

An Assessment of the Effect of the Implementation of the Integrated Financial Management Information System on Service Delivery in Developing Countries: A Case of Zambia

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Abstract

The Government of Zambia introduced the Integrated Financial Management Information System (IFMIS) to monitor how ministries, departments and other state agencies spend funds on a real-time basis in order to improve budget implementation. The objectives of IFMIS are to attain transparency, reduce financial leakages and accountability in the way Government resources are being spent. The primary objectives of this research were to assess the effect of IT infrastructure of IFMIS on public service delivery in Zambia; to evaluate the effect of IFMIS trainings on public service delivery in Zambia and to determine the effects of IFMIS implementation and adoption public service delivery in Zambia. The study utilized a quantitative approach and descriptive and correlation research design. The primary data was collected through a closed-ended questionnaire using a sample of 131 respondents from the Ministry of Finance and National Planning Headquarters based in Lusaka and was analysed through SPSS version 27 and regression and correlation were used in the study to determine the relationship between the variables. Pearson correlation revealed that there is a statistically significant relationship among the variables with values ranging from 0.5 to 0.7. The findings revealed that the IT infrastructure of IFMIS, IFMIS training and IFMIS adoption and implementation have an effect on public service delivery by improving budgeting, financial reporting, and cash management. The hypotheses were accepted as they showed *p*-values of less than 0.001. However, the hypothesis related to ICT infrastructure was rejected as the *p* value was 0.187 indicating that this was not statisti-

cally significant. The study recommends that the Ministry of Finance should enhance the capacity-building programs to equip staff with the necessary technical skills to maximize IFMIS utilization and should establish a national oversight committee to ensure consistent monitoring and evaluation of IFMIS performance, providing accountability and guidance for continuous improvement.

Keywords

IT Infrastructure of IFMIS, IFMIS Trainings, IFMIS Implementation and Adoption and Service Delivery

1. Introduction and Background

Financial Management Information Systems (FMIS) support the automation and integration of public financial management processes including budget formulation, execution (e.g. commitment control, cash/debt management, treasury operations), accounting, and reporting. FMIS solutions can significantly improve the efficiency and equity of government operations, and offer a great potential for increasing participation, transparency and accountability. Whenever FMIS and other PFM information systems (for example, e-procurement, payroll, debt management) are linked with a central data warehouse (DW) to record and report all daily financial transactions, offering reliable consolidated platforms can be referred to as integrated FMIS (or IFMIS) (World Bank, 2024).

Integrated Financial Management Information Systems (IFMIS) is an integrated computerized financial package to enhance the effectiveness and transparency of public resource management by computerizing the budget management and accounting system for a government (Marie, 2009). According to (Abwao Magani, 2018) An Integrated Financial Management System (IFMIS) is an Information Technology based on budgeting and accounting system that manages budget preparation and execution, payment processing and reporting for government and other spending.

In its basic form, an IFMIS is little more than an accounting system configured to operate according to the needs and specifications of the environment in which it is installed (Rodin-Brown, 2008). In the government realm, IFMIS refers more specifically to the computerization of public financial management (PFM) processes, from budget preparation and execution to accounting and reporting, with the help of an integrated system for financial management of line ministries, spending agencies and other public sector operations. Over the past decade, developing, transition and post-conflict countries have increasingly embarked on efforts to computerize their government operations, particularly with respect to public financial management (PFM) (Rodin-Brown, 2008)

According to the IFMIS summarizes financial information and trails financial events. It facilitates policy decisions, adequate management reporting, the prepa-

ration of auditable financial statements and fiduciary responsibilities. An IFMIS in its essential form is more than an accounting system constructed to function as per the specifications and needs of the environment it is installed in (Rodin-Brown, 2008). Since the 1980s, major international aid agencies including the World Bank, have promoted integrated financial management information systems as an important system to reform public financial management (PFM) in low-income countries (LICs).

The Government of Zambia introduced IFMIS to monitor how ministries, departments and other state agencies spend funds on a real-time basis in order to improve budget implementation. The objectives of IFMIS are to attain transparency, reduce financial leakages and accountability in the way Government resources are being spent (Muwema & Phiri, 2020). According to the Ministry of Finance status report (Planning, 2023) IFMIS has been implemented in 25 Ministries out of 37 in all 10 provinces of Zambia

The successful implementation of IFMIS requires a coordinated approach involving the Ministry of Finance and all line ministries. However, failure to undertake parallel reforms necessary for IFMIS has often impeded its success. For instance, inadequate training, poor IT infrastructure, and resistance to change have limited its effectiveness in Zambia (Muwema & Phiri, 2020). These issues, combined with delays in procurement processes and resource constraints, have led to inefficiencies and hindered IFMIS from achieving its goals of enhancing service delivery and reducing financial mismanagement.

Despite these challenges, IFMIS has been recognized globally as a core driver of public finance reform. As of 2024, the World Bank has funded IFMIS projects in 83 countries, including Zambia, emphasizing its potential to improve transparency and accountability in government operations (World Bank, 2024). In Zambia, the government remains committed to addressing these barriers through capacity building, better coordination among stakeholders, and the development of IT infrastructure.

1.1. Problem Statement

The public sector, specifically the civil service, plays an important role in the delivery of public services that are essential for the effective functioning of the economy. Ineffective service delivery affects the lives of citizens and hinders national development. Public sector officials, therefore, need to maintain high levels of ethicality and integrity to ensure public resources are utilized effectively and efficiently (Thusi et al., 2023).

In an effort to enhance efficiency, transparency, and accountability in public financial management, the Zambian government implemented the Integrated Financial Management Information System (IFMIS). IFMIS was designed to improve effectiveness, create transparency, enhance fiscal responsibility, provide comprehensive fiscal reporting, and ensure the security of data operations (Gerardo & Pimenta, 2016). However, despite its potential, the system faces numerous chal-

lenges that affect its contribution to service delivery. Recent studies have highlighted that challenges in implementing Integrated Financial Management Information Systems (IFMIS) persist. In Zambia, despite the implementation of IFMIS, significant issues persist in achieving its intended outcomes. Transparency remains insufficient, financial leakages continue, and the efficiency and speed of the procurement process leave much to be desired (Muwema & Phiri, 2020). These challenges undermine the system's ability to address key public service delivery issues, resulting in gaps in accountability, fiscal management, and operational efficiency.

In light of the above background, it can be noted that IFMIS has not fully achieved its objectives, particularly in enhancing transparency, reducing financial leakages, and improving the efficiency of service delivery. Specifically, the study aimed to identify the underlying causes of these challenges and propose solutions to enhance the system's effectiveness in improving transparency, accountability, and service delivery in Zambia.

1.2. Aim of the Study

The aim of this research is to assess the effect of the implementation of the Integrated Financial Management Information System (IFMIS) on service delivery in Zambia. The objectives of the study were to assess the effect of IT infrastructure on public service delivery, to evaluate the effect of IFMIS training on public service delivery and to determine the effect of IFMIS trainings on public service delivery.

2. Literature Review

The introduction of Integrated Financial Management Information Systems (IFMIS) has become a core component of financial reforms aimed at promoting efficiency, securing data management, and ensuring comprehensive financial reporting. The scope and functionality of IFMIS vary across countries, but the core sub-systems typically include accounting, budgeting, cash management, debt management, and treasury-related systems.

The study by (Asad, 2020) investigated the challenges and benefits of implementing an Integrated Financial Management Information System (IFMIS) in the context of large-scale enterprise business organizations in South Asia. Through a mixed-methods approach, including qualitative interviews and quantitative surveys, the study uncovered insights into the intricacies of IFMIS adoption. The qualitative phase revealed technological complexities, change management challenges, and data security concerns as key hurdles. Conversely, the benefits encompass enhanced decision-making, operational efficiency, and financial transparency. The quantitative phase substantiated these findings, affirming the significance of these challenges and benefits.

A study (Jean, 2017) evaluated the impact of implementing Integrated Financial Management Information Systems (IFMIS) on the functioning of public institutions in Rwanda. The study was characterised as descriptive and used raw data for

analysis. A total of 51 data points were obtained from a sample of 197 individuals, selected depending on the availability of respondents. A combination of primary and secondary data was collected using methods such as questionnaires, observations, interviews, and document analysis. Following the data collecting process, the SPSS Version 32 tool was utilised to acquire and refine the data. The findings indicated that IFMIS was fully adopted in MINECOFIN, with a mean score of 4.05. This suggests that respondents strongly agree that IFMIS was fully implemented in MINECOFIN, following all necessary steps. The implementation of the system had a mean score of 3.86 and a standard deviation of 0.721. Additionally, it significantly enhanced the capacity building of personnel through necessary training, with a mean score of 4.43 and a standard deviation of 0.7. The use of IFMIS facilitated improvements in the budgeting system (mean score of 3.990), cash management (mean score of 4.15), financial reporting (mean score of 4.02), and internal control system (mean score of 4.16). The implementation of IFMIS had a beneficial impact on the performance of the organisation. The correlation between the adoption of IFMIS and the performance of MINECOFIN was .976, indicating a perfect connection.

The study by (Mainza, 2022) evaluated the deployment of the Integrated Financial Management Information System (IFMIS) in Zambia's Ministry of Finance. A descriptive survey approach was utilised to gather data from a representative sample of 300 Ministry of Finance employees between January and October 2018. The data collecting instruments employed were questionnaires and organised, focused interviews. The data analysis utilised SPSS software to construct frequency tables, measures of central tendency, and analyse data using the Likert scale. Additionally, interdependence was examined using the Pearson Correlations, Multiple Regression, and ANOVA methods. The analysis found a statistically significant positive correlation ($r = 0.667$, $R^2 = 0.445$, adjusted $R^2 = 0.417$ and std error = 0.604) between the implementation of IFMIS and the management of public funds.

The study found that the influence of IFMIS on the Likert scale was marginally favourable, with an average score of 3.6. This is because all the elements examined were positioned on the borderline in terms of their impact on IFMIS at the Ministry of Finance. The study revealed that the Contribution of IFMIS to the Management of Public Funds (CIMPF) had the greatest effect factor of 3.9, whilst the Extent to which IFMIS has been implemented (EII) had the lowest impact factor of 3.3. All tested hypotheses have shown a positive linear relationship between the investigated factors and the dependent variable, Impact of IFMIS implementation (III). Despite some moderate gains, the Ministry of Finance still faces significant challenges in public financial management, including a lack of skills among users and partial support for non-accounting staff in other departments. Consequently, considering the results obtained and with the aim of maximising the advantages of IFMIS, the subsequent suggestions were identified: The Ministry of Finance should establish a durable Financial Infrastructure (FI) to enhance the implemen-

tation and expansion of IFMIS. The government should establish explicit ownership and duties for the IFMIS assignment to specific departments in order to enhance coordination and reporting on IFMIS operations.

In another study by (Muwema & Phiri, 2020) progressive governments around the world aim at having efficient Public Finance Management in order to efficiently manage resources and maximize opportunity costs associated with Public Procurement. The Government of Zambia has introduced Integrated Financial Management Information Systems (IFMIS) to monitor how ministries, departments and other state agencies spend funds on a real-time basis in order to improve budget implementation. The objectives of IFMIS are to attain transparency, reduce financial leakages and accountability in the way Government resources are being spent. Data were collected from seventy-five (75) respondents from the Ministry of Finance, Ministry of Works and Supply and the Anti-Corruption Commission. Data were analysed using Social Package and Social Sciences (SPSS) version 20 and Microsoft Excel. The study revealed that there is a significant negative relationship between IFMIS and transparency, reduced financial leakages and efficiency and speed. The study thus concluded that IFMIS has not enhanced transparency, reduced financial leakages, enhanced efficiency and speed. The study recommended that vendors and citizens should have access to the system to enhance transparency. Furthermore, the study recommended for code restructuring of the system to make it more proactive rather than reactive in order to improve budget adherence, reduce misappropriation and misapplication of funds. In conclusion, the study further recommended procurement processes be carried on the system only and eliminate the duplication of work on paper.

A study by (Dahiya & Mathew, 2016) revealed that there is a positive relationship between IT assets and IT infrastructure performance in the presence of service delivery channels and an anticipation of a positive influence of infrastructure performance variables on IT capability which in turn shows positive effect on E-Government performance.

In a study conducted by (William, Kinanga, & Ombasa, 2019) over 75% of the respondents who participated in the study titled “Effect of Staff Competencies and Skills on the Effectiveness of Integrated Financial Management Information System (IFMIS) in Kajiado County, Kenya” agreed with most of the statement that were used to establish the level of staff competence on the implementation of IFMIS since the mean response on all the statement items was above 3.0. The study further established that there was a weak but positive R-value (0.001) respectively. The regression analysis indicated that the amount of change in the effective implementation of the IFMIS in county governments could be explained by 32.2% success of staff competencies discussed in this study. It is also noted that the factor had a correlation factor of 0.000, which is statistically significant. This shows that the factors discussed have an influence on the implementation of IFMIS by themselves but they have a combined effect. The study concluded that effective implementation of IFMIS must be supported by staff competence. This indicates that

organizations that aim at getting the best out of their information systems must be able to effectively address the issues of employee's competencies and skills required to support the entire process.

While extensive research had been conducted globally and regionally on the implementation and challenges of the Integrated Financial Management Information System (IFMIS), significant gaps remained in understanding its specific impact on service delivery in Zambia. Many studies had explored the technical and operational aspects of IFMIS, such as its role in financial reporting, budgeting, and internal controls. However, they often failed to connect these aspects to tangible improvements or shortcomings in public service delivery—especially within key government institutions like the Ministry of Finance and National Planning.

Local studies, such as those by [Mainza \(2022\)](#) and [Muwema & Phiri, \(2020\)](#), had highlighted ongoing issues such as inadequate user training, limited transparency, and inefficiencies in system use. While these studies provided valuable insights, they primarily focused on financial management outcomes, leaving a gap in understanding how these challenges directly affected the delivery of public services. Moreover, recommendations in prior research, such as system upgrades and decentralization, addressed technical issues but did not delve into the broader procedural and systemic barriers that limited the system's effectiveness in achieving public service delivery goals.

The Concept of Public Service Delivery

Public service delivery is a fundamental function of government, encompassing the provision of essential services such as healthcare, education, sanitation, and public safety to citizens. Effective public service delivery depends on various factors, including good governance, adequate resources, and the use of technology to streamline processes and improve accessibility. For instance, the implementation of e-government initiatives and information management systems like IFMIS has been shown to enhance service delivery by reducing corruption, increasing transparency, and ensuring that resources are allocated more efficiently ([Marie, 2009](#)).

Public administrators at all levels of government are responsible primarily for delivering public services. Although administration of public service is only a part of the broader political process, its overall impact on the reputation of government is immense. Citizens are daily consumers of public services in education, social work, public health, and law enforcement among other innumerable essential services. Public service occupies a central role in their lives, in the form of basic services and regulations. Citizens' expectations and the degree to which these expectations are met by both service personnel and processes determine citizens' trust in and support for government. Public service is not a monolithic task; indeed, it is fairly complex and dynamic. It is complex because it is intended to serve multiple values. Unlike the private sector service, which is focused on maximizing profit-oriented performance, public service struggles to balance efficiency and economy with equity, responsiveness, and democracy. Public service is dynamic

as well, because political, social, and economic trends continuously reshape it. All these happen in a democratic environment which profoundly influences its capacity and places inherent limitations on its performance, due, in large part, to accountability pressures (Reddick & Demir, 2024).

3. Theoretical and Conceptual Framework/Models

The present study was sustained by the Systems proposition proposed by Von Bertalanffy in the 1930s, the Technology Acceptance Model developed by Richard Bagozzi and Fred Davis in 1986, the Software Restructuring Model by Micheni 2016 and the Rodgers Theory of Diffusion of Innovation 1962.

3.1. Systems Theory

According to (Smith-Acuña, 2011), systems theory can be defined as a set of unifying principles about the organization and function of systems; where systems are defined as meaningful wholes that are maintained by the interaction of their parts. Based on the system theory, organizations are considered to be open social systems which interact with their environments in order to survive. Organizations depend on customers who purchase the products or services from the organization, suppliers who provide materials, employees who provide labor or management, shareholders who invest, and governments that give regulations. Organizations are divided into departments which to some levels have autonomy to operate individually for the common benefits of the entire organization.

The system theory therefore shows the interrelationships among different separate disciplines. The theory explains the importance of the integration of various components of a particular system and the importance of synchronizing the various components in order to achieve desired results.

This study borrowed from the systems theory with the view that IFMIS is made up of different components whose roles include collecting, accumulating, processing and providing information to government Ministries used to make decisions that impact the delivery of services to the public sector. The systems theory therefore, guided the study in assessing the impact of adopting and implementing IFMIS in the delivery of public services.

3.2. Technology Acceptance Model

Technology Acceptance Model (Davis et al., 1989) is one of the most influential models of technology acceptance, with two primary factors influencing an individual's intention to use new technology: perceived ease of use such as ease to learn, ease to use, ease to control and ease to remember and perceived usefulness such as; improved performance, enhanced productivity, effectiveness and efficiency in operations etc. The theory of technology acceptance is one of the most popular theories in understanding adoption of ICT. The theory proposes a relationship between users' acceptance of a new information system and the users' perceptions of the ease of use and usefulness of the information system. This the-

ory helped explain how personal factors could hinder or enhance the use of IFMIS. This could impact on the users willing to be trained in IFMIS based on their perceptions of the system (Figure 1).

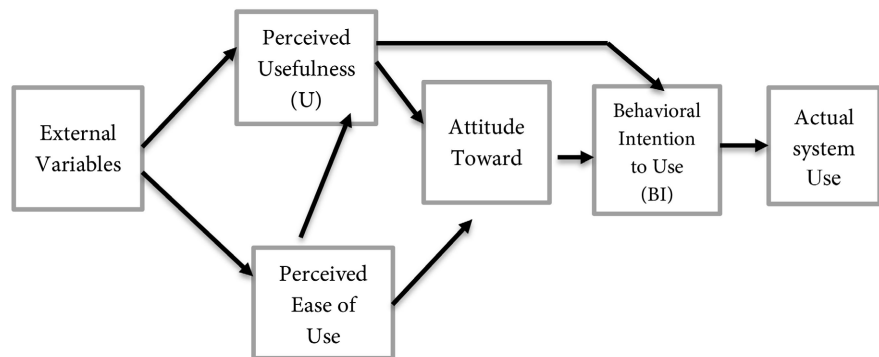


Figure 1. Technology acceptance model (Davis et al., 1989).

3.3. Diffusion of Innovation Theory

Diffusion of Innovation (DOI) Theory, developed by (Rogers, 1962), is one of the oldest social science theories. The theory originated in communication where overtime, an idea or product gains momentum and diffuses or spread to the larger population or social system. The end result of this is that people as part of a social system adapt to a new product, idea, or behavior. Adaption in this case mean that a person does things differently from the way they used to. Adoption of a new idea does not, however, happen simultaneously in a social system; rather some people are more prone to adapt earlier than others. According to Rogers, a system is considered adopted when it is fully operational and viewed as the most suitable option. Conversely, it is rejected when it fails to gain acceptance. Rogers' theory highlights four key components that influence how a new idea spreads: the innovation itself, communication channels, time, and the social system. Thus, diffusion of Innovation theory helped in the understanding of the role of IFMIS training in service delivery.

3.4. Software Restructuring Model

According to (Micheni, 2016), software restructuring model (Figure 2) focuses on inventory analysis, document restructuring, reverse engineering, code reengineering, data restructuring and forward engineering. It provides design information derived from program code and the module interface information needed for restructuring. IFMIS has a number of components and modules that aid in its operations. These modules include; procurement module, accounts payable module, accounts receivable module, tax module, cash management module, budget planning module and transactions module. Code restructuring can be done around the modules to enhance delivery outcomes of the system (Kimwele et al., 2015). The software restructuring model was used to aid in understanding IFMIS reengineering and how IFMIS code restructuring in implementing IFMIS can be used

to enhance service delivery.

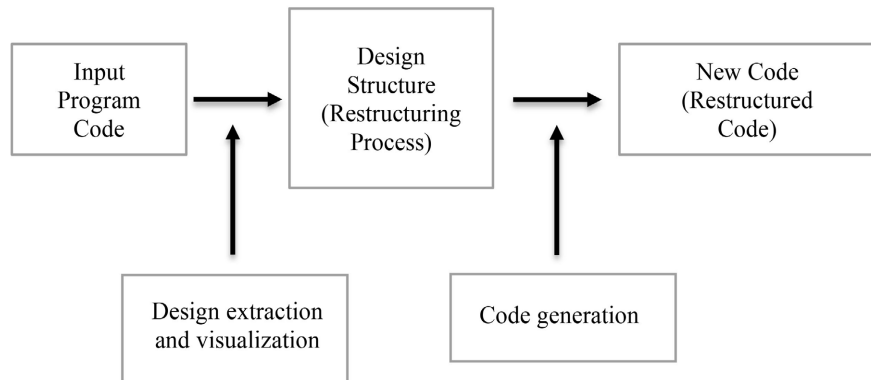


Figure 2. Software restructuring model (Micheni, 2016).

3.5. Conceptual Framework

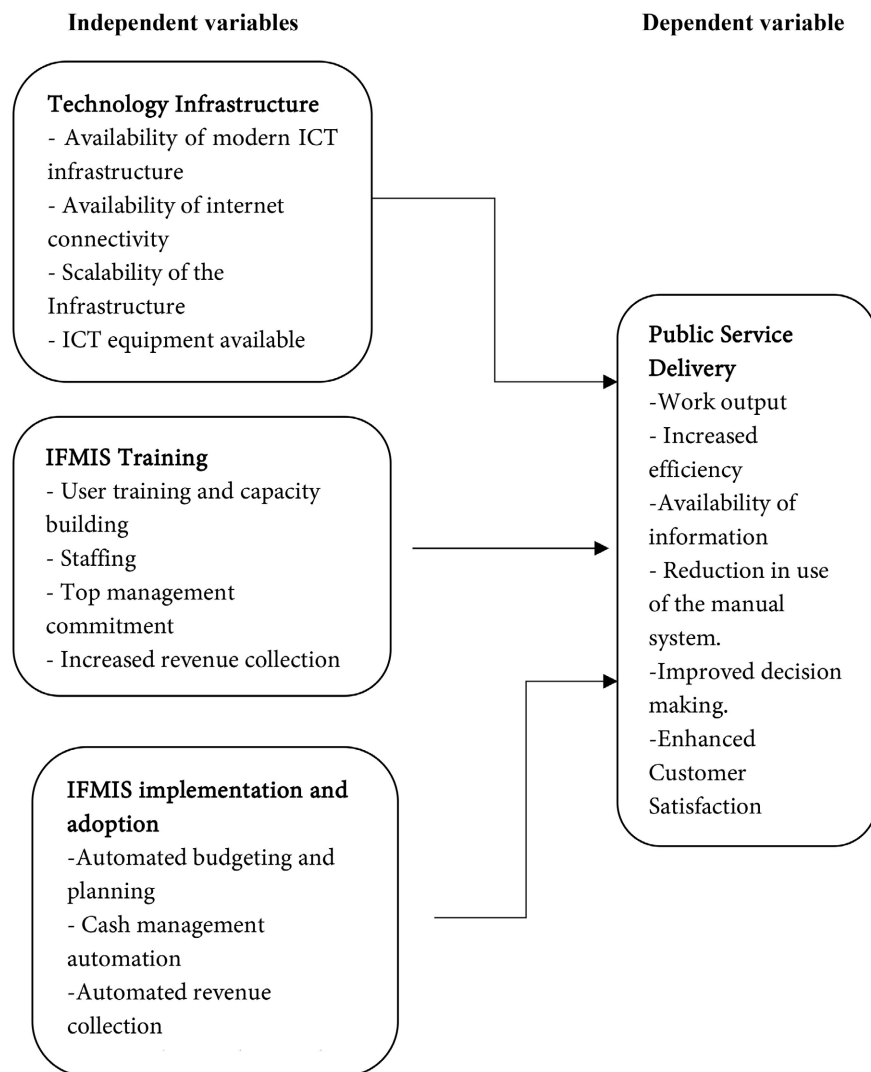


Figure 3. Conceptual framework (Source: Author 2024).

The conceptual framework (**Figure 3**) represented the basis of the research and it provides the interrelationships or linkages between the concepts or constructs of the study (Miles & Huberman, 1994).

4. Research Methodology

4.1. Research Design

According to (Kothari, 2004) a research design is the setting of conditions for collection of data that seeks to meet the purpose of the study. This study was based on a quantitative research design and stratified sampling technique was used as it is an effective method of gathering information from large population and breaking it down into manageable sample size. The sample of the study was drawn from IT officers, Accountants and procurement officers in the Ministry because they have a first-hand experience with IFMIS system.

4.2. Target Population

Population size was the entire group under the study, it is the universe from which the sample is to be selected (Creswell & Creswell, 2018) The study population comprised of the employees at the ministry of finance. Stratified random sampling was used from a sampling frame of 199 employees working in three departments being accounting and finance, internal audit and procurement.

4.3. Sample Size

A sample a subset of the population sharing similar features with the entire population and serving as representatives of the population. It involves selecting elements from a population to make generalizations about the whole population (Creswell & Creswell, 2018). For this study, Yamane’s formula (Slack & Johnston, 2016) coined by Yamane, 1967 was used for the purpose of calculating the sample size as follow;

$$n = N/1 + [N(e)]^2, \tag{1}$$

where:

n is the sample size;

N is the population, and;

e is the margin of error (0.05);

$n = 199/(1 + 199(0.05)^2)$;

$n = 133$.

Therefore, the study sample size of respondents was 133 stratified as follows:

Population (number of officers that use IFMIS)	Number of employees	Total
Finance officers (revenue, accounts, budget)	100/199*133	67
IT officers	39/199*133	26
Procurement officers	60/199*133	40
Total	199	133

4.4. Data Collection Instruments

The researcher used a questionnaire as the main research instrument. The questionnaires were distributed personally by the researcher. The reason for choosing questionnaire as the data collection instrument was primarily due to its practicability, applicability to the research problem and the size of the population. It was also cost effective and gave adequate time to the respondent to fill in and surrender. Also, the researcher decided to make use of questionnaires because they are simple, easy to administer and allow for easy analysis.

4.5. Data Analysis

The complete, duly filled in questionnaires containing the primary data was cleaned, coded and arranged serially to make it easy to identify. Quantitative data was analysed by descriptive statistics which included measures of central tendency the mean, measures of variability standard deviation and measures of relative frequencies among others. All completed research instruments were assembled, coded, summarized, entered into the computer and analyzed using statistical package for social science (SPSS).

5. Results and Discussions

5.1. Descriptive Statistics

5.1.1. Gender

The demographic profile from **Figure 4** showed majority of respondents that were male, comprising 64.1% and females 35.9%.

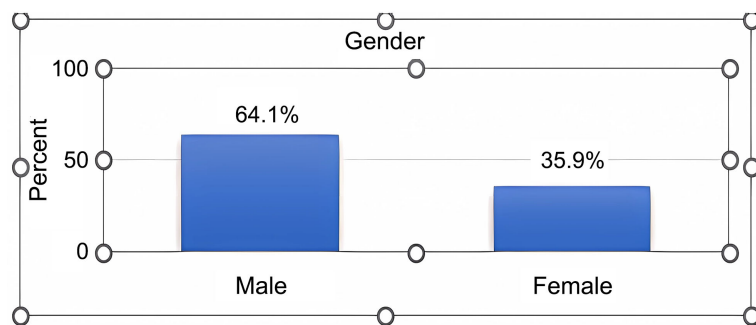


Figure 4. Gender Source: (2024).

5.1.2. Age

Further, age distribution **Figure 5** showed that most respondents are (46%) falling within the 25 - 30 age range, followed by 38% in the 31 - 40 age range and those below 25 years (8%) and lastly those between 41 - 50 years (8%).

5.2. Pearson Correlation

The Pearson correlation test is used to examine the direction and strength of relationships between variables. In correlation analysis, the values can range from -1 to +1 (Pallant, 2020). A negative correlation indicates an inverse relationship

between variables, while a positive correlation signifies that the variables move in the same direction (Pallant, 2020). Different authors may interpret correlation results in various ways. According to (Cohen, 1988) provides the following guidelines: a small effect size is represented by an r value between 0.10 and 0.29, a medium effect size ranges from $r = 0.30$ to 0.49, and a large effect size is from $r = 0.50$ to 1.0. Correlations can be significant at two levels, $p < 0.05$ and $p < 0.01$ (Pallant, 2020).

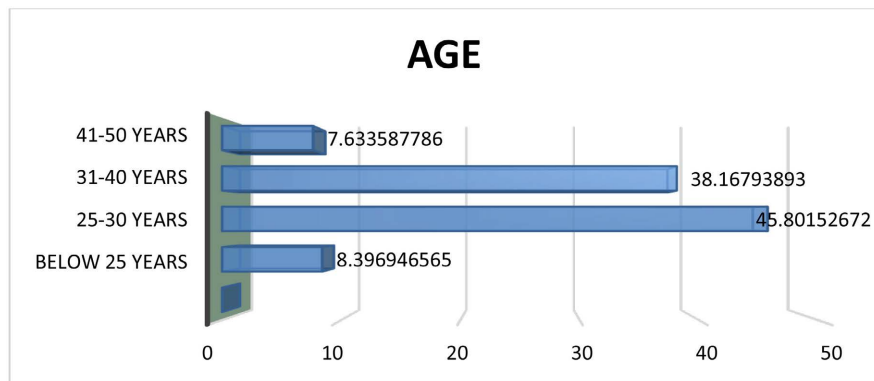


Figure 5. Age (Source: 2024).

The study correlations among dependent (Public service delivery), independent (IT infrastructure, IFMIS trainings and IFMIS implementation and adoption), presented below.

5.2.1. Technology Infrastructure

To start with, Table 1 below showed Technology infrastructure has a positive relationship with the dependent variable which is public service delivery with ($r = 0.533$) at a significant level of 0.01. This indicates that 53.3% of change in service delivery can be explained by technology infrastructure.

Table 1. Technology infrastructure and service delivery.

		Correlations	
		Public Service Delivery	Technological Infrastructure
Public Service Delivery	Pearson Correlation	1	0.533**
	Sig. (2-tailed)		0.000
	N	131	131
Technological Infrastructure	Pearson Correlation	0.533**	1
	Sig. (2-tailed)	0.000	
	N	131	131

Source: (2024). **. Correlation is significant at the 0.01 level (2-tailed).

5.2.2. IFMIS Training

Correlation between independent variables and public service delivery. According

to **Table 2** below IFMIS Training with ($r = 0.644$) at a significant level of 0.01 has a positive relationship with public service delivery. This indicated that training on IFMIS is associated with better service delivery within the Ministry. In addition, 64.4% of changes in service delivery can be explained by IFMIS training.

Table 2. IFMIS training and public service delivery.

Correlations			
		Public Service Delivery	IFMIS Training
Public Service Delivery	Pearson Correlation	1	0.644**
	Sig. (2-tailed)		0.000
	N	131	131
IFMIS Training	Pearson Correlation	0.644**	1
	Sig. (2-tailed)	0.000	
	N	131	131

Source: (2024). **. Correlation is significant at the 0.01 level (2-tailed).

5.2.3. IFMIS Implementation and Adoption

Correlation between independent variable and public service delivery. **Table 3** below shows IFMIS implementation and adoption with ($r = 0.720$) at a significant level of 0.01 has a positive relationship with public service delivery. This indicated that IFMIS implementation and adoption is associated with better service delivery within the Ministry and 72% change in service delivery can be explained by IFMIS implementation and adoption.

Table 3. IFMIS implementation and adoption and public service delivery.

Correlations			
		Public Service Delivery	IFMIS Implementation and Adoption
Public Service Delivery	Pearson Correlation	1	0.720**
	Sig. (2-tailed)		0.000
	N	131	131
IFMIS Implementation and Adoption	Pearson Correlation	0.720**	1
	Sig. (2-tailed)	0.000	
	N	131	131

Source: (2024). **. Correlation is significant at the 0.01 level (2-tailed).

5.3. ANOVA Output

The analysis of variance (ANOVA) **Table 4** below provides insights into the overall model fit. The F-statistic in model 1, 2 and 3 ($p < 0.001$) are significant, indicating that the models collectively explain a significant portion of the variance in

public service delivery as independent variables are added, the F-statistic and significance level consistently improve, suggesting that the expanded models better capture the variability in public service delivery.

Table 4. ANOVA.

ANOVA						
	Model	Sum of Squares	df	Mean Square	FS	Sig.
	Regression	25.563	3	8.521	61.198	<0.001
1	Residual	17.683	127	0.139		
	Total	43.247	130			

Source: (2024).

5.4. Regression Analysis

The researcher carried out multiple regression analysis to establish the effect that each variable has on public service delivery. The models are progressively refined, with each additional variable contributing to the explanation of the variance in public service delivery. The results of the multiple regression led to the development of the regression equation line of best fit between the depend and several independent variables.

The model summary indicates the progressive improvement in the predictive power of the model as additional variables are included. Starting with an R-square 0.284 of in the initial model. The R-square steadily increases with each subsequent model iteration, reaching 0.591 in the final model incorporating IT infrastructure, IFMIS trainings and IFMIS implementation and adoption as shown in **Table 5**. Furthermore, the significance of these effects is denoted as ***sig < 0.001 (0.1%), **sig < 0.01 (1%), and *sig < 0.05 (5%).

Table 5. Model summary.

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			
						F Change	df1	Df2	Sig. F Change
1	0.769	0.591	0.581	0.37315	0.145	45.157	1	127	<0.001

Source: (2024).

Based on the regression results in **Table 6**, the three variables can be used to explain changes in public service delivery and provide a comprehensive understanding of their collective influence. While Technological Infrastructure shows a weaker and non-significant effect ($p = 0.187$) in this model, both IFMIS Training ($p = 0.001$, Beta = 0.282) and IFMIS Implementation and Adoption ($p < 0.001$, Beta = 0.496) emerge as significant predictors with a strong positive impact on Public Service Delivery. The results highlight that prioritizing training programs

and the effective implementation and adoption of IFMIS systems are critical for enhancing public service outcomes.

Table 6. Regression coefficients.

Model	Coefficients						95.0% Confidence	
	Unstandardized B	Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	Interval for B		
						Lower Bound	Upper Bound	
1	Constant	0.123	0.312		0.396	0.693	-0.493	0.740
	Technology_Infrastructure	0.095	0.072	0.098	1.326	0.187	-0.047	0.237
	IFMIS_Training	0.325	0.091	0.282	3.564	<0.001	0.145	0.506
	IFMIS_Implementation_and_Adoption	0.515	0.077	0.496	6.720	<0.001	0.363	0.666

Source: (2024).

Therefore, the regression model for explaining the effect of IFMIS on Public Service Delivery can be expressed as follows:

$$Y = 1.996 + 0.095 \times \text{Technology Infrastructure} + 0.325 \times \text{IFMIS Training} + 0.515 \times \text{IFMIS Implementation and Adoption} \quad (2)$$

From the findings, when all other factors (Technology Infrastructure, IFMIS training and IFMIS implantation and Adoption) were held constant, public service delivery would be at 1.996. A unit increase in technology infrastructure when all other factors are held constant, public service delivery would be 0.095. A unit increase in IFMIS training when all other factors are held constant, public service delivery would be 0.325. A unit increase in IFMIS implantation and adoption when all other factors are held constant, public service delivery would be 0.515.

5.5. Discussion

The study finding revealed that IT infrastructure of IFMIS has a positive effect on public service delivery. Pearson Correlation showed that Technology infrastructure has a positive relationship with the dependent variable which is public service delivery with $r = 0.533$ at a significant level of 0.01. The regression analysis showed a beta of $\beta = 0.098$, however, the hypothesis was rejected as the p value of 0.189 was greater than 0.05 indicating that the variable was not statistically significant. This means that IT infrastructure has a low effect on service delivery and this could be attributed to other complimentary factors such as the robustness of the technology infrastructure and the level of maintenance. This echoes the findings in a study by (Mainza, 2022) which revealed that the Ministry of Finance's deployment of IFMIS contributed to improved public funds management, though there were challenges with the infrastructure that hindered its effectiveness.

In a study by Jean (2017) in Rwanda, found that robust IT infrastructure facilitated improvements in budgeting, cash management, and financial reporting. In Zambia, establishing a durable financial infrastructure was recommended as a means to enhance IFMIS implementation and expansion. The infrastructure's in-

adequacies, as highlighted by [Muwema & Phiri, \(2020\)](#), contribute to inefficiencies, as IFMIS has not yet achieved its full potential in enhancing transparency, efficiency, and speed in public financial management.

Further, the study findings showed that IFMIS Trainings has a positive significant effect on public service delivery. The Pearson correlation analysis revealed that IFMIS Training with $r = 0.644$ at a significant level of 0.01 has a positive relationship with public service delivery. This indicated that training on IFMIS associated with better service delivery within the Ministry. In addition, the regression analysis revealed a statistically significant relationship between IFMIS training and public service delivery with $\beta = 0.282$ and p value of <0.001 . [Mainza \(2022\)](#) reported that a lack of skills among users hindered the effectiveness of IFMIS, as non-accounting staff required further support to leverage the system fully. The findings suggest that training programs are essential for IFMIS users to understand and utilize the system's functionalities effectively. Continuous capacity-building initiatives are crucial for ensuring that government personnel are well-equipped to handle the technological complexities of IFMIS, ultimately improving service delivery.

Finally, the study finding revealed that IFMIS implementation and adoption has a positive significant effect on public service delivery. The Pearson correlation analysis showed IFMIS implementation and adoption with $r = 0.720$ at a significant level of 0.01 has a positive relationship with public service delivery. The linear regression analysis showed a statistically significant relationship between IFMIS implementation and service delivery with $\beta = 0.496$ and p value < 0.001 .

The implementation and adoption of IFMIS have demonstrated both positive outcomes and the findings were supported with the findings from other studies such as, a study by [Mainza, 2022](#) highlighted that IFMIS implementation positively correlates with improved public fund management in Zambia, despite moderate gains.

However, [Muwema & Phiri, 2020](#) found that IFMIS in Zambia did not meet the expectations for transparency, reduced financial leakages, or efficiency improvements, suggesting that the adoption process may have been incomplete or inadequately supported.

Moreover, as [Asad, 2020](#) identified in a South Asian context, IFMIS can enhance decision-making, operational efficiency, and financial transparency when implemented effectively. For Zambia, the challenge lies in overcoming the current limitations—such as insufficient support for non-accounting staff and issues with transparency—to fully leverage IFMIS in public financial management. The effectiveness of IFMIS adoption depends on continuous improvements in IT infrastructure, adequate training, and enhanced inter-agency coordination to foster a conducive environment for IFMIS to deliver on its intended benefits.

6. Recommendations

Enhance IT Infrastructure to Support IFMIS: Invest in a robust IT infrastructure that supports efficient operation, maintenance, and scalability of IFMIS. Im-

proved infrastructure will facilitate more reliable budgeting, financial reporting, and cash management.

Provide consistent technical support to address system outages and maintain the reliability of IFMIS across government agencies. This will help address the technological complexities that were identified as obstacles in other contexts, such as in South Asia (Asad, 2020).

Strengthen and Expand IFMIS Training Programs: Conduct regular training for all relevant staff, not only financial personnel. Training should include all users who interact with the system to ensure uniformity and consistency in data handling and reporting.

Incorporate hands-on training sessions and use real-life scenarios in training modules to make learning practical and directly applicable to job functions, addressing the gaps noted in system adoption.

Promote Widespread IFMIS Adoption Across Departments and Ministries: Foster interdepartmental collaboration to ensure full and uniform adoption of IFMIS, beyond just the financial departments. Full adoption will maximize IFMIS's impact on transparency and efficiency, as partial implementation limits its effectiveness. In addition, adequate budgetary allocation can be made for the implementation of IFMIS in all government ministries and spending agencies.

7. Conclusion

The conclusions of this study hinge upon the objective of assessing the impact of IFMIS on service delivery.

The study thus concludes that the technology infrastructure plays a role in IFMIS and service delivery albeit minimal as the results indicated that this was not statistically significant. Therefore, the null hypothesis could not be rejected. There is therefore need for the government to enhance technology infrastructure in order to improve the efficiency of service delivery in the public sector. This reaffirms the technology acceptance model that highlights that adoption of any innovation especially technology based requires investments in infrastructure to support decision making, planning and communication.

The study also concludes that IFMIS training plays a significant role in improvement of service delivery. This reaffirms the diffusion of innovation theory as employees trained in IFMIS are more inclined to use the system in the day-to-day activities indicating the adoption of the system. In addition, training acts as a communication of the technology that in time diffuses through the organization as is evidenced by the use of IFMIS across various functions in government ministries and spending agencies including but not limited to accounting and finance, IT, budgeting, procurement and audit. The government must therefore enhance the skillsets of employees and ensure that adequate training is conducted on the functionality of IFMIS to obtain maximum benefits from the system.

Further, the study concluded that IFMIS adoption and implementation has also significantly improved service delivery. This has enhanced customer satisfaction,

improved decision making, improved work output and increased efficiency in service delivery. This reaffirms the technology acceptance model as the acceptance of IFMIS has led to improved effectiveness in delivery of public services. However, continuous improvements can be made by ensuring the functionality of the system is well explored and tailored to the needs of the government in order to further enhance the efficiency with which services are delivered. This can be done through a lessons learned analysis across all government ministries.

The study proposes that a broader scope of study across different sectors and regions, an assessment of the impact of emerging technologies on IFMIS, an evaluation of the long-term impact of IFMIS on transparency and accountability, investigation of user experience and system usability, a study focused on financial data security and cybersecurity risks.

8. Limitations

This study encountered several limitations that may have impacted the depth and generalizability of the findings.

Firstly, the reliance on self-reported data from public sector personnel could introduce bias, as participants may have responded in ways that reflect positively on their departments or roles, particularly given the sensitivity surrounding public financial management topics.

Secondly, the study was conducted within a limited timeframe, which constrained the ability to conduct longitudinal analysis on the impact of IFMIS over an extended period. A longer timeframe would have provided a clearer picture of IFMIS's effects on financial performance and system adoption trends.

Additionally, access to comprehensive financial data and government reports was restricted in some instances due to confidentiality policies, which may have limited the analysis of IFMIS's full impact on transparency and accountability. Geographically, the study focused on Zambia, which limits the applicability of findings to other countries with different regulatory environments, technological capabilities, and institutional structures.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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