



ORGANIZATIONAL CULTURE AND THE EFFECTIVENESS OF FORENSIC AUDITS IN COMBATING PROCUREMENT FRAUD IN GHANA'S METROPOLITAN, MUNICIPAL, AND DISTRICT ASSEMBLIES

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ABSTRACT: *Procurement fraud remains a major challenge to public financial management in developing countries, particularly within local government institutions responsible for significant procurement expenditures. This study examined the mediating role of organizational culture in the relationship between forensic audit activities and procurement fraud in Ghana's Metropolitan, Municipal and District Assemblies (MMDAs). A quantitative cross-sectional survey design was employed, and data were collected from 343 finance directors, accountants, and internal auditors using a structured questionnaire. Data were analyzed using descriptive statistics, Spearman correlation, and Partial Least Squares Structural Equation Modelling (PLS-SEM). The findings revealed low levels of forensic audit implementation across MMDAs, despite relatively high perceptions of procurement fraud. Organizational culture significantly mediated the relationship between forensic audit activities and procurement fraud ($\beta = 0.270$, $p < 0.001$), accounting for 47.8% of the total effect. The results indicate that forensic auditing is more effective in reducing procurement fraud when supported by transparency, ethical leadership, and accountability. The study contributes to forensic auditing and public sector governance literature by demonstrating that organizational culture serves as a critical mechanism through which forensic audit interventions influence fraud-control outcomes. The findings have important implications for strengthening anti-corruption initiatives and public financial management within decentralized governance systems.*

KEYWORDS: Forensic auditing, Procurement fraud, Organizational culture, Transparency, Tone at the top, Public sector governance, Ghana's MMDAs.



INTRODUCTION

Procurement fraud remains one of the most persistent threats to public sector accountability, particularly in developing economies where institutional weaknesses, political interference, and inadequate oversight mechanisms often undermine the effective use of public resources. Public procurement constitutes a substantial share of government expenditure and serves as a critical instrument for delivering infrastructure, goods, and services to citizens. However, the complexity of procurement processes creates opportunities for bid rigging, contract manipulation, collusion among vendors and public officials, overpricing, and other fraudulent practices that erode public trust and compromise developmental outcomes (Chartered Institute of Public Finance and Accountancy [CIPFA], 2018; Parintak, 2023).

In Ghana, procurement-related irregularities continue to feature prominently in public financial management reports. The Auditor-General's Report (2021) identified procurement and contract irregularities amounting to approximately GH¢58 million out of total irregularities of GH¢66 million recorded under the District Assemblies Common Fund, indicating that procurement-related misconduct accounted for the overwhelming majority of financial infractions. These findings are particularly concerning within Ghana's Metropolitan, Municipal, and District Assemblies (MMDAs), which constitute the primary institutions responsible for local governance, service delivery, and decentralized development. Persistent procurement fraud within these entities undermines fiscal discipline, reduces value for money, and weakens citizens' confidence in public institutions.

To address increasingly sophisticated forms of financial misconduct, forensic auditing has emerged as a specialized auditing approach that integrates accounting, investigative, and legal techniques to detect, investigate, and document fraud for possible litigation and prosecution (Ocansey, 2017; Botes & Saadeh, 2018; Afriyie et al., 2022). Unlike conventional financial audits that focus primarily on compliance and reasonable assurance, forensic audits are designed to uncover deliberate deception, trace illicit transactions, quantify losses, and generate evidence admissible in legal proceedings. Prior studies have demonstrated the effectiveness of forensic accounting and forensic auditing in enhancing fraud detection and prevention in both public and private sector organizations (Al Hassan, 2020; Hamdani & Alamsyah, 2020). In Ghana, Ocansey (2017) similarly reported that forensic accounting practices can significantly strengthen efforts to combat economic and financial crimes.

Despite its recognized potential, the implementation of forensic auditing within Ghana's public sector remains limited. Although the constitutional mandate of the Ghana Audit Service provides legal grounds for specialized audit investigations, evidence suggests that forensic auditing has not been fully institutionalized across many public organizations, particularly at the local government level. Consequently, procurement fraud continues to persist despite the existence of external audits conducted by the Ghana Audit Service and internal audits undertaken within MMDAs. This apparent disconnect suggests that the effectiveness of forensic auditing may depend on organizational conditions that extend beyond technical audit procedures alone.

One such condition is organizational culture. Organizational culture encompasses the shared values, beliefs, norms, and behavioral expectations that shape decision-making and influence how employees respond to governance mechanisms and control systems. A culture characterized by transparency, ethical leadership, accountability, and openness to scrutiny can



facilitate effective fraud detection and corrective action. Conversely, cultures that tolerate misconduct, discourage whistleblowing, or prioritize political interests over accountability may undermine even the most sophisticated audit interventions. Previous studies have highlighted the importance of organizational culture in determining audit effectiveness, compliance behavior, and fraud management outcomes (Chen et al., 2022; Ocansey & Ganu, 2017). In public sector environments, organizational culture influences the willingness of employees to disclose wrongdoing, cooperate with investigations, and implement audit recommendations.

Theoretically, this relationship can be explained through Agency Theory and the Fraud Pentagon Theory. Agency Theory posits that conflicts of interest arise when public officials, acting as agents, pursue personal objectives at the expense of citizens, who serve as principals (Ross (1973; Jensen & Mickling, 1976). Auditing mechanisms are intended to reduce information asymmetry and monitor agent behavior. However, their effectiveness may be constrained by organizational cultures that enable opportunistic conduct or discourage accountability. Similarly, the Fraud Pentagon Theory argues that fraud is driven not only by pressure, opportunity, and rationalization but also by capability and arrogance (Crowe, 2011). Organizational culture can either reinforce or weaken these fraud-inducing conditions by shaping ethical norms, leadership behavior, and enforcement practices.

Although prior studies have examined forensic auditing as a fraud prevention mechanism and organizational culture as a determinant of governance effectiveness, these streams of research have largely developed independently. Existing studies focus predominantly on the direct effects of forensic auditing on fraud control or the influence of organizational culture on organizational performance, with limited attention to the mechanisms linking the two constructs. Furthermore, evidence from decentralized public-sector institutions in developing countries remains scarce. Consequently, little is known about whether organizational culture serves as the pathway through which forensic audit activities influence procurement fraud outcomes within local government systems. Addressing this gap is important because technical audit interventions may yield different outcomes depending on the cultural environment in which they operate (Emmanuel et al., 2017; Karikari Appiah et al., 2023). Consequently, there remains insufficient evidence regarding whether organizational culture serves as a critical mechanism through which forensic auditing contributes to fraud control in local government settings.

This study addresses this gap by examining the mediating role of organizational culture in the relationship between forensic audit activities and procurement fraud within Ghanaian MMDAs. Specifically, the study investigates the extent of forensic audit practices in local governments, evaluates the influence of organizational culture on procurement fraud, and assesses whether organizational culture enhances or constrains the effectiveness of forensic auditing. By doing so, the study contributes to the growing literature on forensic auditing, public sector governance, and anti-corruption strategies in developing economies. The findings offer practical insights for policymakers, audit institutions, and local government administrators seeking to strengthen accountability systems and improve public financial management outcomes.

The remainder of the paper is organized as follows. The next section reviews the relevant literature and develops the study hypotheses. This is followed by the methodology, results, and discussion sections. The paper concludes with implications for theory, policy, and future research.



LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Theoretical Foundations

This study is anchored in Agency Theory, the Fraud Pentagon Theory, and Institutional Theory, three complementary frameworks that explain the occurrence of procurement fraud and the mechanisms through which forensic auditing and organizational culture may influence fraud prevention outcomes.

Agency Theory explains the relationship between principals and agents in situations where one party delegates authority to another (Jensen & Meckling, 1976; Ross, 1973). In the public sector, citizens serve as principals, while elected officials and public servants act as agents entrusted with managing public resources. Because agents often possess superior information regarding organizational activities, information asymmetry may arise, creating opportunities for self-serving behaviour, corruption, and fraudulent practices. Auditing functions are therefore established as monitoring mechanisms to reduce information asymmetry and ensure accountability. However, the effectiveness of such monitoring mechanisms depends not only on their technical design but also on the institutional environment within which they operate. Where organizational cultures tolerate unethical conduct or discourage transparency, formal auditing procedures may fail to achieve their intended objectives.

The Fraud Pentagon Theory provides additional insight into the drivers of fraudulent behaviour. Building upon Cressey's (1953) Fraud Triangle—which identifies pressure, opportunity, and rationalization as the primary determinants of fraud—Crowe (2011) introduced two additional elements: capability and arrogance. Capability refers to the skills and position necessary to exploit organizational weaknesses, while arrogance reflects an individual's belief that internal controls and regulations do not apply to them. Procurement environments are particularly vulnerable to these factors because procurement officials often possess significant discretionary authority over contract awards, supplier selection, and payment approvals. Consequently, effective fraud prevention requires not only reducing opportunities for misconduct but also fostering organizational cultures that discourage rationalization, limit abuse of power, and reinforce ethical behaviour.

Institutional Theory (Meyer & Rowan, 1977) provides an additional lens for understanding why forensic audit structures may exist without necessarily reducing procurement fraud. The theory posits that organizations often adopt formal governance mechanisms to gain legitimacy and demonstrate compliance with external expectations. In public-sector organizations, forensic audit practices may therefore be implemented symbolically without adequate resources, independence, or managerial support. This perspective complements Agency Theory and Fraud Pentagon Theory by explaining how organizational culture can determine whether forensic audit activities become substantive governance tools or merely ceremonial compliance mechanisms.

Together, Agency Theory, the Fraud Pentagon Theory, and Institutional Theory suggest that forensic auditing can strengthen oversight and reduce fraud opportunities, while organizational culture influences whether audit findings are acted upon and whether fraudulent behaviours are tolerated or sanctioned. These theoretical perspectives therefore provide a useful framework for examining the relationships among forensic audit activities, organizational culture, and procurement fraud.



Forensic Audit Activities and Procurement Fraud

The increasing complexity of financial crimes has elevated forensic auditing from a specialized investigative practice to a critical component of modern fraud risk management. Forensic auditing combines accounting expertise, investigative techniques, legal knowledge, and analytical procedures to detect, investigate, and document fraudulent activities for possible litigation and prosecution (Botes & Saadeh, 2018; Afriyie et al., 2022). Unlike traditional financial audits that focus primarily on compliance and financial reporting accuracy, forensic audits are specifically designed to uncover intentional deception, identify perpetrators, quantify losses, and generate legally admissible evidence.

Public procurement systems are particularly susceptible to sophisticated fraud schemes, including bid rigging, contract inflation, collusive tendering, conflict of interest arrangements, kickbacks, and fictitious supplier payments (CIPFA, 2018). Such schemes often remain undetected by routine financial audits because they involve concealed relationships, manipulated documentation, and coordinated actions among multiple actors. Forensic auditing addresses these limitations by employing investigative procedures such as forensic data analytics, transaction tracing, digital evidence examination, lifestyle audits, and fraud risk assessments.

Empirical evidence generally supports the effectiveness of forensic auditing in combating fraud. Al Hassan (2020) found that forensic accounting practices significantly improve fraud detection and prevention in public-sector organizations in Nigeria. Similarly, Hamdani and Alamsyah (2020) reported that forensic auditing contributes positively to the identification of corruption risks in public procurement processes. In Ghana, Ocansey (2017) observed that forensic accounting techniques strengthen efforts to investigate economic and financial crimes and improve the quality of fraud-related evidence available to enforcement agencies.

Despite these promising findings, evidence from developing countries suggests that the mere existence of forensic audit mechanisms does not automatically translate into reduced fraud. Emmanuel et al. (2017) found that public institutions in Ghana continued to experience procurement irregularities despite the presence of formal auditing structures. This suggests that contextual factors may influence the extent to which forensic audit activities achieve their intended outcomes.

Nevertheless, forensic auditing remains fundamentally designed to identify, deter, and prevent fraudulent activities. By increasing the probability of detection and strengthening accountability, forensic audit activities are expected to reduce procurement fraud within public organizations.

H₁: Forensic audit activities have a significant negative effect on procurement fraud.

Organizational Culture and Procurement Fraud

Organizational culture refers to the shared values, beliefs, norms, and behavioural expectations that shape decision-making and influence how individuals interact within organizations (Schein, 2010). It represents the informal system of controls that guides employee conduct beyond formal policies and procedures.



In public sector organizations, organizational culture plays a critical role in determining the effectiveness of governance and accountability mechanisms. A culture characterized by transparency, ethical leadership, accountability, and openness encourages employees to comply with regulations, report misconduct, and support fraud prevention initiatives. Conversely, cultures marked by secrecy, favoritism, political interference, and weak accountability structures may facilitate fraudulent behaviour and undermine control systems.

Two dimensions of organizational culture are particularly relevant in the context of procurement fraud: transparency and tone at the top. Transparency refers to the accessibility and openness of organizational information, processes, and decision-making activities. Transparent organizations provide stakeholders with access to procurement information, financial records, and budgetary decisions, thereby reducing opportunities for concealment and manipulation. Research has consistently shown that transparency improves accountability and reduces corruption risks by increasing public scrutiny and stakeholder participation (Chen et al., 2022).

"Tone at the top" refers to the ethical climate established by senior leadership through their actions, decisions, and commitment to integrity. Leaders influence organizational behaviour by signalling acceptable conduct and demonstrating whether ethical standards will be enforced consistently. When senior management models ethical behaviour and supports accountability mechanisms, employees are more likely to comply with regulations and less likely to engage in fraudulent activities. Conversely, when leaders tolerate misconduct or prioritize personal and political interests over organizational integrity, unethical behaviour may become normalized.

Prior studies provide substantial evidence linking organizational culture to fraud prevention outcomes. Asiedu and Deffor (2017) found that ethical organizational environments strengthen internal control effectiveness and support anti-corruption efforts within Ghana's public sector. Ocansey (2017) similarly emphasized the role of organizational culture in managing occupational fraud and promoting ethical behaviour. More recently, Karikari Appiah et al. (2023) reported that organizational factors significantly influence audit effectiveness and public procurement performance.

Given that procurement fraud often thrives in environments characterized by weak accountability and poor ethical standards, organizations with stronger cultures of transparency and ethical leadership are expected to experience lower levels of procurement fraud.

H₂: Organizational culture has a significant negative effect on procurement fraud.

The Mediating Role of Organizational Culture

Although forensic auditing provides organizations with the technical capacity to detect and investigate fraud, its effectiveness may depend on the organizational environment within which it is implemented. Audit findings can only contribute to fraud reduction when management supports investigations, employees cooperate with auditors, whistleblowers are protected, and recommendations are implemented. These conditions are largely influenced by organizational culture.

The relationship between forensic auditing and fraud prevention can therefore be viewed as both technical and behavioural. Forensic audits generate information regarding fraudulent

activities, but organizational culture determines how that information is received, interpreted, and acted upon. In organizations characterized by transparency and ethical leadership, forensic audit findings are more likely to result in disciplinary action, process improvements, and strengthened controls. In contrast, organizations with weak ethical cultures may suppress audit findings, intimidate investigators, or ignore recommendations, thereby reducing the effectiveness of forensic audit interventions.

Theoretical arguments from Agency Theory suggest that monitoring mechanisms become more effective when supported by organizational norms that encourage accountability and discourage opportunistic behaviour. Similarly, the Fraud Pentagon Theory implies that cultural factors influence rationalization and arrogance, two key drivers of fraud that auditing alone may not fully address.

Empirical studies increasingly support the mediating role of organizational culture in governance and audit relationships. Mithkal et al. (2021) found that organizational culture mediates the relationship between information technology adoption and audit effectiveness. Karikari Appiah et al. (2023) reported that organizational characteristics influence the effectiveness of internal auditing in public procurement systems. These findings suggest that organizational culture may serve as the mechanism through which forensic auditing translates into meaningful reductions in procurement fraud.

Despite these insights, empirical evidence regarding the mediating role of organizational culture in the relationship between forensic audit activities and procurement fraud remains limited, particularly within decentralized public-sector institutions in developing countries. This study addresses this gap by examining whether organizational culture serves as a conduit through which forensic audit activities influence procurement fraud outcomes in Ghanaian MMDAs.

H₃: Organizational culture mediates the relationship between forensic audit activities and procurement fraud.

Conceptual Framework

Drawing on Agency Theory and the Fraud Pentagon Theory, this study proposes that forensic audit activities influence procurement fraud both directly and indirectly through organizational culture. Specifically, forensic audit activities are expected to strengthen transparency and ethical leadership, which in turn reduce procurement fraud. Organizational culture therefore functions as an important intervening mechanism linking technical audit capacity with fraud control outcomes in Ghana's local government sector.

Figure 1: Conceptual Framework

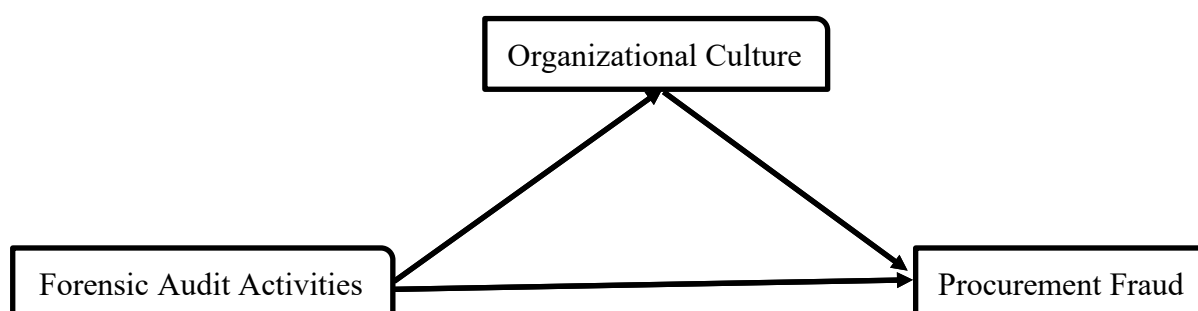




Figure 1 presents the conceptual of the study. It captures the relationship between forensic audit activities and procurement fraud. It also indicates the relationship between forensic audit activities and organizational culture, and organizational culture and procurement fraud.

METHODOLOGY

Research Design

This study adopted a quantitative cross-sectional survey design to examine the relationship between forensic audit activities, organizational culture, and procurement fraud within Ghana's Metropolitan, Municipal, and District Assemblies (MMDAs). A quantitative approach was considered appropriate because the study sought to test theoretically derived hypotheses and quantify the relationships among latent constructs using statistical techniques. The cross-sectional design enabled the collection of data from a large number of respondents at a single point in time, thereby facilitating the examination of prevailing perceptions regarding forensic auditing, organizational culture, and procurement fraud across Ghana's decentralized local government system (Saunders et al., 2019).

The study further employed Partial Least Squares Structural Equation Modeling (PLS-SEM) to test both direct and mediating relationships. PLS-SEM is particularly suitable for exploratory and prediction-oriented research involving complex relationships among latent variables, mediation analysis, and data that may not satisfy strict normality assumptions (Hair et al., 2022).

Study Population and Sampling Procedure

The study was conducted within Ghana's 261 Metropolitan, Municipal, and District Assemblies, which constitute the country's primary local government institutions responsible for decentralized governance, public financial management, and service delivery. These assemblies oversee substantial procurement activities and are therefore vulnerable to procurement-related fraud and financial irregularities.

The target population comprised senior financial management personnel directly involved in audit, accounting, and procurement oversight functions. Specifically, the accessible population consisted of 2,394 officers, including 261 Finance Directors, 1,347 Accountants, and 786 Internal Auditors working within the MMDAs. These categories of staff were selected because of their direct involvement in financial management, internal control systems, audit activities, and procurement processes.

The sample size was determined using Yamane's (1967) formula:

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

where:

- (n) = sample size
- (N) = population size (2,394)
- (e) = margin of error (5%)



Application of the formula yielded a minimum sample size of 343 respondents. To ensure adequate representation across professional groups, proportionate allocation was applied, resulting in 37 Finance Directors, 155 Accountants, and 151 Internal Auditors.

A purposive sampling technique was employed to select respondents. This approach was appropriate because the study required participants possessing specialized knowledge of auditing, financial management, organizational governance, and procurement operations. Respondents were therefore selected based on their professional roles and ability to provide informed responses regarding the constructs under investigation.

Data Collection Procedures

Primary data were collected through a structured questionnaire administered over a ten-week period. Eight trained research assistants facilitated questionnaire distribution and retrieval through direct hand-delivery and collection methods. This approach enhanced response rates, reduced non-response bias, and allowed respondents to seek clarification where necessary.

The questionnaire employed a six-point Likert scale ranging from 1 = Strongly Disagree to 6 = Strongly Agree. Consistent with recommendations in survey methodology literature, the instrument deliberately excluded a neutral midpoint to encourage respondents to express directional opinions and minimize central tendency bias (Krosnick & Presser, 2010).

A structured questionnaire was selected because it enabled the collection of standardized responses from a geographically dispersed population of public-sector professionals. The instrument was particularly suitable for measuring latent constructs such as organizational culture, forensic audit activities, and procurement fraud perceptions, which are not directly observable and are commonly assessed through perceptual indicators in governance and auditing research.

Measurement of Variables

Forensic audit activities were measured using eleven items adapted from Al Hassan (2020) and Ocansey (2017). The items assessed the extent to which assemblies had institutionalized forensic audit practices, including the employment of forensic auditors, fraud investigators, whistleblowing systems, anti-fraud committees, forensic training programmes, and fraud prevention initiatives.

Organizational culture was operationalized as a multidimensional construct comprising transparency and tone at the top. Sixteen items adapted from Chen et al. (2022) were used to measure these dimensions. Transparency was assessed through indicators such as information accessibility, segregation of duties, budget disclosure practices, stakeholder participation, and compliance with the Right to Information Act, 2019. Tone at the top was measured through indicators capturing ethical leadership behaviour, management compliance with regulations, adherence to codes of conduct, accountability practices, and fairness in reward and disciplinary systems.

Procurement fraud was measured using eight items adapted from Quashie (2019) and the Public Procurement Authority (2023). The items captured respondents' perceptions regarding procurement irregularities, procurement malpractice prevalence, compliance with procurement plans, procurement staff competence, and related fraud risks.



Instrument Validation

The questionnaire was subjected to expert review prior to data collection. Three academics with expertise in auditing, forensic accounting, and public-sector governance evaluated the instrument for content validity, clarity, and relevance. Their suggestions informed revisions to item wording and structure. A pilot test involving 30 public-sector finance professionals was subsequently conducted to assess reliability and clarity. The pilot results yielded Cronbach's alpha values above 0.70 for all constructs, indicating satisfactory internal consistency and suitability for the main survey.

Assessment of Measurement Model

Prior to hypothesis testing, the reliability and validity of the measurement model were assessed following established PLS-SEM procedures (Hair et al., 2022). Internal consistency reliability was evaluated using Cronbach's Alpha (α) and Composite Reliability (CR). Cronbach's alpha values ranged from 0.72 to 0.90, exceeding the minimum recommended threshold of 0.70 (Nunnally & Bernstein, 1994). Composite reliability values ranged from 0.829 to 0.949, indicating strong internal consistency among measurement items.

Convergent validity was assessed using Average Variance Extracted (AVE). The AVE values ranged from 0.536 to 0.788, exceeding the recommended threshold of 0.50, indicating that the latent constructs explained more than half of the variance in their respective indicators (Fornell & Larcker, 1981).

Discriminant validity was evaluated using the Fornell–Larcker criterion and the Heterotrait–Monotrait Ratio (HTMT). The Fornell–Larcker analysis confirmed that the square root of each construct's AVE exceeded its correlations with other constructs. Furthermore, all HTMT ratios were below the recommended threshold of 0.90, demonstrating adequate discriminant validity and confirming that the constructs measured distinct theoretical concepts (Henseler et al., 2015).

Since data for all constructs were collected using a single survey instrument, common method bias was assessed. Following Kock (2015), variance inflation factor (VIF) values should ideally remain below 3.3 to indicate the absence of substantial common method bias. The observed construct correlations and measurement statistics did not suggest problematic levels of common method variance. Nevertheless, future studies may complement perceptual measures with objective fraud data to further reduce potential bias.

The measurement model demonstrated satisfactory psychometric properties. Cronbach's alpha values ranged from 0.72 to 0.90, exceeding the recommended threshold of 0.70 and indicating acceptable internal consistency reliability (Nunnally & Bernstein, 1994). Composite reliability values ranged from 0.829 to 0.949, confirming strong construct reliability (Hair et al., 2022). Average Variance Extracted (AVE) values ranged from 0.536 to 0.788, exceeding the minimum threshold of 0.50 and establishing convergent validity (Fornell & Larcker, 1981). Discriminant validity was further confirmed using both the Fornell–Larcker criterion and the Heterotrait–Monotrait Ratio (HTMT), with all HTMT values below the recommended threshold of 0.90 (Henseler et al., 2015). Collectively, these results indicate that the measurement model possesses adequate reliability and validity for subsequent structural model analysis.



Data Analysis Techniques

Data were analyzed using the Statistical Package for Social Sciences (SPSS Version 26) and SmartPLS 3.0. SPSS Version 26 was used for preliminary statistical analyses because of its robustness in handling descriptive and correlational analyses. SmartPLS 3.0 was selected because it is well suited for mediation analysis involving latent constructs, prediction-oriented models, and datasets that do not necessarily satisfy multivariate normality assumptions.

The analysis proceeded in three stages. First, descriptive statistics, including means and standard deviations, were used to assess the prevalence of forensic audit activities, organizational culture dimensions, and procurement fraud perceptions. Second, Spearman's rank-order correlation analysis was conducted to examine the associations among the study variables. Spearman's correlation was selected because several variables exhibited ordinal characteristics and non-normal distributions.

Third, PLS-SEM was employed to test the structural model and mediation effects. Bootstrapping with 5,000 resamples was conducted to estimate standard errors, t-values, and significance levels for the hypothesized relationships (Hair et al., 2022).

Ethical Considerations

Ethical approval for the study was obtained from the Valley View University Institutional Review Board. Participation was voluntary, and informed consent was obtained from all respondents before data collection. Respondents were assured of confidentiality and anonymity, and no identifying information was collected. Data were stored securely and used solely for academic purposes. The study complied with established ethical standards relating to human subject research, including respect for participant autonomy, confidentiality, and informed participation.

RESULTS AND DISCUSSION

Descriptive Analysis

The study first examined the extent of forensic audit activities, the prevailing organizational culture, and the perceived incidence of procurement fraud within Ghana's Metropolitan, Municipal, and District Assemblies (MMDAs). Descriptive statistics were computed using mean scores and standard deviations, with mean values below 3.00 indicating low agreement and values equal to or above 3.00 indicating high agreement.

State of Forensic Audit Activities in MMDAs

Table 1 presents the descriptive statistics relating to forensic activities. The results in Table 1 reveal an alarmingly low level of forensic audit implementation across Ghana's MMDAs. As shown in Table 1, all forensic audit indicators recorded mean scores below the benchmark value of 3.00, suggesting that forensic auditing remains largely absent within the MMDAs.

**Table 1: State of Forensic Audit Activities in MMDAs**

Statement	Mean	SD	Interpretation
My assembly has employed forensic auditors	1.68	1.257	Low
My assembly trains senior management on forensic techniques	1.93	1.305	Low
My assembly trains staff on fraud prevention	2.35	1.471	Low
My assembly has employed fraud detectives	1.78	1.205	Low
My assembly sponsors auditors for forensic training	1.98	1.295	Low
My assembly has established anti-fraud council	1.69	1.178	Low
My assembly has whistleblowing policy	2.05	1.411	Low

Source: *Field Data, 2026*

The lowest scores were recorded for the employment of forensic auditors ($M = 1.68$) and the establishment of anti-fraud councils ($M = 1.69$), indicating that specialized anti-fraud structures are virtually non-existent within most assemblies. Similarly, the low prevalence of whistleblowing mechanisms ($M = 2.05$) suggests limited institutional support for fraud reporting and detection. These findings point to a substantial implementation gap between the constitutional mandate for public-sector accountability and actual anti-fraud practices at the local government level.

Procurement Fraud Perceptions

Despite the weak presence of forensic auditing, in Table 2, respondents reported relatively high levels of procurement-related irregularities.

Table 2: Procurement Fraud Prevalence

Statement	Mean	SD	Interpretation
Procurement fraud ranks among top financial malpractices	3.45	1.668	High
Procurement unit staffed with qualified personnel	4.44	1.378	High
High perception of procurement malpractices	3.45	1.525	High



Statement	Mean	SD	Interpretation
Assembly reviews procurement plan quarterly	4.25	1.393	High

Source: *Field Data, 2026*

The findings reveal a notable contradiction. Although respondents acknowledged the presence of qualified procurement personnel and formal procurement planning systems, perceptions of procurement fraud remained relatively high. This suggests that technical competence and procedural compliance alone may be insufficient to curb fraudulent procurement practices when broader organizational and institutional challenges remain unresolved.

Organizational Culture

The study further assessed organizational culture through two dimensions: transparency and tone at the top.

Table 3: Organizational Culture Indicators

Dimension	Mean	SD	Interpretation
Transparency			
Finance duties properly segregated	4.31	1.566	High
Budget published on notice board	3.54	1.947	High
Information not limited to top	3.79	1.715	High
Tone at the Top			
Top management complies with rules	3.87	1.522	High
Top management avoids financial malpractices	3.41	1.570	High
Rewards/punishments delivered equitably	3.38	1.524	High

Source: *Field Data, 2026*

Overall, respondents perceived moderate levels of transparency and ethical leadership as presented in Table 3. However, the relatively modest mean values suggest that these cultural attributes are not yet sufficiently entrenched to support robust anti-fraud environments.

Correlation Analysis

Spearman rank-order correlation analysis was conducted to examine the relationships among the study variables.

**Table 4: Correlation Matrix**

	FAA	Transparency	Tone at Top	Procurement Fraud
Forensic Audit Activities (FAA)	1.000			
Transparency	0.303***	1.000		
Tone at the Top	0.358***	0.663***	1.000	
Procurement Fraud	-0.029	0.242***	0.089	1.000

*** $p < 0.01$

The results in Table 4 indicate that forensic audit activities are positively associated with transparency ($r = 0.303$, $p < 0.01$) and tone at the top ($r = 0.358$, $p < 0.01$), and transparency and tone at the top ($r = 0.663$, $p < 0.01$). This suggests that organizations that invest in forensic auditing tend to exhibit stronger governance cultures.

Interestingly, Table 4 results also reveal that forensic audit activities did not demonstrate a statistically significant direct correlation with procurement fraud ($r = -0.029$, $p > 0.01$). This finding suggests that forensic auditing may not influence procurement fraud directly but rather through intervening organizational mechanisms. The strong association between transparency and tone at the top ($r = 0.663$, $p < 0.01$) further highlights the interconnected nature of cultural dimensions within public-sector organizations.

Structural Model and Mediation Analysis

To test the hypothesized relationships, Partial Least Squares Structural Equation Modelling (PLS-SEM) was employed using bootstrapping procedures.

Table 5: Mediation Results (PLS-SEM)

Effect	Coefficient	SE	t-value	p-value	Decision
Total Effect (FAA → PF)	0.565	0.041	13.871	0.000	Significant
Direct Effect (FAA → PF)	0.295	0.053	5.517	0.000	Significant
Indirect Effect (FAA → OC → PF)	0.270	0.047	5.794	0.000	Significant

Legend: FAA: Forensic audit activities; PF: Procurement Fraud; OC: Organizational Culture



The mediation analysis in Table 5 reveals that organizational culture significantly mediates the relationship between forensic audit activities and procurement fraud. The indirect effect ($\beta = 0.270$, $p < 0.001$) accounted for approximately 47.8% of the total effect, indicating partial mediation.

The results demonstrate that organizational culture serves as a critical mechanism through which forensic auditing influences fraud-related outcomes. In practical terms, forensic audit activities appear more effective when implemented within organizational environments characterized by transparency, ethical leadership, and accountability.

Table 6: Variance Accounted for (VAF)

Measure	Value
Indirect Effect	0.270
Total Effect	0.565
VAF	47.8%
Mediation Type	Partial Mediation

According to Hair et al. (2022), a VAF value between 20% and 80% indicates partial mediation. Therefore, organizational culture partially explains how forensic audit activities influence procurement fraud perceptions as indicated in Table 5 and 6.

Hypothesis Testing

Table 7: Summary of Hypothesis Testing

Hypothesis	Path	Result	Decision
H ₁	FAA → Procurement fraud	Significant but positive	Not supported
H ₂	Organizational culture → Procurement fraud	Partial evidence	Partially supported
H ₃	FAA → Organizational culture → Procurement fraud	Significant mediation	Supported

The findings provide strong support for the mediating role of organizational culture while challenging conventional assumptions regarding the direct effectiveness of forensic auditing.



DISCUSSION OF FINDINGS

The findings reveal a critical paradox within Ghana's local government system. Although forensic auditing is widely recognized as an effective anti-fraud mechanism, its practical implementation within MMDAs remains extremely limited. The consistently low mean scores across all forensic audit indicators suggest that forensic auditing has yet to become an institutionalized component of local government financial management. This finding supports earlier studies that identified the underutilization of forensic accounting techniques within Ghana's public sector. This finding extends prior work by Emmanuel et al. (2017) and Ocansey (2017), who similarly identified forensic accounting underutilization in Ghana's public sector, by providing systematic quantitative evidence across the complete population of local governments.

The persistence of procurement fraud despite the presence of qualified procurement personnel and formal planning procedures suggests that technical controls alone cannot eliminate fraud risks. This observation aligns with Agency Theory, which argues that information asymmetry and self-interest continue to create opportunities for opportunistic behaviour even in the presence of formal monitoring mechanisms. It also supports the Fraud Pentagon Theory, which emphasizes that fraud arises not only from opportunities but also from behavioural and organizational factors such as rationalization, capability, and arrogance. It also aligns with Institutional Theory by explaining how organizational culture can determine whether forensic audit activities become substantive governance tools or merely ceremonial compliance mechanisms.

The findings further demonstrate that transparency and tone at the top influence whether forensic audit activities translate into meaningful fraud reduction outcomes. In organizations where leadership demonstrates ethical commitment, encourages accountability, and supports information sharing, forensic audit findings are more likely to be acted upon. Conversely, weak organizational cultures may suppress investigations, discourage whistleblowing, and undermine audit recommendations.

The significant mediation effect therefore reinforces the growing body of literature suggesting that governance reforms cannot rely exclusively on technical controls. Investments in forensic audit capacity must be accompanied by broader cultural reforms aimed at strengthening ethical leadership, transparency, accountability, and whistleblower protection mechanisms.

One of the most intriguing findings of this study is the positive and statistically significant direct relationship between forensic audit activities and procurement fraud perceptions ($\beta = 0.295$, $p < 0.001$), contrary to the theoretical expectation that forensic auditing should reduce fraudulent behaviour. At first glance, this result appears counterintuitive; however, several plausible explanations grounded in theory and public-sector governance literature provide insight into this finding.

First, the result may reflect a detection effect rather than a causal effect. Organizations that engage in forensic audit-related activities may be more capable of uncovering irregularities that would otherwise remain hidden. In such environments, fraud becomes more visible because detection mechanisms are stronger. Consequently, respondents may report higher levels of procurement fraud not because fraud is increasing, but because existing fraud is being identified and recognized more effectively. Similar interpretations have been advanced in



governance and audit research, where enhanced monitoring mechanisms initially reveal higher levels of misconduct before generating long-term reductions in fraudulent behaviour.

Second, the finding may indicate the presence of reverse causality. Assemblies experiencing higher levels of procurement irregularities may be more likely to introduce forensic audit initiatives in response to fraud concerns. In this scenario, procurement fraud precedes forensic audit activities rather than the reverse. Because the study employed a cross-sectional design, it is not possible to determine the temporal sequence of these events. Longitudinal studies would be necessary to establish whether forensic audit implementation subsequently reduces fraud over time.

Third, the result may reflect what institutional theorists describe as "symbolic compliance" or "audit theater" (Meyer & Rowan, 1977). Under conditions of regulatory pressure, organizations may adopt visible audit structures and anti-fraud initiatives to demonstrate compliance and legitimacy without fully implementing the underlying controls. In such situations, forensic audit activities exist formally but lack the authority, independence, resources, or organizational support necessary to influence behaviour. This interpretation is particularly relevant given the descriptive findings, which indicate that forensic audit practices remain largely absent or weakly institutionalized across the MMDAs.

Fourth, the positive coefficient reinforces the study's central argument regarding the importance of organizational culture. The mediation results demonstrate that nearly half of the total effect of forensic audit activities on procurement fraud operates through organizational culture. This suggests that forensic auditing does not function effectively in isolation. Rather, its effectiveness depends on supportive organizational conditions characterized by transparency, ethical leadership, accountability, and willingness to implement audit recommendations. In environments where these cultural conditions are weak, forensic audit activities may generate reports and findings without producing meaningful behavioural or organizational change.

Taken together, these explanations suggest that the positive direct effect should not be interpreted as evidence that forensic auditing promotes fraud. Instead, it highlights the complexity of fraud-control mechanisms in public-sector organizations and underscores the importance of considering organizational and institutional contexts when evaluating the effectiveness of forensic audit interventions.

In all, the findings suggest that organizational culture is not merely a contextual factor influencing forensic auditing but rather a fundamental mechanism through which forensic auditing becomes effective. Without supportive organizational cultures characterized by transparency, ethical leadership, and accountability, even technically sophisticated forensic audit systems may fail to achieve meaningful reductions in procurement fraud.

CONCLUSION

This study examined the role of organizational culture in shaping the effectiveness of forensic audit activities in combating procurement fraud within Ghana's Metropolitan, Municipal, and District Assemblies (MMDAs). Specifically, the study investigated the extent to which



organizational culture mediates the relationship between forensic audit activities and procurement fraud in decentralized public-sector institutions.

The findings reveal a significant implementation gap in Ghana's local government accountability framework. Despite the growing recognition of forensic auditing as a specialized anti-fraud mechanism, forensic audit practices remain largely underdeveloped across the MMDAs. The study found very low levels of forensic audit implementation, including limited employment of forensic auditors, inadequate fraud investigation training, weak whistleblowing mechanisms, and the near absence of anti-fraud structures. At the same time, perceptions of procurement fraud remain relatively high, indicating that existing control systems have not been sufficiently effective in preventing procurement-related irregularities.

This study is the demonstration that organizational culture plays a critical role in translating forensic audit efforts into meaningful fraud-control outcomes. The results show that organizational culture significantly and partially mediates the relationship between forensic audit activities and procurement fraud, accounting for nearly half of the total effect. This finding suggests that technical audit mechanisms alone cannot effectively reduce procurement fraud unless they operate within organizational environments characterized by transparency, ethical leadership, accountability, and openness to scrutiny.

The study extends Agency Theory by demonstrating that monitoring mechanisms become more effective when supported by favourable organizational norms and governance practices. It also advances the Fraud Pentagon Theory by highlighting the importance of organizational culture in influencing behavioural factors that facilitate or constrain fraudulent conduct. Consequently, the study provides empirical evidence that organizational culture is not merely a contextual factor but a strategic organizational resource that determines the effectiveness of anti-fraud interventions within public institutions.

An important insight emerging from the study is that the effectiveness of forensic auditing cannot be evaluated solely through its direct association with procurement fraud. The positive direct relationship observed in the structural model appears to reflect detection, institutional, and contextual dynamics rather than a failure of forensic auditing itself. The significant mediating role of organizational culture suggests that forensic audit interventions are most effective when embedded within organizational environments that support transparency, ethical leadership, and accountability. Consequently, policymakers should view forensic auditing as part of a broader governance ecosystem rather than as a standalone anti-corruption solution.

Finally, the study concludes that sustainable reductions in procurement fraud require an integrated approach that combines forensic audit capacity with broader organizational reforms aimed at strengthening ethical behaviour, transparency, accountability, and institutional integrity within local government administration.

Recommendations

Based on the findings of this study, the following recommendations are proposed:

Institutionalize Forensic Audit Units within MMDAs: The Government of Ghana, the Ghana Audit Service, and the Ministry of Local Government should establish dedicated forensic audit units within all Metropolitan, Municipal, and District Assemblies. These units should be



adequately resourced and staffed with trained forensic accounting and fraud investigation professionals capable of conducting specialized fraud investigations and supporting law enforcement agencies when necessary.

Strengthen Capacity Building in Forensic Auditing: Regular training programmes should be organized for internal auditors, accountants, procurement officers, and senior management personnel to enhance competencies in forensic auditing, fraud risk assessment, digital forensic techniques, and fraud investigation methodologies. Such initiatives will improve the ability of local governments to detect and respond to emerging procurement fraud schemes.

Enhance Transparency Mechanisms: MMDAs should strengthen transparency practices by ensuring timely publication of procurement information, contract awards, budgets, and audit reports. Greater public access to procurement information will reduce information asymmetry and increase external scrutiny, thereby limiting opportunities for fraudulent behaviour.

Promote Ethical Leadership and Accountability: Local government leaders should actively demonstrate commitment to ethical conduct through consistent enforcement of regulations, transparent decision-making, and equitable application of disciplinary procedures. Ethical leadership should be incorporated into performance evaluation systems for senior management officials.

Establish Effective Whistleblower Protection Systems: The low prevalence of whistleblowing mechanisms observed in this study suggests the need for stronger reporting channels. MMDAs should establish confidential reporting systems and implement robust whistleblower protection measures to encourage the reporting of procurement irregularities without fear of retaliation.

Integrate Organizational Culture into Anti-Corruption Reforms: Anti-corruption initiatives should move beyond technical control mechanisms and explicitly incorporate organizational culture interventions. Programmes aimed at strengthening transparency, accountability, ethical awareness, and employee engagement should accompany investments in forensic audit systems to maximize fraud-prevention outcomes.

Strengthen Oversight and Enforcement: The Ghana Audit Service, Internal Audit Agency, Public Procurement Authority, and anti-corruption institutions should intensify monitoring of procurement activities and ensure the implementation of audit recommendations. Sanctions for procurement violations should be applied consistently to enhance deterrence and reinforce accountability.

Recommendations for Future Research

Future studies should adopt longitudinal research designs to examine causal relationships between forensic auditing and procurement fraud over time. Researchers may also employ qualitative approaches to explore organizational and political factors that influence the implementation of forensic audit recommendations. Comparative studies involving local governments across African countries would further enhance understanding of context-specific and generalizable determinants of forensic audit effectiveness.



Limitations and Future Research

Though the present study provides important insights into the relationship between forensic auditing, organizational culture, and procurement fraud, it relied on self-reported perceptions. This may be affected by social desirability and common method bias. The study also focus on Ghanaian MMDAs may limit the generalizability of the findings to other public-sector contexts. Further research employing diverse methodologies, broader contexts, and additional variables is necessary to deepen understanding of how public-sector organizations can effectively combat procurement-related fraud.

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