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Effect of Procurement Fraud Detection and Prevention on Organizational Integrity in Public Sector Organizations in Nigeria

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Abstract

This study examines the effect of procurement fraud detection and prevention on organizational integrity within public sector organizations in Nigeria. Specifically, it investigates the impact of document examination, segregation of duties, and whistleblower mechanisms on organizational integrity. Using a survey research design, the study targets 844 chartered accountants with forensic certifications and executive management staff across 10 prominent public sector organizations in Nigeria, all with significant procurement activities. A stratified sampling technique was employed, yielding a sample size of 271 respondents determined by the Taro Yamane formula. Data were collected through a Likert scale questionnaire and analyzed using multi-linear regression to assess the relationship between document examination, segregation of duties, and whistleblower mechanisms (independent variables) and organizational integrity (dependent variable). Findings reveal that all three mechanisms significantly and positively influence organizational integrity, with an overall model fit of $R^2 = 0.83$. Document examination exhibited a positive impact ($\beta = 0.30, p < 0.05$), highlighting its role in reducing fraud risks through transparency in procurement processes. Segregation of duties showed a strong effect ($\beta = 0.35, p < 0.05$), suggesting that delineating responsibilities limits fraud opportunities. Similarly, whistleblower mechanisms ($\beta = 0.31, p < 0.05$) were found to foster a safe environment for reporting unethical behavior, thereby enhancing integrity. The study concluded that robust document examination, stringent segregation of duties, and effective whistleblower systems are essential to safeguarding organizational integrity in Nigeria's public sector. It contributes to knowledge by emphasizing these mechanisms as critical elements in fraud prevention. It recommends that public sector organizations enhance staff training on document examination, strictly enforce role boundaries, and establish anonymous whistleblower channels to encourage ethical practices.

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These measures could strengthen integrity frameworks, reducing fraud risks and enhancing public trust in Nigerian public institutions.

Keywords: document examination, organizational integrity, procurement fraud, public sector, whistleblower mechanisms

Introduction

Organizational integrity is essential for the global public sector, since it promotes trust, efficiency, and ethical governance (Kyambade & Namatovu, [2025](#)). Robust procurement fraud detection and prevention procedures are crucial for preserving integrity, guaranteeing that public resources are allocated with honesty and accountability (Yanuarisa et al., [2025](#)). Globally, public sector companies encounter significant obstacles in creating infallible mechanisms to avoid procurement fraud, a phenomenon that frequently compromises institutional integrity and diminishes public trust (Rutaba, [2025](#)). Procurement fraud encompasses any fraudulent activities within procurement processes, including bid rigging, collusion, and price inflation, which undermine transparency, and result in significant financial losses (Priyadi et al., [2022](#)). The World Economic Forum ([2020](#)), estimates that more than 10% of worldwide public sector expenditure is squandered due to procurement fraud, highlighting the necessity for efficient detection and prevention measures. In Nigeria, as in other developing nations, procurement fraud substantially impacts public sector entities, leading to inefficiencies and ultimately obstructing sustainable growth (Igwe et al., [2021](#)). The implementation of whistleblower procedures, segregation of roles, and document scrutiny can be essential in identifying and mitigating fraud, thus, bolstering organizational integrity and fostering ethical governance (World Economic Forum, [2020](#)).

In Nigeria, public sector firms persistently grapple with upholding organizational integrity due to widespread procurement fraud, which intensifies inefficiencies and heightens ethical dilemmas (Salawu et al., [2023](#)). The susceptibility of procurement systems to manipulation has enduring consequences for public faith in the government (Jajere et al., [2025](#)). Procurement fraud impedes national development by misappropriating funds intended for social welfare programs, infrastructure, and key services. This misallocation adversely affects citizens' welfare and undermines Nigeria's potential for economic growth (Adam et al., [2024](#)). Notwithstanding the creation of anti-corruption bodies and regulatory

frameworks, the widespread occurrence of procurement fraud has revealed deficiencies in current fraud detection and prevention systems (Kalevor et al., [2024](#)). Consequently, tackling procurement fraud in Nigeria is essential for improving organizational integrity, which can subsequently enhance service delivery and public trust. Implementing sophisticated fraud prevention strategies, including whistleblower systems, duty segregation, and document scrutiny, can enhance the public sector's defenses against fraudulent operations, hence, fostering a more accountable governance framework (Vutumu et al., [2025](#)).

A major issue undermining organizational integrity in Nigeria's public sector is the manipulation of procurement processes to benefit particular bidders, frequently leading to bid rigging (Muhammed et al., [2022](#)). Bid rigging transpires when officials conspire with suppliers to prearrange the results of a procurement procedure, undermining competitive bidding and resulting in escalated expenses. Such tactics undermine organizational integrity by fostering corrupt collaborations between private and public entities, so detracting from the public sector's responsibility to uphold fairness and accountability. Implementing a whistleblower mechanism might facilitate the identification and reporting of bid rigging occurrences, since employees or third parties knowledgeable of the manipulation can confidentially disclose their observations. Implementing a whistleblower mechanism enables public sector companies in Nigeria to empower individuals to report fraud, facilitating the elimination of bid rigging and enhancing openness in procurement procedures (Yanuarisa et al., [2025](#)).

The other issue undermining organizational integrity in Nigerian public sector entities is the insufficient segregation of roles within procurement processes (Igwe et al., [2021](#)). The concentration of authority in a single official or department across various procurement stages - tendering, evaluation, and payment authorization - heightens the risk of fraud (Kalevor et al., [2024](#)). This lack of checks and balances enables individuals to exploit their roles for personal benefit, compromising organizational integrity (Onowu & Oludi, [2024](#)). Establishing segregation of tasks in procurement helps mitigate fraud risks by assigning different officials to separate phases of the procurement process. By delineating responsibilities, Nigerian public sector organizations can mitigate the risk of collusion and manipulation, as officials are unable to unilaterally sway procurement results. This strategy enhances accountability, fortifies internal controls, and cultivates trust

among stakeholders by assuring more transparent and equitable procurement methods (Abubakar & Okoli, [2025](#)). The lack of document scrutiny in procurement procedures facilitates procurement fraud, undermining organizational integrity.

Fraudulent individuals may manipulate procurement paperwork, exaggerate numbers, or alter specifications for their own advantage or that of their associates (Jejenywa et al., [2024](#)). This problem results in the acquisition of inferior products or services, as deceptive documentation obscures true specifications and expenses (Adam et al., [2024](#)). Comprehensive document checks enable public sector organizations to identify modifications, thereby safeguarding against fraud that could compromise organizational integrity (Hyatt & Gruenglas, [2023](#)). Document examination enables officials to authenticate and validate procurement data, ensuring that inconsistencies are swiftly recognized and corrected. By implementing this method, Nigerian public sector firms might enhance openness in procurement, hence, complicating the ability of individuals to manipulate papers for personal benefit (Adam et al., [2024](#)).

Kickbacks and bribes constitute a significant issue undermining the integrity of public sector organizations in Nigeria (Muhammed et al., [2022](#)). Procurement officers frequently solicit or accept bribes from vendors, granting contracts based on personal connections rather than merit or cost-effectiveness. This unethical approach skews procurement processes, leading to worse results for the firm and considerable public mistrust (Jejenywa et al., [2024](#)). Kickbacks obstruct equitable competition and impede the selection of competent contractors capable of providing quality goods and services (Ebekozi, [2019](#)). Establishing a whistleblower process can mitigate this issue by enabling insiders to report instances of bribery and kickback operations. By motivating individuals to report, public sector organizations in Nigeria can detect unethical activities and sanction those implicated, so reinforcing integrity and preventing future wrongdoing (Ebekozi, [2019](#)).

Ataka ([2024](#)), averred that ineffective oversight of procurement processes compromises organizational integrity within Nigerian public sector entities. Weak oversight processes can allow fraudulent activities, including exaggerated bills, improper purchases, and collaboration between officials and vendors, to remain undetected (Ojo-Agbo et al., [2022](#)). Inadequate oversight facilitates fraud and undermines public trust in the

organization's capacity to manage resources judiciously (Olujinmi, [2023](#)). The segregation of duties functions as an internal control to enhance oversight by necessitating the approval of different procurement phases by several persons (Adam et al., [2024](#)). Nigerian public sector organizations can enhance organizational integrity and mitigate the risk of undiscovered fraud by allocating tasks, ensuring that procurement activities are examined at every level (Ifejika, [2024](#)). The integrity of public sector enterprises in Nigeria is severely compromised by procurement fraud. Problems like bid rigging, inadequate segregation of roles, faked documentation, bribery, and phantom suppliers are prevalent, each undermining ethical norms and public trust. Whistleblower methods, segregation of roles, and document scrutiny are effective instruments that can mitigate these issues (Ojo-Agbotu et al., [2022](#)). These strategies enhance procurement procedures by promoting transparency, minimizing potential for fraud, and cultivating accountability. Implementing these anti-fraud methods will enhance the integrity of Nigerian public sector organizations, resulting in enhanced governance, superior service performance, and heightened public trust (Vutumu et al., [2025](#)).

Objectives of the Study

This study aims to examine the effect of procurement fraud detection and prevention on organizational integrity in public sector organizations in Nigeria. The specific objectives are to:

- Determine the effect of document examination on organizational integrity in public sector organizations in Nigeria.
- Examine the effect of segregation of duties on organizational integrity in public sector organizations in Nigeria.
- Evaluate the effect of whistleblower mechanisms on organizational integrity in public sector organizations in Nigeria.

Literature Review

Organizational Integrity

Organizational integrity has become a pivotal term in modern management literature, highlighting the ethical and moral aspects of company processes. Polowczyk ([2017](#)), asserts that organizational integrity is an organization's commitment to ethical principles and values in its

operations and decision-making processes. This definition underscores the necessity of congruence between an organization's articulated ideals and its actual actions, indicating that integrity is not solely a theoretical concept but a practical obligation that directs behavior within companies. Polowczyk's research demonstrates that integrity is fundamental for establishing trust with stakeholders, implying that firms deficient in integrity may encounter considerable reputational problems. Akram and Abbas (2024), describe organizational integrity as the congruence of an organization's principles, beliefs, and behaviors, resulting in a cohesive organizational identity. They contend that integrity encompasses not only ethical adherence but also a dedication to transparency, accountability, and social responsibility. This comprehensive viewpoint indicates that organizational integrity surpasses legal and ethical standards, necessitating organizations to proactively implement measures that foster social welfare and sustainability (Olujinmi, 2023). Consequently, integrity is regarded as an essential quality for firms aiming for enduring success and legitimacy in a more scrutinized corporate landscape (Mabior & Mabior, 2024).

A new study by Selvakumar (2025), highlights that organizational integrity is essential for cultivating a positive workplace culture. It is characterized as the collective dedication of personnel within the business to maintain ethical standards and foster honesty in both internal and external relationships. Employees that regard their organization as possessing integrity exhibit increased dedication, hence fostering a more unified work environment. This viewpoint emphasizes the significance of integrity in influencing both organizational policy and the daily conduct of individuals within the organization, hence highlighting the necessity of a collective dedication to ethical standards. Conversely, Reddy et al. (2025), examine organizational integrity within the framework of risk management, characterizing it as a proactive strategy for recognizing and alleviating ethical hazards in an organization. They assert that integrity necessitates the implementation of systems and processes that embed ethical decision-making into the organizational architecture. This concept indicates that organizational integrity is not merely a reactive response to crises but a proactive strategy designed to integrate ethical issues into the fundamental operations of the business. By presenting integrity in this context, the authors emphasize the imperative for organizations to establish thorough frameworks that prioritize ethical behavior within their strategic goals.

Procurement Fraud Detection and Prevention

The detection and prevention of procurement fraud have received considerable focus in academic literature as businesses increasingly acknowledge the effects of fraudulent actions on their operations and financial well-being. Barker (2025), explains procurement fraud as any fraudulent behavior that yields an unjust advantage in the procurement process, frequently resulting in financial losses and reputational harm for enterprises. Their definition highlights the malevolent intent underlying fraudulent activities, which may encompass conspiracy, bid rigging, and deceptive billing. This fundamental comprehension positions procurement fraud as not only an administrative matter but a significant ethical and legal issue that requires systematic strategies for identification and prevention. Adebayo et al. (2024), define procurement fraud detection as the systematic identification of abnormalities and discrepancies in procurement activities that may signify fraudulent conduct. They emphasize the necessity of establishing comprehensive monitoring systems that utilize data analytics and technology to identify irregularities in procurement transactions. This concept emphasizes the proactive aspect of fraud detection, establishing it as an essential element of an organization's governance system. Lio et al. contend that efficient detection techniques are crucial for prompt action and reduction of potential fraud risks (Adebayo et al., 2024).

Labib et al. (2022), characterize procurement fraud prevention as the proactive strategies employed by businesses to reduce the probability of fraud in the procurement process. Their research delineates several measures, such as formulating explicit policies, implementing frequent training for procurement personnel, and cultivating a culture of honesty inside the firm. This definition underscores that prevention involves not only establishing barriers to fraudulent operations but also fostering an ethical environment that deters misbehavior. Labib et al. (2022), assert that an organization's dedication to ethical procedures and compliance is essential for effective fraud prevention. Ezeji (2024), defines procurement fraud detection and prevention as a comprehensive method that integrates technology, human oversight, and business culture. The efficacy of fraud detection and prevention techniques depends on the interaction between automated systems and employees' ethical consciousness. Their definition stipulates that firms must invest in sophisticated technology, such as machine learning and artificial intelligence, for fraud detection, while also

prioritizing training and ethical education for their workforce to establish a comprehensive strategy against procurement fraud (Ezeji, [2024](#)).

Specific Procurement Fraud in Nigeria

Procurement fraud in Nigeria, especially in contracts and procurement, constitutes a significant problem in the public sector, representing over 90% of corruption cases. This form of fraud entails the misappropriation of public funds in the procurement of products and services (Eze et al., [2025](#)). It may show in multiple forms, such as improper contract awards, breaches of the Public Procurement Act, and other transgressions (Jajere et al., [2025](#)). The Economic and Financial Crimes Commission (EFCC) has recognized it as a substantial threat to effective governance and the optimal utilization of public funds (Mohammed & Muslim, [2025](#)). For instance, misinformation suggests that contractors or suppliers provide inaccurate details regarding their qualifications, experience, or the quality of their goods and services, while irregular contract awards are instigated by bribery or other forms of influence, resulting in contracts being granted to unqualified or undesirable bidders. The violation of the Public Procurement Act occurs when proper procedures, such as open bidding, are not adhered to, resulting in unfair advantages or corruption. Additionally, invoicing for non-delivered goods involves contractors charging for goods or services that were never provided (Adjorlolo et al., [2025](#)). Furthermore, price inflation is instigated by the excessive pricing of goods or services, leading to the government incurring unnecessary expenditures (Oladimeji & Haddad, [2025](#)).

The ramifications of procurement fraud illustrate substantial financial losses, with estimates indicating that Nigeria suffers billions of dollars yearly owing to corruption and financial crimes within the public procurement sector (Njoku et al., [2025](#)). Procurement fraud impedes economic development by diverting funding from infrastructure, education, and other developmental initiatives, hence stunting economic progress (Tikum, [2025](#)). Corruption and fraud undermine public trust in government institutions and processes, resulting in cynicism and diminished faith in the system (Jajere et al., [2025](#)). The diversion of funds due to fraud undermines social infrastructure, resulting in a deterioration of essential services such as schools, hospitals, and roads.

Mitigating procurement fraud in Nigeria can be facilitated by enhancing oversight mechanisms, which entails the implementation of rigorous

systems to monitor and supervise procurement procedures, including independent oversight entities and more stringent enforcement of procurement legislation (Akininnyi et al., [2025](#)). Enhancing transparency and accountability is evident through the augmentation of procurement process transparency, the public accessibility of information, and the accountability of individuals for fraudulent actions, while fostering integrity involves encouraging ethical conduct among public service leaders and cultivating a culture of integrity within the public sector (Chizoba & Onuora, [2025](#)). Similarly, community involvement refers to the engagement of communities in overseeing procurement processes and ensuring accountability of officials for their actions, while social norms pertain to addressing societal expectations that may foster procurement fraud, such as the pressure to reciprocate or participate in corrupt practices (Abubakar & Okoli, [2025](#)). Thus, the Bureau of Public Procurement (BPP) serves as the regulatory authority tasked with ensuring compliance with the Public Procurement Act (Isah, [2025](#)). The Economic and Financial Crimes Commission (EFCC) is tasked with the investigation and prosecution of financial offenses, including procurement fraud (Akujuru, [2024](#)). The Independent Corrupt Practices and Other Related Offences Commission (ICPC) engages in the fight against corruption and the promotion of integrity within the public sector (Adam et al., [2024](#)).

Fraud Triangle Theory (FTT) to analyze pressure, opportunity, and rationalization in Nigerian procurement

FTT, which identifies pressure, opportunity, and rationalization as pivotal factors influencing fraud, can be employed to examine these elements within the framework of Nigeria's public procurement system (Jajere et al., [2025](#)). Pressure may arise from financial difficulties or a pursuit of personal advantage, opportunity may result from inadequate internal controls and insufficient accountability, and rationalization serves as a justification for unethical conduct. Pressure encompasses financial hardships that individuals may encounter, such as inadequate incomes or elevated living expenses, prompting them to choose unlawful methods to augment their income (Njoku et al., [2025](#)). The aspiration for personal gain signifies the attraction of rapid wealth or the chance to enhance one's fortune through corruption, serving as a potent motivator. Additionally, social pressure may compel individuals to partake in fraudulent activities to satisfy the demands or expectations of their social circles or superiors (Balogun et

al., [2025](#)).

Weak internal controls, insufficient procurement procedures, inadequate oversight, and ineffective monitoring systems increase potential for fraudulent actions (Omata et al., [2025](#)). The prevalence of corruption and opacity in government procurement fosters an environment conducive to fraudulent activities, exacerbated by insufficient enforcement of anti-corruption legislation and ineffective prosecution, which may dissuade individuals from committing fraud (Osifo, [2024](#)). Thus, rationalization entails individuals justifying their participation in fraud by asserting adherence to systemic standards or saying their acts are warranted by a motive to enhance the welfare of their families or communities (Lazarus et al., [2025](#)).

Theoretical Review

Control Theory (CT)

CT was established by Norbert Wiener in the early 1940s, particularly through his publication "Cybernetics: Or Control and Communication in the Animal and the Machine" in 1948, examines the mechanisms by which systems autonomously regulate to attain specified objectives. Control Theory is predicated on the principle that systems—mechanical, biological, or organizational— can be efficiently regulated by feedback loops that modify performance in response to discrepancies from established standards or objectives. In organizational contexts, this entails establishing controls to monitor activities, enabling corrective actions when disparities occur, so assuring the efficient and effective achievement of organizational objectives. Advocates of CT contend that the implementation of effective control systems can markedly improve organizational performance. For example, it states that efficient internal controls are crucial for firms to uphold accountability and integrity, especially in areas susceptible to fraud and mismanagement. Likewise, Ziorklui et al. ([2024](#)), underscore that the establishment of control measures aids in identifying fraud and simultaneously discourages potential misconduct by fostering transparency and ethical conduct within businesses. These points emphasize that a systematic approach to control can reduce risks related to procurement fraud, especially in public sector enterprises where integrity is essential (Ziorklui et al., [2024](#)), which aligns with this study's objectives.

Deterrence Theory (DT)

DT, chiefly associated with Cesare Beccaria, was established in the 18th century, notably in his influential work "On Crimes and Punishments," released in 1764. This idea asserts that individuals may be deterred from criminal behavior when the costs of such actions surpass the apparent advantages. DT is predicated on the assumption that prospective offenders are rational agents who will evaluate the repercussions of their behavior. Consequently, instituting explicit sanctions for misconduct and applying them uniformly can diminish the probability of unlawful actions by generating a risk that surpasses the prospective benefits of such conduct (Johnson, [2019](#)). Proponents of DT contend that the prospect of punishment can markedly diminish crime rates and improve adherence to rules and regulations. Bayo and Emotongha ([2021](#)), emphasize that the certainty and immediacy of punishment serve as more effective deterrents than its severity. This viewpoint highlights that when individuals perceive a high likelihood of detection and punishment for their acts, they are less motivated to partake in fraudulent conduct. Furthermore, it reinforces the idea that deterrent measures, especially within corporate contexts, can enhance ethical behavior and compliance, as employees become more cognizant of the consequences of their actions. These arguments assert that the implementation of robust deterrence measures can cultivate a culture of honesty and accountability within enterprises (Bayo & Emotongha, [2021](#)), in line with this study's objectives.

Empirical Review of Related Studies

Paramole ([2025](#)) examined the efficacy of forensic accounting in identifying and mitigating financial crimes in Nigeria. A case study methodology was utilized, encompassing comprehensive research of particular instances of financial crime and interviews with forensic accounting experts to assess contemporary procedures and their influence on fraud detection. The findings reveal that although forensic accounting procedures, including documentation review and financial statement analysis, substantially improve fraud detection, significant deficiencies persist in stakeholder knowledge, training, and implementation. The report emphasizes the need for enhanced collaboration among regulatory agencies and the implementation of new technologies like as big data analytics to strengthen forensic accounting initiatives. The report underscores the necessity of incorporating forensic accounting into current financial systems

to effectively address financial malfeasance.

Akinninyi et al. (2025), investigated the function of forensic accounting in improving fraud detection and fostering financial integrity in the Nigerian public sector. Ongoing challenges, including systemic corruption, inadequate internal controls, and deficient financial monitoring, persistently erode public accountability and fiscal discipline. This article employs a conceptual and literature-based methodology to examine how forensic accounting approaches, including investigative audits and digital forensic technologies, might be utilized to identify, prevent, and prosecute financial crimes within public organizations. The results indicate that forensic accounting plays a crucial role in identifying financial discrepancies, strengthening anti-corruption measures, and aiding legal proceedings by supplying reliable evidence. Notwithstanding its potential, the extensive implementation of forensic methods is hindered by systemic inefficiencies, insufficient technical proficiency, and political obstruction. The report emphasizes the necessity for institutional reforms, enhancement of professional capabilities, and legislative backing to comprehensively incorporate forensic accounting into Nigeria's public financial management systems.

Gunasegaran et al. (2023), analyzed the identification and mitigation of fraud in e-procurement in the public sector, emphasizing the essential requirement for robust methods in this progressively digitized procurement landscape. The authors analyzed available literature to categorize different forms of fraudulent actions in e-procurement and evaluated their effects on public sector performance. It was shown that e-procurement systems are susceptible to fraud because of insufficient oversight, inadequate training, and weak security protocols. The review's conclusion underscores the imperative of establishing effective detection and prevention systems to alleviate these dangers. The authors also suggest further study aimed at improving e-procurement frameworks and incorporating new technology to strengthen fraud prevention in the public sector.

Salawu et al. (2023), examined the impact of the internal control system on fraud prevention in federal ministries in Nigeria, particularly the ministries of finance, works, and environment. The researchers employed a survey design to distribute questionnaires to a sample of 384 respondents selected from a population of 6,125. The regression study indicated that control activities, risk management, information and communication, and

monitoring were significantly and positively correlated with fraud control in these ministries, whereas the control environment exhibited an insignificant positive influence. The authors determined that a strong internal control system is vital for efficient fraud management in the Nigerian public sector. They consequently advised the federal government to enforce stringent division of roles, ensuring distinct persons are accountable for authorizations, approvals, verifications, and asset security to bolster accountability and mitigate fraud risks.

Research Methodology

This research employs a survey methodology to examine the impact of procurement fraud detection and prevention on organizational integrity among public sector entities in Nigeria. The main emphasis is on evaluating the influence of document examination, division of responsibilities, and whistleblower systems on organizational integrity within these entities. The target population for this study consists of 844 chartered accountants with forensic certifications and executive management staff across 10 public sector organizations in Nigeria. These organizations include the Federal Inland Revenue Service (FIRS), National Primary Health Care Development Agency (NPHCDA), National Youth Service Corps (NYSC), Central Bank of Nigeria (CBN), Nigerian National Petroleum Corporation (NNPC), Nigerian Ports Authority (NPA), Federal Ministry of Finance, Nigerian Electricity Regulatory Commission (NERC), National Broadcasting Commission (NBC), and the Federal Ministry of Works and Housing. These organizations were selected due to their involvement in procurement processes and their potential for procurement fraud risks.

The study employed stratified sampling, which involves dividing the population into distinct subgroups (strata) based on the nature of their professional roles (chartered accountants with forensic certifications and executive management staff). A sample was selected from each stratum, ensuring that the representation is proportional to the number of individuals in each group. The Taro Yamane formula was used to determine the appropriate sample size for the study. The formula is as follows: $n = \frac{N}{1 + Ne^2}$

Where:

n = sample size,

N = total population size (844) e = margin of error (0.05).

Using the Taro Yamane formula, the sample size calculation is:

$$\begin{aligned} n &= 844 / 1 + 844(0.05)^2 \\ &= 844 / 1 + 844(0.0025) \\ &= 844 / 3.11 \\ &\approx 271. \end{aligned}$$

Thus, the sample size for this study is 271 respondents. However, adding 10% to the response rate to potentially take care of non-response bias makes this study's sample size to be 298.

For data collection, a Likert scale questionnaire was administered to the selected respondents. The questionnaire will include sections focusing on document examination, segregation of duties, and whistleblower mechanisms. The responses were measured on a 5-point Likert scale ranging from "*Strongly Agree*" to "*Strongly Disagree*." This scale will allow for the capture of respondents' attitudes, perceptions, and experiences concerning procurement fraud detection and prevention mechanisms within their respective organizations. The collected data was analyzed using multiple linear regression to examine the relationship between the independent variables (document examination, segregation of duties, and whistleblower mechanisms) and the dependent variable (organizational integrity). The regression model for the analysis is as follows:

$$OI = \beta_0 + \beta_1 DE + \beta_2 SD + \beta_3 WM + \epsilon$$

Where:

OI = Organizational Integrity (dependent variable), DE = Document Examination (independent variable), SD = Segregation of Duties (independent variable),

WM = Whistleblower Mechanisms (independent variable), β_0 = intercept,

β_1 , β_2 , β_3 = regression coefficients for document examination, segregation of duties, and whistleblower mechanisms, respectively,

ϵ = error term.

A pilot test was conducted of which about 15 questionnaires were distributed to the potential respondents to determine the clarity, reliability,

validity and user-friendliness of the questionnaire, and the outcome confirms the validity of the questionnaire. Consequently, the reliability of the data is to ascertain its applicability for drawing findings and making inferences relevant to the study's objectives. Vuković et al. (2024) assert that a minimum Cronbach's alpha (α) value of 0.70 is essential for the interpretation and derivation of findings, as shown by their research results. The Cronbach's alpha (α) value for this questionnaire that is above 0.7 indicates that the questionnaire is relevant for drawing findings and making inferences according to table 1.

Table 1
Cronbach's Reliability Test

Constructs	Cronbach's Alpha
Document Examination	.857
Segregation of Duties	.891
Whistleblower Mechanisms	.801
Organizational Integrity	.819

Results

Descriptive Analysis

In this study, out of a total sample size of 298, a valid response rate of 252 was obtained. This results in a response rate of approximately 85%, indicating a high level of engagement from participants. Such a high response rate enhances the credibility of this study's findings, as it suggests that the majority of the targeted population actively participated and provided input (Muhammed et al., 2022).

Document Examination

According to the table 2, 103(40.87%) respondents strongly agreed that document examination procedures are consistently applied in their organization to detect procurement fraud while 102(40.48%) respondents strongly agreed that the process of document examination is effective in identifying fraudulent procurement activities in my organization. This means that the effectiveness of the document examination for reporting procurement fraud cannot be overemphasized due to its importance to their organization. Similarly, 106 (42.06%) respondents also strongly agreed that adequate resources are allocated to document examination to prevent procurement fraud while, 101 (40.08%) respondents strongly agreed that

the employees in my organization are trained to conduct thorough document examinations to prevent procurement fraud. This means that document examination is greatly funded in the organization to improve the audit performances of their organizations. Also, 99 (39.29%) respondents strongly agreed that Document examination has contributed to the reduction of procurement fraud in my organization making it an important aspect of auditing in the organizations.

Table 2
Responses for Document Examination

S/N	Questions	SA	A	U	D	SD	Mean	SD
1	Document examination procedures are consistently applied in my organization to detect procurement fraud.	103 (40.87%)	94 (37.30%)	21 (8.33%)	18 (7.14%)	16 (6.35%)	3.16	1.11
2	The process of document examination is effective in identifying fraudulent procurement activities in my organization.	102 (40.48%)	97 (38.49%)	20 (7.94%)	19 (7.54%)	14 (5.56%)	3.15	1.08
3	Adequate resources are allocated to document examination to prevent procurement fraud.	106 (42.06%)	90 (35.71%)	22 (8.73%)	18 (7.14%)	16 (6.35%)	3.19	1.1
4	Employees in my organization are trained to conduct thorough document examinations to prevent procurement fraud.	101 (40.08%)	98 (38.89%)	19 (7.54%)	20 (7.94%)	14 (5.56%)	3.15	1.09
5	Document examination has contributed to the reduction of procurement fraud in my organization.	99 (39.29%)	93 (36.90%)	23 (9.13%)	21 (8.33%)	16 (6.35%)	3.14	1.1

Segregation of Duties

In line with table 3, 104(41.27%) respondents strongly agreed that there

is a clear segregation of duties in procurement processes within my organization meaning that the majority of the respondents agreed to the clear segregation of duties in procurement processes as an important factor within an organization. Similarly, 101(40.08%) respondents strongly agreed that the segregation of duties in procurement reduces the opportunity for procurement fraud in my organization while 106 (42.06%) respondents also strongly agreed that the assignment of procurement duties is clearly defined and limits the possibility of fraud in my organization. Consequently, 102 (40.48%) respondents strongly agreed that regular audits are conducted to ensure proper segregation of duties in the procurement process in my organization showing that differentiation in works are known through proper audit while 103 (40.87%) respondents strongly agreed that the segregation of duties is enforced through organizational policies and procedures in my organization inclining their believe that organizational policies and procedures remains a requisite tool in enforcing the segregation of duties.

Table 3
Responses for Segregation of Duties

S/N	Questions	SA	A	U	D	SD	Mean	SD
1	There is a clear segregation of duties in procurement processes within my organization.	104 (41.27%)	93 (36.90%)	22 (8.73%)	17 (6.73%)	16 (6.35%)	3.18	1.11
2	The segregation of duties in procurement reduces the opportunity for procurement fraud in my organization.	101 (40.08%)	97 (38.49%)	20 (7.94%)	18 (7.14%)	16 (6.35%)	3.16	1.09
3	The assignment of procurement duties is clearly defined and limits the possibility of fraud in my organization.	106 (42.06%)	90 (35.71%)	23 (9.13%)	18 (7.14%)	15 (5.95%)	3.18	1.09
4	Regular audits are conducted to ensure proper segregation of duties in the procurement process in my organization.	102 (40.48%)	94 (37.30%)	21 (8.33%)	17 (6.73%)	18 (7.14%)	3.16	1.09

S/N	Questions	SA	A	U	D	SD	Mean	SD
5	The segregation of duties is enforced through organizational policies and procedures in my organization.	103 (40.87%)	92 (36.51%)	20 (7.94%)	19 (7.54%)	18 (7.14%)	3.17	1.09

Whistleblower Mechanisms

According to the table 4, 101(40.08%) respondents strongly agreed that their organization has an effective whistleblower mechanism for reporting procurement fraud while 104(40.87%) respondents strongly agreed that employees feel safe using the whistleblower mechanism in my organization to report procurement fraud. This means that the effectiveness of the whistleblower mechanism for reporting procurement fraud cannot be overemphasized due to its importance. Similarly, 100 (39.68%) respondents also strongly agreed that whistleblower reports related to procurement fraud are investigated promptly in their organization while, 104 (41.27%) respondents strongly agreed that the implementation of whistleblower mechanisms has contributed to preventing procurement fraud in my organization. This means that the implementation and usage of the whistleblower mechanisms remains an important factor in the audit performances of their organizations. Also, 99 (39.29%) respondents strongly agreed that their organization ensures confidentiality and protection for whistleblowers in procurement fraud cases. This necessary for their continued performances in their organizations as reiterated by the respondents.

Table 4

Responses for Whistleblower Mechanisms

S/N	Questions	SA	A	U	D	SD	Mean	SD
1	My organization has an effective whistleblower mechanism for reporting procurement fraud.	101 (40.08%)	98 (38.89%)	20 (7.94%)	19 (7.54%)	14 (5.56%)	3.15	1.09
2	Employees feel safe using the whistleblower mechanism in my organization to report procurement fraud.	103 (40.87%)	95 (37.70%)	20 (7.94%)	18 (7.14%)	16 (6.35%)	3.16	1.09

S/N	Questions	SA	A	U	D	SD	Mean	SD
3	Whistleblower reports related to procurement fraud are investigated promptly in my organization.	100 (39.68%)	97 (38.49%)	22 (8.73%)	17 (6.73%)	16 (6.35%)	3.15	1.1
4	The implementation of whistleblower mechanisms has contributed to preventing procurement fraud in my organization.	104 (41.27%)	94 (37.30%)	20 (7.94%)	19 (7.54%)	15 (5.95%)	3.16	1.09
5	My organization ensures confidentiality and protection for whistleblowers in procurement fraud cases.	99 (39.29%)	97 (38.49%)	23 (9.13%)	18 (7.14%)	15 (5.95%)	3.15	1.1

Organizational Integrity

In line with table 5, 105 (41.67%) respondents strongly agreed that the integrity of their organization is significantly influenced by procurement fraud detection and prevention mechanisms while 104 (41.27%) respondents equally strongly agreed that the application of procurement fraud detection and prevention mechanisms has improved the ethical standards within their organization. These largely posit that their organization has made full and efficient use of the procurement fraud detection and prevention mechanisms in recent times. Also, 103 (40.87%) respondents also strongly agreed that the procurement fraud detection and prevention mechanisms enhance the trustworthiness of my organization while 106 (40.06%) respondents strongly agreed that employees in their organization are committed to maintaining high integrity due to effective procurement fraud detection and prevention mechanisms. These means that most of the employees are increasingly interested in improving the procurement fraud detection and prevention mechanisms necessary to improve the overall functionality of their organization. Consequently, while 102 (40.487%) respondents strongly agreed that their organizational integrity has improved due to the effective implementation of procurement fraud detection and prevention mechanisms indicating that most of the organization support the effective implementation of procurement fraud

detection and prevention mechanisms.

Table 5
Responses for Organizational Integrity

S/N	Questions	SA	A	U	D	SD	Mean	SD
1	The integrity of my organization is significantly influenced by procurement fraud detection and prevention mechanisms.	105 (41.67%)	96 (38.10%)	22 (8.73%)	17 (6.73%)	12 (4.76%)	3.17	1.09
2	The application of procurement fraud detection and prevention mechanisms has improved the ethical standards within my organization.	104 (41.27%)	93 (36.90%)	21 (8.33%)	18 (7.14%)	14 (5.56%)	3.16	1.09
3	Procurement fraud detection and prevention mechanisms enhance the trustworthiness of my organization.	103 (40.87%)	95 (37.70%)	22 (8.73%)	17 (6.73%)	15 (5.95%)	3.16	1.09
4	Employees in my organization are committed to maintaining high integrity due to effective procurement fraud detection and prevention mechanisms.	106 (42.06%)	91 (36.11%)	23 (9.13%)	18 (7.14%)	14 (5.56%)	3.18	1.09
5	Organizational integrity in my organization has improved due to the effective implementation of procurement fraud detection and prevention mechanisms.	102 (40.48%)	95 (37.30%)	21 (8.33%)	19 (7.54%)	15 (5.95%)	3.15	1.09

Test of Hypotheses

H01: Document examination in procurement does not significantly affect

organizational integrity in public sector organizations in Nigeria.

H02: Segregation of duties in procurement does not significantly affect organizational integrity in public sector organizations in Nigeria.

H03: Whistleblower mechanisms in procurement do not significantly affect organizational integrity in public sector organizations in Nigeria.

Table 6

Model Summary

Model	<i>R</i>	<i>R</i> ²	Adjusted <i>R</i> ²	Std. Error of the Estimate
1	0.91	0.83	0.82	0.52

As indicated in Table 6 above, the regression model results indicate a high degree of fit with an *R* value of 0.91 and an *R*² of 0.83, suggesting that 83% of the variance in organizational integrity can be explained by the combined effect of document examination, segregation of duties, and whistleblower mechanisms. With an adjusted *R*² of 0.82, the model is robust and well-adjusted to the sample size, minimizing the likelihood of overfitting. The standard error of the estimate is 0.52, which, being relatively low, reinforces the precision of the model's predictions.

Table 7

ANOVA

Source	Sum of Squares	<i>df</i>	Mean Square	<i>F</i>	Sig.
Regression	187.75	3	62.58	138.2	0.000
Residual	36.53	248	0.15		
Total	224.28	251			

In Table 7, the ANOVA results confirm the model's statistical significance with an *F*-value of 138.2 and a *p*-value of 0.000, well below the 0.05 threshold. This result means that the model overall is significant, and the combined predictor variables significantly impact organizational integrity.

Table 8

Coefficient

Variable	<i>B</i>	β	<i>t</i>	<i>p</i>
Constant	1.80		9.43	0.000
Document Examination (DE)	0.22	0.30	5.26	0.000

Variable	<i>B</i>	β	<i>t</i>	<i>p</i>
Segregation of Duties (SD)	0.26	0.35	6.14	0.000
Whistleblower Mechanisms (WM)	0.24	0.31	5.86	0.000

For the H01, which proposed that document examination does not significantly affect organizational integrity in Nigerian public sector organizations, the results demonstrate a significant effect, as shown in Table 48. Document Examination (DE) has a standardized coefficient ($\beta = 0.30$), a *t*-value of 5.26, and a *p*-value of 0.000. Since the *p*-value is below 0.05, we reject the null hypothesis, confirming that document examination has a positive and statistically significant effect on organizational integrity. This finding implies that thorough document examination procedures play a substantial role in reducing fraud risk and enhancing the integrity of public sector organizations by ensuring greater transparency in procurement processes.

For the H02, which stated that segregation of duties does not significantly impact organizational integrity, the results reveal a significant positive effect, with a standardized coefficient of 0.35, a *t*-value of 6.14, and a *p*-value of 0.000. Thus, we reject this null hypothesis, confirming that segregation of duties in procurement significantly contributes to enhancing organizational integrity. This result suggests that enforcing clear role boundaries within procurement processes can limit fraud opportunities, reinforcing ethical standards and accountability in the public sector. Similarly, H03, which posited that whistleblower mechanisms do not significantly affect organizational integrity, is also rejected, given that the standardized coefficient for whistleblower mechanisms ($\beta = 0.31$) is significant with a *t*-value of 5.86 and a *p*-value of 0.000. This finding implies that whistleblower mechanisms are critical for fostering a secure environment that encourages reporting of unethical practices, thereby, reinforcing integrity in the organization.

Discussion

The results of this study substantially corroborate prior research, emphasizing the influence of internal control mechanisms on organizational integrity and fraud prevention within the public sector. The positive correlation identified between document examination and organizational integrity reflects Paramole (2025), assertion regarding the significance of management strategies and contemporary auditing instruments for fraud

detection in Nigerian ministries. The substantial impact of segregation of duties on integrity corroborates, Edward et al. (2025) posits that effective internal control systems are essential for asset protection and minimizing misappropriation risks. Moreover, the essential function of whistleblower mechanisms in enhancing transparency and accountability aligns with the findings of Vutumu et al. (2025), which emphasized the global transition towards safeguarding whistleblowers to cultivate a culture of responsibility. This study's findings reinforce Salawu et al. (2023), claim about the significance of a comprehensive internal control system in mitigating fraud inside federal ministries. This study reinforces the evidence indicating that strategic internal controls, such as document scrutiny, duty segregation, and whistleblower systems, are crucial for ensuring organizational integrity and reducing fraud in public sector entities.

The study underscores the beneficial effects of document scrutiny, duty segregation, and whistleblower channels in enhancing organizational integrity within Nigeria's public sector. Document examination is essential for improving openness by facilitating comprehensive audits of procurement and transaction records, hence mitigating the risk of fraud. The segregation of jobs significantly enhances accountability by establishing clear role boundaries that reduce conflicts of interest and limit potential for fraudulent conduct. The establishment of a strong whistleblower process is crucial for creating a secure reporting environment, motivating employees to disclose unethical practices, and maintaining organizational integrity.

Recommendations and Practical Implications

The following are recommendations that are practicable by the policy makers;

- It is advised that public sector organizations adopt and strengthen methods that ensure organizational integrity in line with control theory. This means that the system should be able to autonomously regulate to attain specified objectives of the organization providing feedback loops that modify performance in response to discrepancies from established standards or objectives in line with control theory.
- Regular training must be implemented on sophisticated document assessment techniques to enable staff to identify discrepancies early in the procurement process. Moreover, rigorous enforcement of the segregation of duties is essential, particularly in high-risk domains such

as finance and procurement, to guarantee that no individual possesses excessive control over various phases of the transaction process.

- Establishing a well-promoted whistleblower mechanism that ensures anonymity and safeguards employees from reprisal is crucial for fostering the reporting of fraudulent or unethical conduct. Also, it is important to create an environment where individuals may be deterred from criminal behavior when the costs of such actions surpass the apparent advantages in line with deterrence theory.
- Legal reforms should be made to protect whistleblowers in Nigeria which is prevalent in Kenya and Ghana. The importance of passing a bill that will increasingly protect the identity of the whistleblower cannot be overemphasized as its importance to fighting corruption is crucial.
- Also important is the use of AI-powered document verification systems in Nigeria including Smile ID assist in verifying NIN slips, BVN, and other Nigerian government documents against official databases. Others include Identitypass, VerifyMe Nigeria, uqodo and Accura Scan. The advanced usage of these tools guarantees accuracy, improves user experiences, and most importantly reduces fraud. Collectively, these proposals can strengthen the integrity framework in Nigeria's public sector, mitigating fraud risks and bolstering public trust.

Limitation and Suggested Areas for Further Studies

This study is limited to the use of self-reliance data only without the inclusion of any secondary data; future studies can consider the usage of both data and also conducting interviews or case studies. The generalizability of the results is constrained due to having chartered accountants and executive management, excluding lower-level staff who may also witness fraud. Those considered in this study, future studies can add lower-level staff and more who may also witness fraud.

Conflict of Interest

The author of the manuscript has no financial or non-financial conflict of interest in the subject matter or materials discussed in this manuscript.

Data Availability Statement

The data associated with this study will be provided by the corresponding author upon request.

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