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Effect of Integrated Financial Management Information Systems on Audit Evidence in the Public Sector: A Case of the Office of the Auditor General, Zambia

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ABSTRACT

This study examined the effectiveness of the Integrated Financial Management Information System (IFMIS) in enhancing the generation of reliable audit evidence within the Office of the Auditor General in Zambia. The study was guided by three objectives: to assess the effect of IFMIS implementation on the quality of audit evidence, to evaluate its impact on the efficiency of audit evidence collection and analysis, and to examine the challenges affecting its effective use in generating reliable audit evidence. A mixed-methods research design was adopted. Quantitative data were collected from 54 respondents using structured questionnaires, while qualitative data were obtained through semi-structured interviews with selected audit personnel. Quantitative data were analysed using descriptive statistics, correlation analysis, regression modelling, and paired sample t-tests, while...

Full abstract continues on the metadata continuation sheet.

Index Terms: IFMIS • audit evidence • public financial management • audit quality • efficiency • accountability • Zambia • systems integration • digital auditing

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RESEARCH ARTICLE

Effect of Integrated Financial Management Information Systems on Audit Evidence in the Public Sector: A Case of the Office of the Auditor General, Zambia

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Abstract

This study examined the effectiveness of the Integrated Financial Management Information System (IFMIS) in enhancing the generation of reliable audit evidence within the Office of the Auditor General in Zambia. The study was guided by three objectives: to assess the effect of IFMIS implementation on the quality of audit evidence, to evaluate its impact on the efficiency of audit evidence collection and analysis, and to examine the challenges affecting its effective use in generating reliable audit evidence. A mixed-methods research design was adopted. Quantitative data were collected from 54 respondents using structured questionnaires, while qualitative data were obtained through semi-structured interviews with selected audit personnel. Quantitative data were analysed using descriptive statistics, correlation analysis, regression modelling, and paired sample t-tests, while qualitative data were analysed thematically to provide deeper contextual interpretation. The findings revealed that IFMIS has significantly improved the quality of audit evidence by enhancing timeliness, traceability, consistency, reliability, relevance, and overall audit comprehensiveness. The system also substantially improved audit efficiency by reducing evidence collection time, strengthening inter-departmental coordination, and enabling real-time access to financial information. Despite these benefits, several challenges were identified, including persistent technical system failures, inadequate ICT infrastructure, limited user training, resistance to system adoption, and inconsistencies in data entry practices. The study concludes that IFMIS is a critical enabler of improved audit evidence quality and efficiency in public financial management, though its effectiveness is significantly influenced by institutional capacity, infrastructure readiness, and user competence. The study recommends strengthening ICT infrastructure, enhancing continuous professional training, improving system reliability and integration across departments, and developing clearer implementation guidelines.

Keywords: IFMIS, audit evidence, public financial management, audit quality, efficiency, accountability, Zambia, systems integration, digital auditing

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1 Introduction

Public financial management (PFM) has been a subject for modernisation in many developing countries, and Integrated Financial Management Information Systems (IFMIS) have been playing a key role in these reforms. These systems have been implemented to streamline financial processes, enhance the accuracy and reliability of financial reporting, and boost transparency and accountability in government spending. IFMIS is intended to streamline and computerise key functions like budgeting, procurement, accounting and financial reporting, thereby eliminating financial leakages, better tracking public funds and effective utilisation of government resources (Harelimana, 2017). The roll-out of IFMIS is also considered a significant contribution to good governance, in that it provides a way to monitor public finance transactions in real time, increasing transparency and decreasing opportunities for corruption.

The use of IFMIS for the public sector reforms has greatly changed the way financial information is created, processed, stored and reported. Although there has been a lot of focus on the transparency, accountability, and financial management benefits of IFMIS, little research has focused on its impact on evidence that is the foundation of the audit process (Rana et al., 2022). Audit evidence plays a vital role in determining the accuracy, reliability, completeness and legality of the conduct of public financial transactions and statements. The IFMIS can have a major impact on the quality, timeliness, traceability, sufficiency and reliability of audit evidence, as it automates financial processes, integrates financial databases and reports on transactions in real time. In this context, the question of the impact of IFMIS on the quality of audit evidence has become more relevant in the context of public sector auditing, in which the use of digital financial records continues to increase.

The implementation of IFMIS in Zambia is a key milestone in the process of overcoming these inefficiencies and irregularities in public financial management. The main objective of the implementation of IFMIS in Zambia was to improve the transparency, accountability, and efficiency of the use of public resources. Even with such plans, many challenges have been identified to ensure the benefits of the system are fully realised, such as a lack of technical skills of users, resistance to change and poor system integration (Gopal & Ngoma, 2022). Although implementation of IFMIS in the public sector is underway in Zambia, there is a lack of empirical evidence which is specific to the impact of IFMIS on the quality of audit evidence and audit efficiency in the OAG. This study, therefore, seeks to fill this gap.

1.1 Research Problem

The introduction of IFMIS has been undertaken in the public sector in Zambia to enhance transparency, accountability, expenditure control and financial reporting, but the impact on enhancing audit evidence in the Office of the Auditor General (OAG) is not yet certain. Previous research has concentrated on the impact of IFMIS on the budgeting, financial reporting and expenditure management (Karanja, 2014; Ng'ang'a, 2014), and there is limited empirical research on the impact of IFMIS on the quality and efficiency of audit evidence. Although IFMIS can be automated and integrated, there are concerns about system downtime, data inconsistencies, incomplete audit trails, lack of user training, and infrastructure limitations, which can impact the reliability and timeliness of audit evidence. This study aims to look at the relationship between IFMIS and audit evidence quality, audit evidence before and after implementation of IFMIS, the impact of IFMIS on audit efficiency and challenges facing the effective use of IFMIS in the production of audit evidence of good quality.

1.2 Research Objectives

The study was guided by the following objectives:

1. To examine the relationship between the use of IFMIS and the quality of audit evidence in the public sector.
2. To compare the quality of audit evidence before and after the implementation of IFMIS.
3. To assess the effect of IFMIS on the efficiency of audit evidence collection and analysis.
4. To identify challenges affecting the effective use of IFMIS in generating reliable audit evidence.

1.3 Research Questions

Corresponding research questions were:

5. What relationship exists between the use of IFMIS and the quality of audit evidence in the public sector?
6. How does the quality of audit evidence differ before and after the implementation of IFMIS?
7. What effect does IFMIS have on the efficiency of audit evidence collection and analysis?
8. What challenges affect the effective use of IFMIS in generating reliable audit evidence?

1.4 Significance of the study

This study also offers the OAG with suggestions for improving the quality of audit evidence and addressing issues that could be hindering the OAG's ability to achieve maximum value from IFMIS. The research also allows users to give feedback to the developer on possible areas of improvement for the software to be more efficient. The results will add to the existing knowledge and will be used as a reference for researchers, scholars and academics. The findings will also help private investors to build trust in public financial management and improve public accountability and transparency in public finance.

1.5 Scope of the study

The study evaluated the influence of IFMIS on audit evidence in the public sector, specifically in OAG-Z, Lusaka. The targeted population comprised the auditors, audit managers and other stakeholders directly involved in the audit process of the OAG-Z. The research covers the period 2015 – 2023, which was the time period when IFMIS was introduced and introduced in the public sector in Zambia.

2 Literature Review

2.1 Conceptual Background

2.1.1 Integrated Financial management Information systems (ifmis).

An IFMIS is a fiscal tool for the government that bundles all financial management functions into one suite of applications. It is an information technology-based budgeting and accounting system that aims to help government bodies to plan budget requests, spend budget, manage and report financial activities and provide services in a more efficient, effective and economical way. IFMIS is based on a common structure and platform, which helps to achieve greater compatibility and consistency of fiscal and financial information, thereby lowering the total cost of governments' investment in expensive accounting systems in each entity (Diamond & Khemani, 2005). The goals of IFMIS are to achieve transparency, minimise financial leakages and accountability in the utilisation of government resources.

2.1.2 Audit evidence. Audit evidence is any information that auditors use to draw conclusions and base their audit opinions upon. The sufficiency and appropriateness of audit evidence are core concepts of the audit in the context of achieving reasonable assurance, as called out in ISA 500 (IAASB, 2020). Digitalisation of financial systems has revolutionised the ways in which audit evidence is generated and examined, whereas traditional audit evidence was mostly based on manual records. Integrated systems like IFMIS provide greater transaction traceability and completeness, and allow auditors to gain reliable electronic evidence from system databases directly (Ruhnke and Schmidt, 2014).

2.1.3 Public Financial management (pfm). PFM is the collection of laws, systems and processes that governments employ to raise revenue, allocate resources and hold governments accountable for public spending. The use of digital tools such as IFMIS is increasingly being integrated into modern PFM reforms in an attempt to improve transparency and eliminate inefficiencies (OECD, 2019). In Zambia, the Smart Zambia Institute's initiatives have focused on digitising financial management with the aim of consolidating information from multiple ministries, provinces and expenditure agencies in one centralised platform known as the IFMIS, thus facilitating auditors of the OAG to audit the agencies, verify compliance, identify anomalies, and report on the basis of evidence.

2.2 Theoretical framework

2.2.1 Technology Acceptance model (tam). The Technology Acceptance Model was proposed by Davis (1989), which suggests that attitude toward a technological system is based on two constructs: Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). This theory is particularly relevant to IFMIS as the value and usability of the system in providing audit evidence are largely dependent on the auditors' and financial officers' perceptions of the system. The more auditors feel that IFMIS makes data easier to retrieve, more transparent, and timelier to have in hand for the audit, the more likely they are to be effective in using it. Bierstaker et al. (2014) were able to discover that auditors were more likely to adopt technological tools, improve the quality of their audits, and make more accurate decisions when they felt these tools were efficient and reliable.

2.2.2 Systems theory. The first theory developed by Bertalanffy (1950) is Systems Theory, which sees an organisation as a complex, interrelated system in which every component is dependent upon and affects the others for the overall harmony and efficiency of the system. IFMIS is a perfect example of systemic integration as it brings everything related to financial management in a single platform, thus making it easier to share data, standardise reports, and access information in real-time. The study by Kinyua (2016) on the use of Systems Theory in financial management indicates that when integrated systems are used, there are increased levels of coordination, reporting processes are simplified, and audit trails are improved as each transaction is recorded by multiple offices.

2.2.3 Agency theory. Agency Theory, created by Jensen and Meckling (1976), focuses on the interaction between principals (citizens and oversight bodies) and agents (public officials or managers) who are tasked to manage resources on their principals' behalf. IFMIS serves as a tool to reduce agency problems by providing greater transparency, automation in reporting and timely access to financial information for auditors and oversight bodies. In line with agency theory's prediction that better information flow reduces opportunistic behaviour, Muiruri (2018) found that the implementation of IFMIS enhances accountability and transparency by restricting access to the system and allowing tracking of transactions.

2.3 Empirical review

2.3.1 Global perspective. Evidence shows that digital audit technologies are effective at strengthening audit evidence by making it more timely, traceable, reliable and efficient. Bierstaker et al. (2014) determined that auditor perceptions of tools as efficient were associated with increased acceptability of using them, which positively impacts audit quality. Yoon et al. (2015) proved that digital systems can complement internal client data to enhance the sufficiency, reliability and verification processes. Moll and Yigitbasoglu (2019) found that the technologies of cloud computing, big data, blockchain and AI have high potential in the field of automation of decision-making and improve the timeliness and transparency of financial reporting. But most of the studies conducted globally are conducted in the context of CAATs, AI and continuous auditing with limited studies conducted in the context of IFMIS and public-sector auditing settings in developing countries.

2.3.2 Regional perspective. These benefits of IFMIS are generally supported by regional studies. Njonde and Kimanzi (2014) assessed the effects of IFMIS on the performance of the public sector in Kenya and reported that there was an improvement in the financial reporting, budgeting and internal control processes, but there were some implementation challenges. Increased transparency, efficiency and quality and accuracy of financial reports were found to be the benefits of IFMIS

by Muiruri (2018). Omokanga (2014) noted that there is a statistically significant positive relationship between IFMIS adoption and the improvement of financial reporting, transaction processing efficiency and governance controls. However, the literature in the region primarily focuses on the performance of financial management, but not specifically on audit evidence as the primary outcome variable.

2.3.3 Local perspective. Local studies have demonstrated that IFMIS is helping to enhance accountability, transparency of financial information, audit trails and access to financial information in Zambia. A study by Muwema and Phiri (2020) revealed that IFMIS improved the timeliness and accuracy of financial record-keeping, which helped in the collection and verification of audit evidence. Chileshe (2019) reported that the potential benefits of IFMIS are not fully realised due to partial system integration and inadequate user skills. Phiri and Banda (2021) found that technology has a significant impact on reducing the time taken to complete an audit and improves objectivity in audit conclusions. Most local studies, however, tend to be at a general level of accountability and financial management results and do not measure the quality of audit evidence as a multifaceted construct.

2.4 Research Hypotheses

Objective	Hypothesis	Type
Examine relationship between IFMIS use and audit evidence quality	H ₁ : There is a significant positive relationship between IFMIS use and the quality of audit evidence	Correlational
Compare audit evidence quality before and after IFMIS implementation	H ₂ : Audit evidence quality is significantly higher after IFMIS implementation	Comparative (Pre-Post)
Assess effect of IFMIS on efficiency of audit evidence collection	H ₃ : IFMIS use significantly enhances efficiency of audit evidence collection and analysis	Causal / Impact
Identify challenges affecting effective IFMIS use	H ₄ : System-related and user-related challenges significantly affect IFMIS effectiveness in producing reliable audit evidence	Associational

Table 1. Research Hypotheses

3 Research Methodology

3.1 Research design

The study employed a mixed-method design consisting of both quantitative and qualitative methods to have an in-depth understanding of the impact of IFMIS on the audit evidence. A convergent parallel mixed methods approach was employed in which both data types were collected at the same time and analysed together at analysis time to validate results and answer all research questions (Creswell & Plano Clark, 2017). The quantitative elements are involved with measuring observable relationships and efficiencies through survey methods, and the qualitative aspects are involved with describing perceptions and quality changes through interviews.

3.2 Study Site and population

The study was conducted at the OAG-Z in Lusaka, Zambia's chief supreme audit institution, responsible for auditing the accounts of the

public sector. The target population consisted of 620 staff members, directly involved in the creation of IFMIS-generated data, including professional auditors, senior audit managers and IT/systems support staff. The inclusion criterion was that participants had to have been serving in OAG-Z for at least two years from 2015 to 2023 and have experience with both pre- and post-IFMIS scenarios.

3.3 Sampling

The sample size was calculated for a finite population with Yamane's formula (1967) for a 0.05 margin of error (95% confidence level) and 87 participants. Adjustment for non-response added 10%, and 96 questionnaires were distributed. A stratified random sampling method was used, where the population was divided according to roles (auditors, audit managers, and other stakeholders). Within each stratum, simple random sampling was used, and purposive sampling was used to select key informants who have extensive experience in IFMIS as part of the qualitative approach.

3.4 Data Collection

The data collection methods used were structured questionnaires for quantitative data and semi-structured interviews for qualitative data, with a supplement of an audit report from 2015 to 2023. The questionnaire comprised five-point Likert scale statements and closed-ended questions that measured the dimensions of IFMIS use, audit evidence quality (before and after), efficiency, user acceptance, challenges and overall audit evidence effectiveness. In-depth interviews with key informants were conducted to gain insight into pre- and post-IFMIS experiences. Twenty non-sample participants were used to test the piloting of all instruments to ensure that they are clear and relevant. The quantitative data were analysed in SPSS, and the qualitative data were analysed thematically in NVivo.

3.5 Validity and Reliability

Construct validity was achieved by using pre-tested scales from previous studies, such as TAM constructs for user perception. Cronbach's alpha was used to test the reliability of the items with a target level of greater than 0.70 for all constructs. The triangulation of quantitative and qualitative methods and sources enhanced the overall validity of the study, and member checking enabled the participants to correct the transcripts of interviews. The internal consistencies of all the constructs were greater than the minimum criterion of reliability (see Table 4: summary-of-reliability-statistics-for-study-constructs), which indicated that the measurement instruments were applicable for further analysis.

4 Results and Discussion

4.1 Reliability analysis

Construct	No. of Items	Cronbach's α	Interpretation
IFMIS (B1–B6)	6	0.907	Excellent
Audit Quality Before IFMIS	7	0.933	Excellent
Audit Quality After IFMIS	7	0.909	Excellent
Efficiency (D1–D6)	6	0.764	Acceptable/Good
User Acceptance (E1–E5)	5	0.724	Acceptable
Challenges (F1–F7)	7	0.839	Good
Audit Evidence Effectiveness (G1–G5)	5	0.941	Excellent

Table 2. Summary of Reliability Statistics for Study Constructs

Note. All values exceed the recommended threshold of 0.70 for social science research.

The internal consistency for all constructs in the present study was satisfactory to excellent, with Cronbach's alpha ranging from 0.724 to 0.941. The alpha was highest for the construct audit evidence effectiveness (0.941) and lowest for user acceptance (0.724), indicating that there was a slight difference in the perception of the various aspects of IFMIS usability by the respondents with various training levels and experience. The results of reliability indicate that all constructs are reliable in terms of internal consistency, which is required for the reliability of the data for subsequent analysis.

4.2 Objective 1: Relationship between ifmis and Audit evidence quality

4.2.1 Descriptive Statistics.

Variable	Mean	Std. Deviation	N
Audit Evidence Effectiveness	4.0852	0.582	54
IFMIS Index	4.1451	0.642	54
IFMIS Improves Availability of Financial Data	4.43	0.792	54
IFMIS Enhances Accuracy of Financial Transactions	4.17	0.720	54
IFMIS Reduces Manual Errors in Financial Reporting	4.06	0.712	54
IFMIS Generates Real-Time Financial Reports	4.19	0.702	54
IFMIS Increases Audit Trail Transparency	4.15	0.737	54
IFMIS Usage Improves Sufficiency of Audit Evidence	3.89	0.965	54

Table 3. Descriptive Statistics for IFMIS and Audit Evidence Effectiveness

4.2.2 Correlation Analysis.

IFMIS Dimension	r	p-value
Availability of Financial Data	0.256	0.031
Accuracy of Financial Transactions	0.433	0.001
Reduction of Manual Errors	0.398	0.001
Real-Time Financial Reporting	0.182	0.094
Audit Trail Transparency	0.427	0.001
Sufficiency of Audit Evidence	0.440	0.000

Table 4. Correlation Between IFMIS Sub-Variables and Audit Evidence Effectiveness

Correlation analysis revealed that the majority of the components of the IFMIS are positively correlated with audit evidence effectiveness. The highest correlations were found with sufficiency of audit evidence ($r = 0.440$, $p < 0.001$), accuracy of financial transactions ($r = 0.433$, $p = 0.001$), and audit trail transparency ($r = 0.427$, $p = 0.001$). There was a moderate positive correlation between the overall IFMIS Index and audit evidence effectiveness ($r = 0.432$, $p = 0.001$). Interestingly, the results indicate that not all of the relationships between audit evidence quality and auditor assessment were significant at the 5% level. In particular, real-time financial reporting ($r = 0.182$, $p = 0.094$) was not significant. This implies that auditors do not consider the timeliness of information to be as important as reliability and accuracy.

4.2.3 Regression Analysis.

Model	R	R ²	Adj. R ²	Std. Error	F	Sig.
1 (IFMIS Index)	0.432	0.187	0.171	0.530	11.962	0.001

Table 5. Regression Model Summary – IFMIS and Audit Evidence Effectiveness

Predictor	B	Std. Error	β	t	Sig.
(Constant)	2.459	0.476	—	5.170	0.000
IFMIS Index	0.392	0.113	0.432	3.459	0.001

Table 6. Regression Coefficients

IFMIS explains 18.7% of the variation in audit evidence effectiveness ($R^2 = 0.187$, $F = 11.962$, $p = 0.001$). The regression coefficient verifies that the IFMIS has a positive correlation with audit effectiveness, where for every one unit increase in IFMIS, the audit effectiveness increases by 0.392 units ($\beta = 0.432$, $p = 0.001$). The explanatory power of IFMIS is moderate, suggesting that other variables, like efficiency, user competence and organisational support, also have an impact on audit results. The null hypothesis, H_{01} , was rejected: IFMIS has a statistically significant positive effect on audit evidence quality.

4.3 Objective 2: Audit evidence quality Before and After ifmis

Dimension	Mean (Before)	Mean (After)	SD (Before)	SD (After)
Relevance	2.96	4.17	0.931	0.541
Reliability	2.89	4.17	0.883	0.575
Sufficiency	2.94	4.13	0.811	0.584
Timeliness	2.56	4.15	0.925	0.656
Understandability	2.94	4.17	0.960	0.505
Consistency	2.63	4.19	0.896	0.585
Traceability	2.63	4.20	0.896	0.528
Overall Quality Index	2.79	4.17	0.764	0.458

Table 7. Descriptive Statistics for Audit Evidence Quality Before and After IFMIS

Dimension	Mean Diff. (Before–After)	t-value	df	Sig. (2-tailed)
Relevance	-1.204	-8.129	53	0.000
Reliability	-1.278	-8.362	53	0.000
Sufficiency	-1.185	-9.138	53	0.000
Timeliness	-1.593	-10.565	53	0.000
Understandability	-1.222	-7.968	53	0.000
Consistency	-1.556	-10.296	53	0.000
Traceability	-1.574	-10.272	53	0.000
Overall Quality Index	-1.381	-10.883	53	0.000

Table 8. Paired Samples t-Test Results for Audit Evidence Quality Dimensions

Note. Negative mean differences indicate post-IFMIS scores are higher than pre-IFMIS scores.

The paired sample t-tests showed that the audit evidence quality in all seven dimensions improved statistically significantly (all $p < 0.001$).

The general quality index increased from 2.79 (below average) to 4.17 (high quality) and was a transformational shift ($t = -10.883$, $p = 0.000$). The greatest mean difference and very large effect size ($d = -1.438$) were shown in Timeliness, which showed that IFMIS could provide financial data in real time. Traceability ($d = -1.398$) and consistency ($d = -1.401$) also showed very large improvements. All Cohen's d values are greater than 1.0, demonstrating not only statistical significance but also meaningful practice. The null hypothesis, H_{02} , was rejected, which states that there is no significant difference in audit evidence quality before and after the implementation of IFMIS.

Dimension	Cohen's d	Interpretation
Relevance	-1.106	Large Effect
Reliability	-1.138	Large Effect
Sufficiency	-1.243	Large Effect
Timeliness	-1.438	Very Large Effect
Understandability	-1.084	Large Effect
Consistency	-1.401	Very Large Effect
Traceability	-1.398	Very Large Effect

Table 9. Effect Sizes (Cohen's d) for Audit Evidence Quality Improvements

4.4 Objective 3: effect of ifmis on efficiency of Audit evidence Collection

Variable	Mean	Std. Dev.	N
Audit Evidence Effectiveness	4.085	0.582	54
Efficiency Index	4.114	0.450	54
IFMIS Reduces Time to Obtain Audit Evidence	4.28	0.596	54
IFMIS Reduces Physical Document Verification	3.83	0.863	54
IFMIS Improves Auditor and Agency Coordination	4.30	0.537	54
IFMIS Reduces Audit Adjustments	3.94	0.712	54
IFMIS Improves Overall Audit Process	4.43	0.499	54
Technical Challenges Reduce Audit Efficiency	3.91	0.708	54

Table 10. Descriptive Statistics for Efficiency Variables

Variable	Audit Effectiveness	p-value
Efficiency Index	0.681**	0.000
IFMIS Reduces Time to Obtain Audit Evidence	0.605**	0.000
IFMIS Improves Coordination	0.642**	0.000
IFMIS Improves Overall Audit Process	0.561**	0.000
IFMIS Reduces Physical Document Verification	0.427**	0.001
IFMIS Reduces Audit Adjustments	0.376**	0.003
Technical Challenges Reduce Audit Efficiency	0.303*	0.013

Table 11. Correlation Between Efficiency Index and Audit Evidence Effectiveness

Note. ** $p < 0.01$; * $p < 0.05$.

The R^2 for the model Efficiency Index is 46.3%, which is significantly higher than the R^2 for the IFMIS index only (18.7%). The strong regression coefficient ($\beta = 0.681$, $p < 0.001$) suggests that efficiency is not

Predictor	B	Std. Error	β	t	Sig.
(Constant)	0.459	0.545	—	0.843	0.403
Efficiency Index	0.881	0.132	0.681	6.697	0.000

Table 12. Regression Model – Efficiency Index Predicting Audit Evidence Effectiveness

Note. $R^2 = 0.463$, Adjusted $R^2 = 0.453$, $F(1,52) = 44.853$, $p < 0.001$.

only a by-product of IFMIS, but rather it is one of the key mechanisms by which IFMIS enhances audit performance. Coordination between auditors and agencies ($r = 0.642$) and reduced time to obtain evidence ($r = 0.605$) are the most influential efficiency drivers. The null hypothesis H_{03} was rejected: IFMIS significantly improves the efficiency of audit evidence collection and analysis.

4.5 Objective 4: Challenges affecting Effective ifmis use

Challenge Variable	Mean	SD	t	Sig.	Significant?
Technical Issues Hinder IFMIS Effectiveness	3.93	0.843	8.067	0.000	Yes
Infrastructure Limitations Hinder IFMIS	3.83	1.042	5.879	0.000	Yes
Lack of Training Hinders IFMIS Use	3.67	0.971	5.044	0.000	Yes
Resistance to Change Hinders Adoption	3.46	1.094	3.110	0.003	Yes
Inconsistent Data Input Reduces Reliability	3.24	1.063	1.664	0.102	No
Policy/Regulatory Gaps Hinder IFMIS	3.06	1.140	0.358	0.722	No
Data Security Concerns Hinder IFMIS	3.00	1.064	0.000	1.000	No

Table 13. Descriptive Statistics and One-Sample t-Test Results for IFMIS Challenges

Note. Test value = 3 (neutral point). Significant at $p < 0.05$.

The one-sample T-tests against the neutral value (test value = 3) showed that technical challenges, infrastructure limitations, lack of training, and resistance to change are statistically significant challenges. The problems of data security concerns, inconsistent data input, and policy gaps were not statistically significant at 5%, implying that they are not as significant as operational and technical barriers. The null hypothesis H_{04} was rejected; that is, technical, infrastructural and training issues are significant factors that impact the effectiveness of IFMIS in generating credible audit evidence.

4.6 Qualitative Findings

The qualitative results support the quantitative results. The majority of respondents reported that IFMIS increased the reliability, accuracy and traceability of financial information. One of the common challenges was the lack of embedded supporting documentation: as one respondent (R3) said, 'IFMIS can only guide auditors to documents; hard copy documents are necessary,' which indicates a two-system approach in which digital and manual systems were used together. Another respondent (R4) agreed that 'audit work is faster than manual systems', and R6 said that 'limited access to IFMIS impacts real-time verification'. These qualitative results are in line with the quantitative results, which mainly attribute the system impact to better coordination and less evidence collection time, and show that infrastructure and competence of the user moderate the impact of the system.

Objective	Key Theme	Summary of Finding
Quality of audit evidence	Improved reliability & transparency	IFMIS enhances accuracy, traceability, and credibility of audit evidence
Quality of audit evidence	Documentation limitation	Lack of embedded supporting documents (invoices, contracts) reduces completeness
Pre vs. post IFMIS quality	Improved quality after IFMIS	Audit evidence became more reliable and easier to verify post-implementation
Pre vs. post IFMIS quality	Training and user errors	Data inconsistencies arise from limited user training and knowledge
Efficiency of audit processes	Faster and more efficient processes	IFMIS improves speed and coordination in audit evidence collection
Efficiency of audit processes	Infrastructure and access constraints	Limited access and ICT challenges constrain real-time verification
Challenges of IFMIS use	Capacity and training gaps	Continuous training for auditors is needed for full system utilization
Challenges of IFMIS use	System and infrastructure limitations	Poor ICT infrastructure and weak system integration reduce effectiveness

Table 14. Summary of Thematic Findings Across Study Objectives

5 Discussion

5.1 Ifmis and Audit evidence quality

The results show that a statistically significant positive relationship exists between IFMIS use and quality of audit evidence, which aligns with the systems theory that posits that organisational success is dependent on the interrelatedness of subsystems (Bertalanffy, 1950; Kinyua, 2016). IFMIS enhances the financial data subsystem by making information more accessible, transparent and traceable. However, the documentary subsystem is not fully integrated (invoices, contracts and other supporting documents are not in the system), which reduces the level of auditing. The results of regression analysis show that IFMIS accounts for 18.7% of the variance in the effectiveness of the audit, which means that IFMIS is an 'enabling' factor and not a 'determining' one, as was concluded by Moll and Yigitbasiglu (2019) when they stated that digital systems add transparency but do not replace professional judgement.

The perceived usefulness of IFMIS is high from a TAM perspective, as it is perceived to be faster, more accessible and more transparent, but perceived ease of use and system completeness are limiting the use of the tool, especially by users who have not received proper training (Davis, 1989; Venkatesh and Davis, 2000). Correlation shows that the transparency of the audit trail and data accuracy are more important to audit effectiveness than the timeliness of the audit, as agency theory emphasises that the value of information to the agency is more important than the speed of the report (Jensen & Meckling, 1976).

5.2 Audit evidence quality Before and After ifmis

This study shows a wide and statistically significant improvement in audit evidence quality after the implementation of IFMIS. The overall quality indicator moved from 2.79 to 4.17, with the very high effect sizes of timeliness, consistency and traceability suggesting a reconfiguration

of the system as a whole, which is consistent with systems theory's argument that the integration of improvements cascades throughout the financial system (Bertalanffy, 1950). The most significant enhancements in timeliness and traceability are consistent with agency theory (Jensen & Meckling, 1976), which is the core design of IFMIS, as it aims to minimise the information gap between agents and principals in a real-time transactional platform. The overall decrease in standard deviations of all the variables after IFMIS suggests that not only does IFMIS boost the average performance, but it also decreases audit practice variability, which points to process homogenisation among departments.

5.3 Efficiency of Audit evidence Collection and analysis

The Efficiency Index proved to be the most effective predictor of the effectiveness of audit evidence ($R^2 = 0.463$), indicating that efficiency is not just a side issue but a major concern when considering how to improve audit performance. Most of these gains are due to coordination and timely access to evidence, as found by Bierstaker et al. (2014) and Phiri and Banda (2021). Despite these advances, occasional downtime, access limits and data entry inconsistencies still impact operational efficiency, as found by Rikhardsson and Dull (2016), who stated that continuous auditing systems are more efficient but still need human intervention to ensure data quality. IFMIS reduces information asymmetry because it provides timely access to financial information for the auditors, reducing delays and increasing financial transparency from an agency theory perspective.

5.4 Challenges affecting Effective ifmis use

The results indicate that technical, infrastructure and human capacity limitations are all barriers to the effectiveness of IFMIS. The top challenges are technical issues, such as system downtime, software glitches, and connectivity problems, which are significant factors in maintaining the ability to provide real-time data. This is exacerbated by unreliable internet and hardware limitations, as outlined by Abdelraheem et al. (2020), who state that IT systems in developing countries rely on proper infrastructure for improvement. Lack of user training affects the use of the system effectively, and resistance to change is the behavioural aspect of technology adoption discussed in TAM (Davis, 1989). These challenges serve as moderating variables that can reduce the relationship between the quality of IFMIS and the quality of audit evidence, even if the technology is good.

6 Conclusions and Recommendations

6.1 Conclusions

This study found that IFMIS has had a positive impact on the quality of audit evidence and audit efficiency in the public sector in Zambia. The system provided substantial benefits for all of the dimensions of audit evidence measured, including timeliness, traceability, consistency, reliability, relevance and sufficiency, and also made audit processes more efficient by improving the coordination and audit evidence collection time. All changes in the overall audit evidence quality were statistically significant at the 1% level, with the paired sample analysis showing that the quality of the audit evidence shifted from 2.79 to 4.17 on a five-point scale. Efficiency improvements explain 46.3% of the variance in audit effectiveness, making it an important mediator. The potential of IFMIS is limited, however, by technical problems, lack of ICT infrastructure, lack of user training and lack of change. Thus, the effectiveness of IFMIS depends not only on the technology itself but also on the quality of its implementation, institutional support and users' capability.

6.2 Recommendations

9. Strengthen ICT infrastructure by investing in reliable internet connectivity, modern hardware, and robust server capacity to reduce system downtime and connectivity issues.
10. Develop and institutionalize continuous, practical training programmes for IFMIS users to improve technical competence, reduce data entry errors, and maximize system utilization.
11. Enhance system integration by extending IFMIS to cover supporting documentation (invoices, contracts, payment vouchers) to eliminate the current dual-system dependency in audit evidence.
12. Implement structured change management programmes, including stakeholder engagement and communication strategies, to reduce resistance and promote full adoption.
13. Introduce stronger data validation and verification controls within IFMIS to minimize inconsistencies in financial data input across ministries and spending agencies.
14. Develop clear policy and operational guidelines for consistent IFMIS use across all public institutions, supported by regulatory frameworks that align with audit requirements.

6.3 Directions for Future research

Future research should explore the durability of the improvements in quality of audit evidence that IFMIS creates, the specific ways in which system downtime negatively impacts audit accuracy and audit completion time, the relationship between different levels of user training and the quality of audit evidence created by IFMIS, and the connection between inconsistent data entry and financial misstatements. Comparative studies of government institutions and between countries at similar stages of development would also contribute to understanding the contextual factors that moderate the effectiveness of IFMIS.

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