



DIGITAL TECHNOLOGIES AND FORENSIC ACCOUNTING IN GOVERNMENT MINISTRIES: EVIDENCE FROM THE PUBLIC SECTOR IN RIVERS STATE

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Abstract: This study examined the impact of digital technologies on forensic accounting in government ministries, using evidence from the public sector in Rivers State, Nigeria. The focus was on assessing how the adoption of digital audit tools, cyber security technologies, and block chain technologies influences the effectiveness of forensic accounting practices, particularly in the areas of fraud detection and prevention, and litigation support and evidence gathering. The study employed a descriptive survey research design, with data collected from 150 respondents comprising accountants, auditors, IT officers, and finance professionals across selected ministries. A structured questionnaire was used to gather responses, and the data were analysed using descriptive statistics, correlation analysis, and multiple regression techniques via SPSS. Findings revealed that all three dimensions of digital technologies have a significant positive relationship with forensic accounting effectiveness. Among these, digital audit tools had the strongest influence, followed by cyber security technologies, while block chain technologies, though not widely adopted, showed strong potential. The regression analysis indicated that 62.1% of the variance in forensic accounting practices could be explained by the combined effect of the digital technologies examined. The study concluded that the integration of digital innovations enhances forensic accounting operations in the public sector, especially in tackling financial irregularities and supporting legal processes. It recommended increased investment in technological infrastructure, capacity building, policy development, and the institutionalization of dedicated digital forensic units within government ministries.

Keywords: Digital Technologies, Forensic Accounting, Fraud Detection, Litigation Support, Block chain, Cyber security, Public Sector

Introduction

The integration of digital technologies into public sector financial management has gained global momentum, transforming traditional accounting and auditing practices into more intelligent, efficient, and transparent systems. This evolution is particularly critical in the context of forensic accounting, which serves as a vital tool in the detection, investigation, and prevention of financial fraud,

misappropriation, and corruption issues that continue to plague many government ministries in developing economies, including Nigeria (Abdulrahman, 2019). In the public sector, where transparency and accountability are imperative, digital technologies offer the potential to enhance forensic accounting practices by automating data analysis, improving the traceability of transactions, and

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facilitating real-time monitoring of financial activities (Brennen & Kreiss, 2016).

Digital technologies such as block chain, artificial intelligence (AI), machine learning, data analytics, and computer-assisted audit tools (CAATs) have introduced new frontiers for forensic accountants. These technologies enable the efficient processing of large volumes of data, uncover patterns indicative of fraud, and ensure immutable records of financial transactions (Kadir & Sanni, 2024). For instance, block chain technology offers a decentralized ledger system that ensures transactional transparency and can serve as admissible evidence in fraud-related litigations. Similarly, AI-driven forensic tools can analyse financial anomalies across ministries in real time, increasing the speed and accuracy of investigations (Casino, et al, 2019). In light of these advancements, the traditional methods of manual forensic accounting are becoming increasingly inadequate in addressing the sophisticated nature of financial frauds in today's digital environment. Nigeria's public sector has been under increasing scrutiny over issues of financial impropriety and weak accountability structures. In Rivers State, like many other subnational governments, ministries are often accused of misappropriating funds and engaging in non-transparent financial activities. The Auditor-General's reports and investigations by anti-corruption agencies have repeatedly cited lack of digital systems and manual accounting processes as key enablers of fraud and financial misconduct (ICAN, 2022). This has led to a growing call for the adoption of digital technologies in forensic accounting to enhance fiscal discipline, reduce corruption, and promote good governance (Olutayo et al 2021).

Despite these calls, the extent to which digital technologies have been implemented and the impact they have had on forensic accounting practices in Rivers State's government ministries remain largely underexplored. There is a significant research gap in understanding the actual interplay between digital technologies and forensic accounting outcomes in this context. Previous studies have focused predominantly on private sector applications, leaving a dearth of empirical evidence on public sector dynamics. Given the peculiarities of public sector accounting and the challenges faced by government

ministries in adopting modern technologies, this study aims to fill that void by critically examining the role of digital technologies in enhancing forensic accounting within the ministries of Rivers State.

Research Objectives

The broad objective of this study is to examine the impact of digital technologies on forensic accounting practices in government ministries within the public sector of Rivers State. The specific objectives are to:

1. Determine the effect of digital audit tools on fraud detection and prevention in government ministries.
2. Examine the impact of cyber security technologies on litigation support and evidence gathering.
3. Assess the relationship between block chain technology adoption and forensic accounting effectiveness in the public sector.
4. Evaluate the overall contribution of digital technologies to enhancing forensic accounting outcomes in Rivers State ministries.

Research Hypotheses

The following null hypotheses are formulated to guide the study:

- H₀₁: Digital audit tools have no significant effect on fraud detection and prevention in government ministries.
H₀₂: Cyber security technologies have no significant impact on litigation support and evidence gathering.
H₀₃: Block chain technology adoption has no significant relationship with forensic accounting effectiveness in the public sector.
H₀₄: Digital technologies do not significantly contribute to the effectiveness of forensic accounting practices in government ministries in Rivers State

Technology Acceptance Model Theory

Davis (1989) proposed the Technology Acceptance Model (TAM) which explains how users come to accept and use a technology. According to TAM, two primary factors influence technology adoption: Perceived Usefulness (PU): The degree to which a person believes that using a particular technology will enhance their job performance. Perceived Ease of Use and The degree to



which a person believes that using the system will be free from effort. In the context of forensic accounting in public sector ministries, TAM helps to understand how accountants, auditors, and public financial managers in Rivers State perceive the usefulness and ease of use of digital technologies like block chain, AI, and CAATTs in their fraud detection and financial investigation processes. If government ministries in Rivers State perceive digital forensic tools as easy to use and effective in detecting fraud, they are more likely to adopt and implement them. However, resistance may arise from poor IT literacy, lack of infrastructure, or scepticism about the technology's reliability. TAM helps evaluate user behaviour, adoption challenges, and readiness among public financial officials, thus offering a foundation to explore how digital technologies are being embraced or resisted in forensic accounting.

Fraud Triangle Theory

Donald Cressey (1953) Proposed the Fraud Triangle Theory which identifies three key elements that contribute to fraudulent behaviour: Pressure: Financial or social pressure that drives an individual to commit fraud. Opportunity: The ability to commit fraud without getting caught, often due to weak internal controls or lack of oversight. Rationalization: The justification or mind-set that allows the fraudster to rationalize their unethical behaviour. In the public sector context, where fraud and financial misconduct are recurrent challenges, the Fraud Triangle Theory provides a framework for understanding the motivation behind fraud and how forensic accounting and digital tools can mitigate it. Digital technologies such as real-time data analytics block chain, and digital audit trails can help reduce opportunity by improving internal controls and transparency. They also deter rationalization by creating accountability and reducing loopholes. The presence of strong forensic systems discourages fraudulent behaviour and enhances fiscal discipline. The theory helps to assess how digital forensic technologies address the root causes of fraud in public institutions. It supports the argument that digital innovation is not just a technical solution, but a strategic tool to reshape financial accountability frameworks.

Concept of Digital Technologies

Digital technologies refer to electronic tools, systems, devices, and resources that generate, store, or process data. These technologies leverage digital computing and communication to transform traditional ways of performing tasks, enabling faster, more accurate, and efficient operations across diverse sectors (Brennen & Kreiss, 2016). The adoption of digital technologies has revolutionized organizational processes by facilitating automation, real-time data analysis, and enhanced connectivity, fundamentally changing how information is managed and utilized. In the context of accounting and auditing, digital technologies encompass a broad range of innovations such as artificial intelligence (AI), machine learning, block chain, data analytics, cloud computing, and computer-assisted audit tools and techniques (CAATTs). These technologies enable accountants and auditors to handle vast amounts of data, detect anomalies, and improve decision-making processes (Kokina & Davenport, 2017). For example, AI-driven algorithms can analyse transactional data to identify patterns indicative of fraud, while block chain technology ensures the immutability and transparency of financial records, thereby enhancing trust and accountability.

The rapid advancement of digital technologies has made them indispensable for modern organizations, particularly in sectors where transparency and accountability are crucial, such as the public sector. Governments worldwide are adopting these technologies to improve financial management, reduce corruption, and increase operational efficiency (Obidike & Onuora ,2025). Digital transformation in public financial management includes digitizing records, implementing e-governance systems, and using forensic accounting tools powered by data analytics and AI to detect and prevent financial misconduct. Despite their benefits, the adoption of digital technologies faces challenges, especially in developing countries like Nigeria, where infrastructural deficits, limited digital literacy, and resistance to change impede effective implementation. Nevertheless, on-going efforts to integrate digital solutions into public financial management systems, particularly forensic accounting, are



critical to enhancing transparency and accountability in government ministries.

Concept of Digital Audit Tools

Digital audit tools, also known as Computer-Assisted Audit Tools and Techniques (CAATTs), refer to software applications and technologies designed to assist auditors in performing audit procedures more effectively and efficiently by automating data collection, analysis, and reporting (Alles, 2015). These tools enable auditors to handle large volumes of financial data quickly, identify anomalies, test compliance, and enhance the accuracy and reliability of audit findings. Digital audit tools include data extraction software, analytics platforms, continuous auditing systems, and visualization applications that allow auditors to perform substantive tests and risk assessments in real time. For instance, advanced data analytics can uncover patterns, trends, and irregularities that may indicate fraud or errors those traditional sampling methods might miss (Kokina & Davenport, 2017). Furthermore, these tools support continuous monitoring of transactions, enabling proactive fraud detection rather than reactive investigations. The adoption of digital audit tools has transformed forensic accounting by providing forensic auditors with powerful resources to detect and investigate financial misconduct more thoroughly. In public sector organizations, where transparency and accountability are paramount, digital audit tools help ensure compliance with financial regulations and improve governance standards (Tang et al., 2023).

Concept of Cyber security Technology

Cyber security technology encompasses the strategies, tools, and processes designed to protect computer systems, networks, and data from unauthorized access, attacks, damage, or theft Yli-(Huumo et al, 2016). As organizations increasingly depend on digital systems for financial management and record keeping, cyber security has become critical to safeguarding sensitive financial information against cyber threats such as hacking, ransomware, phishing, and insider threats. In the realm of forensic accounting, cyber security technology plays a crucial role in protecting the integrity and confidentiality of financial

data used for investigations. Effective cyber security frameworks include firewalls, encryption, intrusion detection systems, multi-factor authentication, and continuous monitoring tools that help prevent unauthorized data manipulation or breaches. For government ministries, particularly in developing countries, robust cyber security measures are essential to maintain trust in digital financial systems and ensure that forensic accounting processes are based on reliable and secure data (Kranacher et al, 2011). Cyber security technology also supports forensic auditors by preserving digital evidence in a forensically sound manner, which is vital for legal proceedings related to financial fraud.

Concept of Block chain Technology

Block chain technology is a decentralized and distributed ledger system that records transactions across multiple computers in a way that ensures data integrity, transparency, and immutability (Nakamoto, 2008). Each transaction is stored in a “block” that is cryptographically linked to the previous one, creating a secure chain that cannot be altered retroactively without consensus from the network participants. In forensic accounting, block chain offers significant benefits by providing a transparent, tamper-proof record of financial transactions that auditors and investigators can verify independently (Yli-Huumo et al., 2016). This capability reduces opportunities for fraud and enhances trust in financial reporting. Additionally, block chain smart contracts automate compliance and reporting processes, which further streamline auditing and reduce errors (Casino et al., 2019). Government ministries stand to gain from block chain adoption as it can improve transparency in public financial management, reduce corruption, and facilitate real-time monitoring of expenditures. However, challenges such as technological complexity, regulatory uncertainty, and infrastructural limitations remain obstacles to widespread implementation in the public sector, especially in developing regions.

Concept of Forensic Accounting

Forensic accounting is a specialized field within accounting that involves the application of investigative and analytical skills to examine financial records and



transactions in order to detect, prevent, and resolve fraud, disputes, and financial misconduct (Kranacher et al, 2011). Unlike traditional accounting, which focuses on preparing and reporting financial information, forensic accounting combines accounting, auditing, and investigative techniques to provide evidence that can be used in legal proceedings. This discipline plays a critical role in uncovering financial irregularities, quantifying economic damages, and supporting litigation in both criminal and civil cases. The scope of forensic accounting encompasses fraud detection and prevention, asset misappropriation investigation, financial statement analysis, and dispute resolution through expert testimony (Ogiriki & Appah, 2018). Forensic accountants utilize a wide array of tools, including data analytics, computer-assisted audit techniques, and digital forensics, to scrutinize complex financial data and trace illicit activities. Advancements in digital technology have enhanced forensic accounting capabilities, enabling practitioners to analyse vast volumes of electronic data more efficiently and uncover sophisticated fraudulent schemes (Alles, 2015)

Forensic accounting in the public sector is especially significant as government ministries and agencies often face heightened risks of corruption, embezzlement, and mismanagement of public funds. Effective forensic accounting practices promote transparency, accountability, and good governance by ensuring that financial resources are properly managed and that offenders are held liable. However, challenges such as inadequate training, limited technological adoption, and political interference can hinder the effectiveness of forensic accounting in many developing countries (Abdulrahman, 2019). Overall, forensic accounting serves as an essential mechanism for safeguarding public resources, reinforcing trust in financial management systems, and supporting the rule of law. Its evolving integration with digital technologies continues to reshape its impact, making it indispensable in contemporary efforts to combat financial crimes.

Concept of Fraud Detection and Prevention

Fraud detection and prevention are critical components within the domain of forensic accounting aimed at identifying fraudulent activities and implementing

measures to stop them before causing significant financial damage. Fraud detection involves the process of uncovering and recognizing irregularities or suspicious transactions that may indicate fraudulent behaviour, whereas fraud prevention focuses on establishing systems, controls, and procedures to deter fraud from occurring in the first place (Olutayo et al, 2021). Modern fraud detection increasingly relies on advanced digital technologies such as data analytics, artificial intelligence (AI), and machine learning algorithms, which can sift through large datasets to identify anomalies and patterns consistent with fraudulent schemes. Preventive measures include strong internal controls, segregation of duties, employee training, and continuous monitoring of financial activities. Effective fraud prevention reduces organizational losses and protects stakeholders' interests by creating a culture of integrity and accountability (Kokina & Davenport, 2017).

Concept of Litigation Support and Evidence Gathering

In the field of forensic accounting, litigation support refers to the specialized assistance provided by forensic accountants to legal practitioners during financial dispute resolution and criminal investigations. This includes the preparation of expert reports, damage assessments, analysis of financial transactions, and courtroom testimony aimed at simplifying complex financial data for judges, lawyers, and juries. Forensic accountants serve as objective financial experts who help quantify losses, assess liability, and trace fraudulent transactions in both civil and criminal cases. Their contributions are pivotal in matters such as embezzlement, financial misrepresentation, tax evasion, and contractual disputes (Kranacher et al, 2011). The primary value of litigation support lies in its ability to translate technical accounting and audit findings into legally admissible evidence that meets the standards of courtroom scrutiny. In the public sector, litigation support ensures that fraud and corruption uncovered through forensic investigations are properly documented and presented to facilitate legal accountability and recovery of public funds.

Evidence gathering, on the other hand, is the systematic process of identifying, collecting, preserving, and



analysing financial and digital data relevant to an investigation. In forensic accounting, evidence must meet the legal thresholds of authenticity, accuracy, and admissibility. This process often involves reviewing bank records, invoices, email communications, transaction logs, and enterprise resource planning (ERP) systems. In digital contexts, it also includes forensic imaging, metadata analysis, and maintaining an unbroken chain of custody (Olutayo, 2021). As fraudsters increasingly exploit digital platforms, the emphasis on digital evidence gathering has grown significantly. Tools such as data analytics software block chain auditing systems and computer-assisted audit techniques (CAATs) have become critical in uncovering hidden patterns, unauthorized transfers, and financial misstatements. Proper evidence gathering not only strengthens legal cases but also ensures transparency, protects the rights of the accused, and upholds the integrity of the judicial process.

Empirical Reviews

Ogiriki and Appah (2018) examined the influence of Forensic Accounting and Auditing Techniques on Fraud in the Nigerian Public Sector. The study sought to empirically analyse how different forensic accounting and auditing techniques affect fraud detection, investigation, and prevention. An ex-post facto research design was adopted, and data were obtained through a validated and reliable structured questionnaire. Regression analysis was used for hypothesis testing. The findings showed a strong and significant relationship between forensic accounting and auditing tools and fraud reduction in Nigeria's public sector. The study concluded that forensic auditing remains one of the most effective mechanisms for combating public sector fraud. The authors recommended the provision of more fraud-reporting channels, improvement of whistleblowing systems, and the establishment of forensic accounting units in government institutions. The study made a notable contribution by expanding scholarly understanding of forensic accounting techniques in developing economies.

Olutayo et al. (2021) analysed Forensic Accounting and Fraudulent Activities in Nigeria, focusing on litigation support services and expert witnessing roles played by

forensic accountants. Primary data were obtained from a population of 8,158 staff of MDAs in Ondo State, from which 381 respondents were selected using Taro Yamane's formula. Linear regression analysis was employed to test the hypotheses. Results indicated that litigation support and expert witnessing significantly reduced fraudulent activities, demonstrating their effectiveness as anti-fraud measures. The study concluded that forensic accounting tools play a vital role in promoting financial discipline and transparency. It was recommended that organizations seeking to curb fraud should routinely engage forensic accounting professionals.

Obidike and Onuora (2025) empirically explored Digital Transformation and Public Sector Accountability in Nigeria. Using federal government MDAs in Anambra State as a study focus, the research examined how government digital systems enhance transparency. Two hypotheses were evaluated, adopting an institutional modernization theory and survey design. Data were collected via questionnaires, and Friedman's Two-Way ANOVA was used for statistical estimation. Findings showed that the adoption of IPPIS and TSA significantly improved accountability and transparency at a 5% significance level. The study concluded that IPPIS reduced payroll fraud while TSA enhanced the clarity of financial transactions. It recommended that government should enforce nationwide adoption of IPPIS and TSA across all federal, state, and local government MDAs to further strengthen transparency in public fund administration.

Abdulrahman (2019) conducted a conceptual study on Forensic Accounting and Fraud Prevention in the Nigerian Public Sector. The work reviewed selected literature within and outside Nigeria to explore the role of forensic accounting in curbing fraud in government institutions. The study aimed to determine how forensic accounting contributes to fraud prevention in the public sector. Relying solely on secondary data sourced through content analysis, the study revealed that the application of forensic accounting techniques has a significant positive impact on fraud prevention efforts. The paper emphasized the need for expanded application of forensic accounting tools in government operations. It further recommended the establishment of a robust legal framework to strengthen



enforcement and ensure that relevant agencies effectively comply with existing financial regulations.

Kadir and Sanni (2024) investigated the moderating role of institutional quality in the relationship between Digitalized Accounting Practices and Accountability in Nigerian MDAs. With increasing adoption of digital financial systems, the study sought to determine how institutional quality influences their effectiveness. A survey research method was used to collect data from 233 auditors from the Office of the Auditor-General of the Federation. Structural Equation Modelling (SEM) was employed for analysis. Results revealed that institutional quality significantly moderates the effect of digital accounting systems on accountability in MDAs. The authors concluded that accountability outcomes depend not only on technology adoption but also on the strength of institutional structures. They recommended that the National Assembly develop regulatory frameworks to guide the integration of digital accounting platforms and enhance reliability, standardization, and compliance.

Research Methodology

This study adopts a descriptive survey research design, which is appropriate for collecting data on the adoption and impact of digital technologies in forensic accounting practices across public sector ministries. This design enables the researcher to understand patterns, attitudes, and relationships between the variables under study in a real-world setting. The population comprises accountants, internal auditors, forensic accounting professionals, IT

officers, and finance managers within selected government ministries in Rivers State. These ministries include the Ministry of Finance, Ministry of Education, Ministry of Health, Ministry of Works, and Ministry of Budget and Economic Planning. A sample size of 150 respondents was selected using purposive sampling to ensure that only individuals with relevant knowledge of digital technologies and forensic accounting are included. Stratified sampling was applied to ensure adequate representation across various ministries and job roles. Data was collected using a 5-point Likert scale structured questionnaire. Validity and Reliability of instrument was done with the aid of Cronbach’s Alpha for internal consistency, with values ≥ 0.70 considered acceptable and the data collected were analysed using Descriptive statistics, Correlation and Multiple regression analysis aided by Statistical Package for the Social Sciences (SPSS

Data Presentation, Analysis and Discussion of Findings

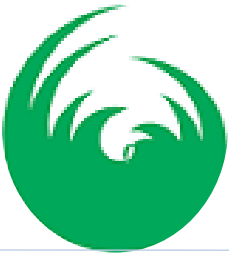
This presents, analyses, and discusses the data collected from selected government ministries in Rivers State regarding the impact of digital technologies on forensic accounting. The presentation is structured around descriptive statistics for inferential analysis using Pearson correlation and multiple regression, and discussion in line with existing empirical studies and theoretical expectations. Out of 150 administered questionnaires, 142 were returned and found valid for analysis, representing a 94.7% response rate, which is considered sufficient for statistical inference.

Descriptive Statistics of Variables

Variable	N	Min	Max	Mean	Std. Dev.	Skewness	Kurtosis
Digital Audit Tools	142	4.05	4.27	4.14	0.74	0.49	-1.50
Cybersecurity Technology	142	4.12	4.24	4.18	0.66	~0.30	-2.00
Blockchain Technology	142	2.83	3.97	3.40	0.80	~0.30	-2.00
Fraud Detection & Prevention	142	4.09	4.26	4.18	0.71	0.00	-2.00
Litigation Support & Evidence Gathering	142	4.18	4.31	4.25	0.64	~0.00	-2.00

Respondents generally agree that digital audit tools are widely used and improve the accuracy of fraud investigations. Respondents strongly affirm the use of

cyber security technologies to protect financial integrity in ministries. While block chain is perceived as useful, its actual application in ministries is still limited



Correlation Analysis

Variables	Digital Audit Tools	Cyber security	Block chain	Forensic Accounting
Digital Audit Tools	1.000	0.611**	0.492**	0.733**
Cyber security	0.611**	1.000	0.514**	0.702**
Block chain	0.492**	0.514**	1.000	0.639**
Forensic Accounting	0.733**	0.702**	0.639**	1.000

***Significant at $p < 0.01$ level (2-tailed).

All dimensions of digital technologies show a strong and significant positive correlation with forensic accounting.

Regression Analysis

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of Estimate	Durbin-Watson
1	0.788	0.621	0.612	0.4162	2.010

ANOVA Table

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	58.102	3	19.367	76.32	0.000**
Residual	35.423	138	0.257		
Total	93.525	141			

Source: SPSS OUTPUT, 2025

R = 0.788: Strong positive correlation between the independent variables and forensic accounting. **R² = 0.621:** About 62.1% of the variability in forensic accounting is explained by the model. **Adjusted R² = 0.612:** Adjusted for sample size and number of predictors. **Standard Coefficients Table**

Predictor	B	Std. Error	Beta	T	Sig.
(Constant)	1.034	0.222		4.66	0.000
Digital Audit Tools	0.411	0.091	0.398	4.52	0.000
Cyber security Tech	0.379	0.087	0.363	4.36	0.000
Block chain Tech	0.294	0.078	0.286	3.77	0.000

Source: SPSS OUTPUT, 2025

The regression model is significant ($p < 0.01$), and 62.1% of the variance in forensic accounting effectiveness is explained by digital technologies. All three predictors digital audit tools, cyber security, and block chain are statistically significant, with digital audit tools being the strongest predictor.

Discussion of Findings

Error: Indicates average distance between observed and predicted values. **F = 76.32, Sig. = 0.000:** The model is statistically significant. **Durbin-Watson = 2.010:** Indicates no autocorrelation (ideal range is 1.5–2.5).

Digital Audit Tools: The findings confirm that digital audit tools significantly enhance the forensic accounting process by improving fraud detection, accuracy, and audit speed. This aligns with Obidike and Onuora,(2025) who found similar outcomes in Nigerian ministries and international government institutions.

Cyber security Technology: Cyber security was strongly linked to safeguarding financial data and preventing fraud.



This supports Kadir and Sanni, (2024) who emphasized the importance of digital protection in public sector accounting systems.

Block chain Technology: Although awareness of block chain is high, its implementation remains low suggesting room for growth. This matches Casino et al, (2019) who found block chain underutilized in public sectors globally, despite its potential to revolutionize audit trails.

Conclusion and Recommendations

This study set out to examine the impact of digital technologies on forensic accounting practices in government ministries within the public sector of Rivers State, Nigeria. The focus was on three key dimensions of digital technologies: digital audit tools, cyber security technologies, and block chain technologies and how they influence forensic accounting outcomes, particularly in terms of fraud detection and prevention, as well as litigation support and evidence gathering. The findings revealed that digital technologies have a significant and positive effect on forensic accounting in public sector institutions. Digital audit tools emerged as the most influential factor, offering enhanced capacity for real-time monitoring, anomaly detection, and data analysis. Cyber security technologies were also found to be highly effective in safeguarding sensitive financial data and preventing digital fraud. Although block chain technology was the least adopted among the three, it showed substantial potential to improve transparency and traceability in financial records. Furthermore, the study confirmed that the integration of these digital technologies enhances the ability of public sector forensic accountants to detect and prevent fraud, support legal proceedings, and collect admissible financial evidence. The overall effectiveness of forensic accounting processes particularly fraud detection and litigation support was significantly enhanced by digital technologies

Based on the study's findings, it is recommended that government ministries institutionalize the use of digital audit tools such as CAATs and automated data analytics to enhance fraud detection and minimize manual inefficiencies. Ministries should also strengthen cyber security infrastructure through investments in firewalls,

encryption, secure cloud storage, and multi-factor authentication to protect financial data. Given its low adoption, block chain technology should be piloted and gradually scaled for transaction recording, procurement monitoring, and audit trail management. Continuous training and capacity building should be provided for forensic accounting and public finance personnel to improve proficiency in digital tools and systems. In addition, the government should develop and enforce policies that mandate the use of digital technologies in audit and forensic activities, with clear standards for data security and digital reporting. Finally, independent forensic accounting units with strong digital expertise should be established within ministries to support timely fraud detection and effective litigation.

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SECTION A

Please tick (✓) the appropriate option.

- 1. Gender: Male Female
- 2. Age Range: 20-29 30-39 40-49 50 and above
- 3. Highest Educational Qualification: ND/NCE HND/BSc MSc/MBA PhD Other:
- 4. Current Position: Accountant Internal Auditor IT Officer Forensic Accountant Finance Manager Other: _____
- 5. Years of Work Experience: Less than 5 years 5-10 years 11-15 years Above 15 years
- 6. Ministry/Department Name: _____

SECTION B:

Please indicate your level of agreement with the following statements using the scale below: Strongly Disagree (SD) = 1 Disagree (D) = 2 Neutral (N) = 3 Agree (A) = 4 Strongly Agree (SA) = 5

Digital Audit Tools

Statement	SD	D	N	A	SA
1. My ministry uses computer-assisted audit tools (CAATs).					
2. Audit software enhances the accuracy of financial investigations.					
3. We use data analytics to detect unusual or suspicious transactions.					
4. Digital audit tools help in real-time auditing of financial data.					

Cyber security Technology



Statement	SD	D	N	A	SA
5. Sensitive financial data is protected by cyber security protocols.					
6. Our ministry uses firewalls, encryption, or secure systems.					
7. Cyber security practices reduce the risk of digital financial fraud.					
8. IT staff are trained in cyber security measures for financial systems.					

Block chain Technology

Statement	SD	D	N	A	SA
9. I am aware of the use of block chain in public financial processes.					
10. Block chain ensures transparency and integrity of transactions.					
11. The use of block chain improves traceability in financial records.					
12. Block chain has been integrated into audit or financial tracking.					

Fraud Detection and Prevention

Statement	SD	D	N	A	SA
13. Digital tools help detect financial fraud in our ministry.					
14. Forensic audits are used to investigate irregularities.					
15. Technology helps reduce fraud incidents in financial operations.					
16. Fraud detection methods have improved with the use of digital tools.					

Litigation Support and Evidence Gathering

Statement	SD	D	N	A	SA
17. Forensic accountants support legal actions in financial cases.					
18. Digital records serve as reliable evidence in litigation.					
19. Evidence gathering has improved with technology adoption.					
20. My ministry has used forensic findings in legal or disciplinary actions.					