SSR Journal of Economics, Business and Management (SSRJEBM)

Homepage: https://ssrpublisher.com/ssrjebm/

Volume 3, Issue 3, 2026 ISSN: 3049-0405

Digital Forensic Accounting and Fraud Control in Nigeria's Public Sector: An Assessment of Integrated Financial Management Systems (TSA, GIFMIS, IPPIS)

Amos Bashayi, MSc, ACTI, CNA

Department of Accounting, Nasarawa State University Keffi

Received: 15.02.2026 | **Accepted:** 16.03.2026 | **Published:** 20.03.2026

***Corresponding author:** Amos Bashayi, MSc, ACTI, CNA

DOI: *10.5281/zenodo.19124757*

Abstract **Original Research Article**

The Treasury Single Account (TSA), Government Integrated Financial Management Information System (GIFMIS), and Integrated Payroll and Personnel Information System (IPPIS) are Nigeria's integrated public financial management systems. This study looks at how digital forensic accounting can improve fraud control within these systems. These digitalised platforms have achieved notable quantifiable results since their post-2020 operational maturity, including as the eradication of 70,000 ghost workers through IPPIS, waste reduction of N126 billion through GIFMIS, and savings of over N10 trillion through TSA. However, ongoing high-profile fraud cases like the N109 billion alleged diversion involving a suspended Accountant-General of the Federation, show that digitisation by itself does not provide protection against financial crimes.

This study makes the case that integrating strong digital forensic accounting frameworks is essential to these systems' effectiveness. The paper highlights deficiencies in investigation capability, data analytics scope, and forensic expertise as critical weaknesses based on current empirical research and official documents. To institutionalise proactive digital forensic oversight, it suggests strategic investments in forensic training, increased use of big data analytics, improved inter-agency database integration, and legislative changes. The results add to the current discussion about using technology to improve public financial accountability in poor nations.

Keywords: Digital forensic accounting, TSA, GIFMIS, IPPIS, fraud control, public sector, Nigeria.

Copyright © 2026 The Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution-Non Commercial 4.0 International License (CC BY-NC 4.0).

1. INTRODUCTION

Over the past ten years, three major digitisation initiatives have significantly changed Nigeria's public financial management: the Integrated Payroll and Personnel Information System (IPPIS), the Government Integrated Financial Management Information System (GIFMIS), and the Treasury Single Account (TSA). The long-standing issues of fragmentation, opacity, and leakage in government financial operations were intended to be addressed by these technologies. The platforms claimed to bring up a new era of accountability and transparency by centralising spending controls, automating

payroll procedures, and unifying government income.

Indeed, the quantifiable results have been spectacular. According to official figures, since its establishment, TSA has prevented over N10 trillion in revenue leakages. While IPPIS has successfully removed over 70,000 ghost workers from the federal payroll, resulting in large recurring spending savings, GIFMIS has helped reduce government waste by over N126 billion. These digital infrastructures were useful for social intervention programs during the COVID-19 pandemic by enabling the distribution of N24 billion in conditional cash payments to disadvantaged households.

However, there is a parallel story of persistent and sophisticated fraud that coexists with these accomplishments. The suspended Accountant-General of the Federation, Ahmed Idris, and his co-defendants were accused of a N109 billion fraud in 2022 by the Economic and Financial Crimes Commission (EFCC). Crucially, investigations showed that the accused allegedly leveraged control flaws in TSA, GIFMIS, and IPPIS to corrupt the very systems intended to guarantee responsibility for personal gain. The paradox of high-value fraud coexisting with major digitisation achievements raises important concerns regarding the effectiveness of current regulatory measures and the role of digital forensic accounting in protecting public money.

The following research questions are addressed in this paper: How much has fraud control been improved by Nigeria's digitalised public finance management systems? What weaknesses still exist despite digitisation? How can the integrity of TSA, GIFMIS, and IPPIS be strengthened through the strategic application of digital forensic accounting? The goal is to offer a thorough analysis of the existing situation and make practical suggestions for practice and policy.

2. CONCEPTUAL AND THEORETICAL FRAMEWORK

2.1 Digital Forensic Accounting Defined

Traditional forensic accounting methods and digital investigation approaches come together to form digital forensic accounting. It includes identifying, storing, analysing, and presenting financial evidence in digital formats that are appropriate for court cases. Digital forensic accounting takes an investigative approach, looking for hidden transactions, unusual patterns, and deliberate misconduct, in contrast to traditional auditing, which concentrates on compliance and material misstatement.

Computer forensics, which examines digital devices and networks, data analytics, which finds anomalous patterns in large datasets, investigative accounting, which tracks illicit fund flows, and litigation support, which presents evidence in court, are just a few of the specialised skills included in the discipline. Digital forensic accounting offers the means to assess the integrity of integrated financial management systems as well as their outputs.

2.2 Nigeria's Integrated Financial Management Systems

Consolidation and efficient use of government financial resources are made possible by the Treasury Single Account (TSA), a single structure of government bank accounts. TSA, which was completely implemented starting in 2015, guarantees that all government revenues are deposited into a single account or a group of linked accounts at the Central Bank of Nigeria, doing away with the earlier practice of keeping many disparate accounts spread across several banks. In addition to lowering borrowing costs and improving cash management, this consolidation has made government cash situations visible in real time.

A thorough platform for managing spending and creating budgets is the Government Integrated Financial Management Information System (GIFMIS). It unifies accounting, payment processing, commitment controls, budget preparation, and procurement into a single digital environment. By guaranteeing that payments are only made in accordance with approved procurement procedures and budgeted appropriations, GIFMIS maintains expenditure controls.

Payroll processing and personnel records are centralised for all federal government employees

through the Integrated Payroll and Personnel Information System (IPPIS). IPPIS was created to do away with duplicate payments, ghost workers, and unauthorised compensation modifications by keeping a single database of employee records and automating wage computations. The system has been gradually expanded to include tertiary institutions, departments, ministries, and organisations.

2.3 Theoretical Underpinnings

Two complementary theoretical stances are used in this investigation. The connection between principals (people and the government) and agents (public officials) can be understood via the perspective of agency theory. Agent opportunism, including fraud and embezzlement, is made possible by information asymmetry and conflicting interests. Monitoring tools to match agent activity with principal interests include digital systems and forensic accounting.

The circumstances under which people commit fraud are explained by the fraud triangle theory (pressure, opportunity, and rationalisation). By eliminating discretion, mandating segregation of roles, and establishing audit trails, digitisation projects mainly focus on the opportunity dimension. Opportunities still exist, though, when digital controls are poorly made, insufficiently monitored, or purposefully evaded. This is addressed by digital forensic accounting, which finds and investigates lingering chances that fraudsters take advantage of.

3. ACHIEVEMENTS OF DIGITISATION: EVIDENCE OF PROGRESS

Nigeria's digital banking systems have developed since 2020, and there is mounting proof of their beneficial effects. The National Commissioner of the Nigeria Data Protection Commission emphasised that the TSA has saved more than N10 trillion since its founding at the Nigeria e-government summit in 2025. These savings would have gone to commercial bank accounts, where they might have earned interest for banks instead of helping the treasury. GIFMIS's improved commitment controls and budget supervision have helped rationalise spending. According to reports, the system's capacity to monitor appropriations and impose spending caps has cut waste by N126 billion. This is consistent with studies from around the world showing that digital public services can deliver services up to 40% faster than manual ones, with a speed difference of 74%.

Perhaps the most measurable accomplishments are those of IPPIS. The technology has removed about 70,000 ghost workers from the federal payroll by keeping a consolidated personnel database with biometric verification. This results in immediate wage savings as well as the removal of related pension obligations and other benefits that would have eventually accrued to non-existent employees.

These systems' commitment to anti-corruption initiatives has been recognised by the Independent Corrupt Practices Commission (ICPC). "The role of IPPIS, GIFMIS, TSA, Open Treasury Portal, establishment of Nigerian Financial Intelligence Unit, and the private sector-initiated Bank Verification Number has contributed in no small way to reducing corruption," the ICPC Chairman stated in a 2022 speech.

These accomplishments show that, when done correctly, digitisation may result in significant financial gains. But as the following section shows, technological infrastructure is not enough to completely eradicate fraud.

4. PERSISTENT VULNERABILITIES: THE LIMITS OF DIGITISATION

4.1 The Idris Case: Compromising the Systems

Narratives of digitisation success are starkly contrasted with the fraud claims against Ahmed Idris and his co-defendants, who are accused of misappropriating N109 billion while holding the position of Accountant-General of the Federation. The accused took use of their positions to influence the very mechanisms intended to guarantee accountability, according to EFCC findings.

The method of operation that was made public during court hearings shows that digital

restrictions can be sophisticatedly circumvented. Allegedly, money was transferred from government accounts to a technical assistant's business, then changed to foreign currency and given to several beneficiaries, including a former state governor and deputy governor. Crucially, the audit trails produced by TSA and GIFMIS provided the evidence required to recreate the diversion, and the inquiry tracked these flows not despite the digital systems but through them.

This example highlights a basic idea: while digital systems generate records, they do not stop authorised individuals from starting fraudulent transactions. Digital infrastructure can become a conduit for fraud rather than a barrier when people with authorised system access band together to circumvent protections or when supervisory oversight is inadequate.

4.2 Systemic Vulnerabilities

Numerous enduring weaknesses in Nigeria's public financial management systems have been found by recent research. According to a 2025 study on forensic accounting in the public sector, digital forensics and data analytics by themselves might not have the same effect without more breadth and integration, even though investigative accounting demonstrates statistical relevance in reducing fraud. According to the report, expanding the use of data analytics could help reduce fraud more successfully because it is significant at a 10% level.

Despite increased knowledge, implementation issues still exist, according to another study looking at forensic accounting practices in Nigerian public sector organisations. These include resistance from powerful interests, insufficient forensic infrastructure, and a shortage of competent labour. Approximately 68% of the variance in fraud management outcomes was explained by the regression model in that study, and computer forensics and investigative accounting were critical in identifying digital financial crimes. Compatibility is still a major problem. Databases related to health, education, taxes, and pensions frequently function in silos, which results in effort duplication and reconciliation gaps that fraudsters can take advantage of. Inconsistencies that could point to fraud go unnoticed in the absence of smooth data exchange between systems.

4.3 Trust and Privacy Concerns

The efficacy of digital systems depends on citizen trust, but trust is still brittle. The Corporate Affairs Commission's 2022 attempt to register small firms at no cost was greeted with opposition from the public, who questioned the government's intentions for gathering data. Given past instances of data breaches affecting billions of records worldwide, this mistrust is not unjustified.

A legal basis for data protection is provided by the Nigeria Data Protection Act 2023, which ensures citizens' rights to object to automated decisions, withdraw consent, and correct data. But as proponents of digital rights point out, "the law is a step forward, but Nigerians don't yet feel protected." Trust will stay low until we witness agencies being penalised for violations.

5. DIGITAL FORENSIC ACCOUNTING: BRIDGING THE GAP

5.1 Beyond Detection: Proactive Forensic Oversight

Passive digitization's drawbacks point to the necessity of proactive forensic integration. Forensic accounting should be included into the planning and functioning of financial systems rather than being an afterthought used exclusively in response to fraud claims. This method, which could be called "forensic-by-design," guarantees that systems include elements that make further inquiry easier, such as thorough logging, tamper-evident records, and analytics tools for anomaly identification.

This approach is supported by recent studies on big data analytics in forensic auditing. According to a 2025 study, big data technologies significantly and favourably affect forensic auditing and the detection of fraud and cybercrimes in Nigeria's public sector. To close the gap between conventional detection techniques and modern technological

approaches, the study suggested that the government take empirical data on the nature and causes of fraud into account when formulating policies.

5.2 Investigative Accounting as a Critical Component

Numerous research agree that investigative accounting abilities are crucial. Only investigative accounting showed statistical relevance in lowering electronic fraud, according to Oluyide's 2025 study on deposit money banks. In a similar vein, Nelson et al. discovered that investigative accounting was a significant predictor ($\beta = 0.362$, $p < 0.01$) and had a high positive association with fraud management ($r = 0.71$, $p < 0.01$). These results highlight the fact that technology enhances human investigative ability rather than replacing it. Digital systems produce data, but to analyse it, spot warning signs, carry out investigations, and create prosecutable evidence, skilled forensic accountants are required.

5.3 The Mediating Role of Analytics Skills

Analytics capabilities act as a mediator in the link between forensic expertise and the efficacy of fraud detection. Professionals with greater forensic experience are more likely to gain analytics skills, which in turn improve the efficacy of fraud detection in systems like TSA and IPPIS, according to research involving 305 forensic accountants in federal institutions. This implies that investments in data analytics technologies and capabilities should be made concurrently with investments in forensic training.

5.4 Emerging Technologies: AI and Machine Learning

Artificial intelligence has the potential to revolutionise digital forensic accounting in the future. Forensic involvement quality is positively correlated with perceptual, cognitive, and decision-making intelligence, according to a 2025 study that looked at practitioners' and academics' perspectives. The report suggested that businesses make investments in AI capabilities, make sure forensic accountants are suitably credentialed to utilise AI, and have regulatory agencies examine regulations to promote responsible technology use. Large datasets can be analysed by machine learning algorithms to find anomalies—unusual transaction patterns, unexpected links between entities, or departures from historical norms—that human analysts would overlook. These systems could enable preventive interventions instead of reactive investigations by providing real-time or near-real-time fraud alerts when coupled with TSA, GIFMIS, and IPPIS data.

5.5 Database Integration and Real-Time Verification

The importance of integration is becoming increasingly recognised, as seen by recent initiatives. Launched in late 2025, the Code of Conduct Bureau's new digital asset declaration system will interface with several national databases, including as banking institutions, land registries, and the Corporate Affairs Commission. This makes it possible to automatically discover undeclared holdings and verify public officials' asset declarations in real time. "We will find assets in real time by integrating with available databases," the CCB Chairman clarified. The system will display all your properties and businesses, so you won't need to declare them.

Financial management systems can learn from this model. Inconsistencies suggestive of fraud might be automatically highlighted for inquiry if TSA, GIFMIS, and IPPIS data could be cross-referenced with other databases, such as bank verification numbers (BVN), tax records through Tax identity numbers (TIN), and company registrations.

6. CHALLENGES AND CONSTRAINTS

6.1 Skilled Manpower Shortage

Specialised skills are still lacking in Nigeria and are necessary for the successful implementation of digital forensic accounting. Even though the majority of participants in a 2025 study on

forensic accounting and financial crime in the public sector had dealt with fraud cases, only few said they had the necessary resources or expertise to apply forensic accounting techniques. Oversight agencies' capacity to effectively utilise the data produced by digital systems is hampered by this skills mismatch.

6.2 Inadequate Infrastructure

Many public sector organisations still lack adequate forensic infrastructure, which includes data analytics platforms, secure digital evidence labs, and forensic software tools. Even highly qualified investigators cannot function at their best without these fundamental tools.

6.3 Legal and Regulatory Gaps

Supportive legislative frameworks that make investigation and prosecution easier are necessary for forensic accounting to be effective. Inadequate legal foundations for prosecution, a lack of leadership backing, and opposition from powerful interests are some of the obstacles found in studies. In addition to obtaining evidence, the successful prosecution of financial crimes depends on judges' comprehension of digital evidence and prompt case processing.

6.4 Resistance to Change

Initiatives for digitisation frequently face opposition from those who stand to gain from opacity. People used to informal arrangements may be resistant to the shift to rule-based systems because the same controls that prevent fraud also limit discretion. This opposition may take the form of political pressure to erode regulations, intentional circumvention, or quiet noncompliance.

7. RECOMMENDATIONS

7.1 Strengthening Forensic Capacity

Investing in forensic accounting training for staff members in public financial management institutions should be a top priority for the government. This includes mainstream accountants, auditors, and financial officers who deal with TSA, GIFMIS, and IPPIS in addition to speciality forensic divisions. Both conventional investigative methods and cutting-edge digital tools, such as data analytics and AI applications, should be covered in training.

7.2 Expanding Data Analytics Scope

The discovery that data analytics exhibits potential relevance at broader scale raises the possibility that present applications are overly limited. Enterprise-wide analytics tools that can analyse transactions across all government agencies, spot fraud-related tendencies, and provide investigators with useful alerts should be purchased by agencies.

7.3 Enhancing Database Integration

Because government databases are dispersed, there are chances for fraud due to inconsistent data. Comprehensive verification and anomaly detection would be made possible by a coordinated database integration strategy that links TSA, GIFMIS, and IPPIS with tax records, business registrations, land records, and banking data. An example of this kind of connection is the asset declaration system used by the Code of Conduct Bureau.

7.4 Institutionalising Proactive Forensic Oversight

Instead of being saved for post-fraud investigations, forensic accounting ought to be integrated into the functional structure of financial management systems. This entails creating forensic review units within important organisations, obtaining forensic sign-off on major transactions, and requiring regular forensic audits of system controls.

7.5 Legal and Regulatory Reforms

The unique difficulties of digital evidence and forensic investigation should be considered when updating legal frameworks. This entails making digital evidence admissibility rules clearer, bolstering whistleblower rights, and

guaranteeing that anti-corruption organisations have the authority to access digital material. Regulatory organisations ought to create guidelines for forensic accounting certification and practice.

7.6 Building Public Trust

Citizens' trust is necessary for sustainable digitalisation. To resolve privacy issues, agencies should interact with civil society, show accountability through visible enforcement measures, and openly describe their data protection procedures. The impact of the Nigeria Data Protection Act 2023 would depend on how it is implemented and enforced.

8. CONCLUSION

Nigeria has made great strides toward accountability and openness with its digital public financial management systems, including TSA, GIFMIS, and IPPIS. The measurable cost savings and increased productivity show how technology can revolutionise government operations. But the continued existence of high-value theft, such as the N109 billion purported diversion involving senior officials, shows that digitalisation is not enough on its own.

The gap between technology infrastructure and efficient fraud control is filled by digital forensic accounting. Forensic accountants can use the audit trails produced by digital systems to find irregularities, track illegal flows, and construct evidence cases for prosecution by fusing their investigative expertise with data analytics capabilities. According to the data examined in this study, the fraud-control potential of current systems can be greatly increased by making investments in forensic capability, broadened analytics scope, database integration, and proactive supervision frameworks.

Policymakers, anti-corruption organisations, professional associations, and development partners must continue to be committed to the future. It calls for changes in public institutions' cultures, legal reforms, and human capacity development in addition to technical advancements. If this project is successful, Nigeria will be positioned as a pioneer in using digital technologies to maintain the integrity of the public sector, with lessons that may be applied to other developing nations dealing with comparable issues.
Building systems that are both resilient and efficient is crucial as the country continues its digital transformation journey. These systems must be able to secure public resources from individuals who would misuse them for personal benefit in addition to executing transactions. In Nigeria's era of integrated financial management, digital forensic accounting presents both opportunities and challenges.

REFERENCES

Adebowale, I. O. (2025). Forensic accounting and financial crime in Nigeria public sector.

[Unpublished project]. Bamidele Olumilua University of Education, Science and Technology, Ikere Ekiti.

Economic and Financial Crimes Commission. (2022, July 28). N109bn fraud: How suspended AGF

Idris compromised TSA, GIFMIS, IPPIS for personal gains. EFCC News. https://www.efcc.gov.ng/efcc/news-and-information/news-release/8338-n109bn-fraud-how-suspended-agf-idris-compromised-tsa-gifmis-ippis-for-personal-gains

Ibrahim, K. F. A., & Ademu, S. O. (2025). Artificial intelligence and the future of digital forensic

engagements in Nigeria: Perceptual evidence from practitioners and academics. *International Journal of Research and Innovation in Applied Science, 10*(4), 156-175.

Kabara, A. S., & Aliyu, F. M. (2025). The impact of big data analytics in forensic auditing and

prevention and detection of fraud and cyber-crimes in the Nigerian public sector. *International Journal of Research and Innovation in Social Science, 9*(11), 1017-1033.

Nelson, A., Lucky, O., Bukola, A. U., & Oludami, A. O. (2025). Forensic accounting practice and fraud management in Nigeria public sector entities. *Journal of Information Systems Engineering and Management*.

New Telegraph. (2023, March 22). Cashless policy: Leveraging technology to detect, curb fraud. *New Telegraph*. https://newtelegraphng.com/cashless-policy-leveraging-technology-to-detect-curb-fraud/

Oluyide, S. E. (2025). The impact of forensic accounting techniques in mitigating electronic fraud in Nigeria's deposit money banks. *Journal of Forensic Accounting Profession*, *5*(1), 43-63. https://doi.org/10.2478/jfap-2025-0003

Ripples Nigeria. (2025, November 26). CCB unveils digital asset declaration system to end 'hurriedly filled' paper process. *Ripples Nigeria*. https://www.ripplesnigeria.com/ccb-unveils-digital-asset-declaration-system-to-end-hurriedly-filled-paper-process/

Umeh, J. (2025, October 8). E-govt: Nigeria @ crossroads, saves billions, risks trust. *Vanguard*. https://www.vanguardngr.com/2025/10/e-govt-nigeria-crossroads-saves-billions-risks-trust/