

The Impact of Audit Data Analytics on Financial Accountability in County Governments: Evidence from Bungoma County, Kenya

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Abstract- *This study examines the impact of audit data analytics on financial accountability in Bungoma County Government, Kenya. Using a descriptive survey design with 123 respondents from finance departments, internal audit units, and external audit offices, the research employed structured questionnaires to collect primary data. The study found a strong positive correlation ($r = 0.848$) between audit data analytics and financial accountability, with audit data analytics explaining 72% of the variance in financial accountability ($R^2 = 0.720$). Regression analysis revealed that a unit increase in audit data analytics implementation leads to a 0.895-unit improvement in financial accountability ($\beta = 0.895$, $p < 0.001$). The findings demonstrate that integrating digital analytical tools into audit processes significantly enhances fraud detection, reduces financial misstatements, and promotes transparency in public financial management. The study recommends investment in advanced audit technologies and comprehensive staff training.*

Indexed Terms- *Audit Data Analytics, Financial Accountability, County Governments, Public Sector Auditing*

I. INTRODUCTION

Digital transformation has revolutionized public sector financial management, particularly in audit practices where traditional manual processes are increasingly supplemented by sophisticated data analytics tools (Abdullah & Almaqtari, 2024). In Kenya's devolved governance system, county governments manage substantial public resources, making effective audit systems crucial for accountability and transparency (Muzurura & Mutambara, 2022).

Audit data analytics represents a paradigm shift from sample-based testing to comprehensive population analysis, enabling auditors to examine entire datasets for anomalies, patterns, and potential fraud indicators (Eilifsen et al., 2020). This technological advancement is particularly relevant for county governments where financial leakages and irregular spending have been prevalent concerns.

Bungoma County has faced recurring financial accountability challenges as evidenced by Auditor-General reports from 2019 to 2022, which revealed unresolved audit queries, non-disclosure of trade loan details, and irregular bursary allocations. Despite external audits, such issues persist, indicating that audit quality rather than frequency is the critical missing link.

The theoretical foundation draws from the Technology Acceptance Model (TAM), which explains technology adoption based on perceived usefulness and ease of use (Davis, 1986), and Agency Theory, which addresses information asymmetries between principals (citizens) and agents (county officials) in public resource management (Jensen & Meckling, 1976).

This study addresses the gap in empirical research on how audit data analytics affects financial accountability at Kenya's county level. The findings contribute to literature on digital transformation in public sector auditing and provide practical insights for strengthening financial governance through technology adoption.

II. LITERATURE REVIEW

2.1 Theoretical Framework

The Technology Acceptance Model (TAM), developed by Davis (1986), serves as the primary theoretical foundation. TAM posits that technology acceptance is determined by perceived usefulness and perceived ease of use. In audit contexts, perceived usefulness relates to auditors' belief that data analytics enhances job performance, while perceived ease of use concerns implementation effort requirements (Marangunic & Granic, 2015).

Agency Theory (Jensen & Meckling, 1976) provides additional grounding by explaining principal-agent relationships in public sector contexts. County governments operate as agents managing public resources on behalf of citizens (principals), creating potential information asymmetries. Audit data analytics serves as a monitoring mechanism to reduce agency costs and enhance accountability.

2.2 Audit Data Analytics and Technology Adoption

Recent literature demonstrates increasing adoption of data analytics in audit practices. Sethibe et al. (2022) examined robotics adoption in South African auditing, finding that performance expectancy and facilitating conditions are key determinants. Their study revealed training deficits, data quality issues, and inadequate investment as primary barriers, while management support enables successful implementation.

Eilifsen et al. (2020) explored audit data analytics usage in Norwegian public accounting firms, revealing positive attitudes despite limited advanced analytics implementation. Their findings indicated greater utilization for clients with integrated ERP/IT systems and newly tendered engagements, suggesting technological infrastructure influences adoption patterns.

Sanoran et al. (2023) investigated Thai auditors' use of data analytic tools, finding primary utilization in audit planning and substantive testing. Their analysis revealed significant benefits in anomaly detection and management assertion testing, though implementation challenges persist.

2.3 Digital Transformation in Public Sector Auditing
Public sector audit environments have experienced significant digital transformation. Oluoch (2022) examined IT effects on internal auditing in Kenyan banks, demonstrating that technology adoption strengthens audit integrity, reduces costs, and improves efficiency. However, high implementation costs remain barriers.

Ismail et al. (2024) studied digital audit readiness among Malaysian public sector auditors, identifying change valence, task knowledge, and task availability as significant readiness predictors. Their findings emphasize organizational support and auditor competency importance in digital transformation.

2.4 Financial Accountability in Devolved Governance
Financial accountability in devolved systems requires robust monitoring mechanisms. Cordery et al. (2023) examined public sector audit's role in achieving Sustainable Development Goals, highlighting the importance of accountability systems in democratic governance.

Musalimwa and Sangoro (2023) investigated internal audit capacity effects on financial reporting quality in Western Kenya counties, finding strong positive relationships between audit capacity and reporting quality. Enhanced staffing capacity significantly influences accountability outcomes, suggesting human resource development complements technological advancement.

III. RESEARCH METHODOLOGY

3.1 Research Design and Population

This study employed a descriptive survey design to examine the relationship between audit data analytics and financial accountability in Bungoma County Government. The target population comprised 150 officials including Chief Officers (14), Internal Auditors (18), External Auditors (40), Accountants (22), Economists (20), Fund Administrators (10), Directors (14), and Supply Chain Officers (12). A census approach was adopted to ensure comprehensive coverage and eliminate sampling error.

3.2 Data Collection and Instruments

Primary data was collected using structured questionnaires administered to all targeted respondents. The audit data analytics section contained eight items measured on a five-point Likert scale, covering accuracy improvement, anomaly detection, technology utilization, transparency enhancement, process efficiency, training adequacy, fraud reduction, and implementation challenges.

A pilot study was conducted in Kakamega County with 15 respondents to test and refine instruments. Content validity was ensured through expert judgment involving supervisors and experienced auditing professionals. Reliability was assessed using Cronbach's Alpha, with audit data analytics achieving $\alpha = 0.961$ and financial accountability $\alpha = 0.841$, both exceeding the 0.70 threshold.

3.3 Data Analysis

Data analysis employed SPSS version 27, using descriptive statistics (frequencies, percentages, means, standard deviations) and inferential analysis (correlation and regression). The regression model was specified as:

$$\text{Financial Accountability} = \beta_0 + \beta_1(\text{Audit Data Analytics}) + \epsilon$$

Ethical approval was obtained from Kibabii University and NACOSTI, with informed consent secured from all participants.

IV. RESULTS AND DISCUSSION

4.1 Response Rate and Demographics

Out of 150 questionnaires distributed, 123 were completed (82% response rate). Demographics showed 61% male and 39% female participants, with 64.2% aged above 40 years. Educational qualifications were high (87% bachelor's degree or higher), while 51.2% had five years or less service experience.

4.2 Descriptive Analysis

Table 1 presents descriptive statistics for audit data analytics implementation. Mean scores ranged from 3.71 to 4.11, indicating positive perceptions.

Table 1: Descriptive Statistics for Audit Data Analytics

Statement	Mean	Std. Dev.
Technology frequently used in audits	4.11	1.107
Improves audit process efficiency	4.08	1.106
Enhances transparency practices	4.02	1.094
Effectively identifies anomalies	3.99	1.198
Sufficient training provided	3.97	1.201
Implementation challenges exist	3.89	1.147
Improves reporting accuracy	3.85	1.164
Reduces fraud and misappropriation	3.71	1.253

The highest mean (4.11) was for frequent technology usage, indicating widespread adoption. The lowest mean (3.71) for fraud reduction suggests uncertainty about effectiveness in preventing irregularities.

4.3 Regression Analysis

Correlation analysis revealed a strong positive relationship ($r = 0.848$, $p < 0.01$) between audit data analytics and financial accountability. Regression results are presented in Table 2.

Table 2: Regression Analysis Results

Model Summary	Value
R	0.848
R Square	0.720
Adjusted R Square	0.717
F-statistic	310.617
Significance	0.000

Coefficients:

- Constant: 2.800 ($p = 0.091$)
- Audit Data Analytics: 0.895 ($t = 17.624$, $p = 0.000$)

The model demonstrates strong explanatory power ($R^2 = 0.720$), with audit data analytics explaining 72% of financial accountability variance. The regression equation is:

Financial Accountability = $2.800 + 0.895 \times$ Audit Data Analytics

The coefficient ($\beta = 0.895$) indicates that one-unit increase in audit data analytics results in 0.895-unit improvement in financial accountability, providing strong evidence to reject the null hypothesis.

4.4 Discussion

The findings demonstrate that audit data analytics significantly enhances financial accountability, supporting digital transformation literature in public sector auditing. The strong correlation ($r = 0.848$) aligns with Eilifsen et al. (2020), while the high R^2 value indicates technological adoption serves as a powerful accountability determinant.

The positive coefficient supports Sethibe et al. (2022), who identified performance expectancy as key in technology adoption. Data analytics' ability to process entire transaction populations addresses agency theory concerns about information asymmetries.

However, moderate agreement on fraud reduction and implementation challenges highlights persistent obstacles, including inadequate training and high costs, consistent with Oluoch (2022). The variation in responses suggests need for comprehensive capacity building alongside technology investments.

CONCLUSION

This study provides empirical evidence that audit data analytics significantly enhances financial accountability in county governments. The strong positive relationship ($r = 0.848$) and high explanatory power ($R^2 = 0.720$) demonstrate that integrating digital analytical tools substantially improves fraud detection, reduces misstatements, and promotes transparency.

The findings support Technology Acceptance Model applications in public sector contexts while addressing Agency Theory monitoring concerns in devolved governance. Counties embracing audit data analytics are better positioned to achieve transparency and enhance citizen confidence.

However, persistent implementation challenges highlight the need for comprehensive approaches addressing both technical and human resource dimensions of digital transformation.

RECOMMENDATIONS

1. Counties should prioritize investment in advanced audit data analytics tools, including AI and real-time monitoring systems, with budget allocations reflecting strategic importance.
2. Comprehensive training programs should be developed through partnerships with professional bodies and universities to ensure continuous skills development.
3. Robust ICT policies supporting audit data analytics implementation should be developed, addressing data security, system integration, and performance monitoring.
4. Management support is crucial for successful implementation through resource allocation, policy support, and organizational culture change.

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