machine: Complex estimates and auditor reliance on artificial intelligence. *Journal of Accounting Research*, 60, 171.
- Dagunduro, M.E., Falana, G.A., Adewara, Y.M., Busayo, T.O. (2023), Application of artificial intelligence and audit quality in Nigeria. *Humanities Management Arts Education and the Social Sciences Journal*, 11(1), 39-56.
- Elshandidy, T., Eldaly, M.K., Abdel-Kader, M. (2021), Independent oversight of the auditing profession: A review of the literature. *International Journal of Auditing*, 25(2), 373-407.
- Falana, G.A., Igbekoyi, O.E., Dagunduro, M.E. (2023), Effect of big data on accounting information quality in selected firms in Nigeria. *International Journal of Research and Innovation in Social Science*, 7(3), 789-806.
- Fedyk, A., Hodson, J., Khimich, N., Fedyk, T. (2022), Is artificial intelligence improving the audit process? *Review of Accounting Studies*, 27(6), 938-985.
- Gandia, J. L., & Huguet, D. (2021). Audit fees and earnings management: Differences based on the type of audit. *Economic Research–Ekonomika Istraživanja*, 34(1), 2628-2650.
- Gepp, A., Linnenluecke, M.K., O'Neill, T.J., Smith, T. (2018), Big data techniques in auditing research and practice: Current trends and future opportunities. *Journal of Accounting Literature*, 40(1), 102-115.
- Hassan, R.A. (2022). Artificial intelligence (AI) in accounting and auditing: A literature review. *Open Journal of Business and Management*, 10, 440-465.
- International Ethics Standards Board for Accountants. (2023). International code of ethics for professional accountants (including international independence standards). IFAC.
- Israel S.A., Oluwagbemi E.O., Jeremiah O.A., Muyiwa E.D. (2024), In what way does artificial intelligence influences audit practice? Empirical evidence from Southwest, Nigeria. *European Journal of Accounting, Auditing and Finance Research*, 12(1), 35-55.
- Khamis, A. (2021), The impact of artificial intelligence in auditing and accounting decision making. *Research Gate*. <https://doi.org/10.13140/RG.2.2.20831.18085>
- Moussa, A.F. (2021), Electronic evidence and its authenticity in forensic evidence. *Egyptian Journal of Forensic Sciences*, 11, Article 20.
- Otuya, S. (2024), Audit task digitalization and quality of audit exercise in Nigeria. *Accounting*, 10(1), 167-176.
- Oyerogba, E.O. (2021), Forensic auditing mechanism and fraud detection: The case of Nigerian public sector. *Journal of Accounting in Emerging Economies*, 11(5), 752-775.
- Rajgopal, S., Srinivasan, S., Zheng, X. (2021), Measuring audit quality. *Review of Accounting Studies*, 26(2), 559-619.
- Samuel, D., Grace, O., Kensington, O.O. (2022). Information technology control and fraud risk assessment in deposit money banks in Nigeria. *The International Journal of Business & Management*, 10(4), 7-18.
- Simunic, D.A. (1980). The pricing of audit services: Theory and evidence. *Journal of Accounting Research*, 18(1), 161-190.
- Vuković, B., Jakšić, D., Tica, T. (2023), The impact of digitalization on

- audit. In S. Benković, A. Labus, & M. Milosavljević (Eds.), *Digital transformation of the financial industry: Approaches and applications* (pp. 35–57). Springer. https://doi.org/10.1007/978-3-031-23269-5_3
- Yusuf, R., Igbokoyi, O.E., Ogungbade, O.I., Nana, O.S. (2023), Forensic audit technology and audit report quality of selected audit firms in Nigeria. *International Journal of Economics, Business and Management Research*, 7(4), 45-64.
- Zhang, Y., Xiong, F., Xie, Y., Fan, X., Gu, H. (2020), The impact of artificial intelligence and blockchain on the accounting profession. *IEEE Access*, 8, 110461-110477.